Comparative Country Studies
Volume 4, Number 2 2021

Integrated care for chronic diseases in Asia Pacific countries

Editors: Chang Liu, and Shenglan Tang

Asia Pacific Observatory
on Health Systems and Policies

Comparative Country Studies
Volume 4, Number 2 2021

Integrated care for chronic diseases in Asia Pacific countries

Editors:
Chang Liu
Shenglan Tang

Asia Pacific Observatory
on Health Systems and Policies

World Health Organization Regional Office for South-East Asia
Integrated care for chronic diseases in Asia Pacific countries
Comparative Country Studies. Vol-4, Number 2
ISBN 978-92-9022-891-2

Suggested citation: Liu C and Tang S. Integrated care for chronic diseases in Asia Pacific countries. New Delhi: World Health Organization Regional Office for South-East Asia; 2021.

Cataloguing-in-publication (CIP) data. CIP data are available at http://apps.who.int/iris/.

Contents

List of figures

List of tables

Acknowledgements

The report is part of the project "Integrating Hospital Care with Primary Care and Post-Acute Care for People with Chronic Diseases: Case Studies in Singapore, China, the Philippines, India, Viet Nam and Fiji", conducted by ACCESS Health International in collaboration with the Duke Kunshan University, Fiji National University and Hanoi Medical University, and fully supported by the Asia Pacific Observatory on Health Systems and Policies (APO).

The team would like to express deep appreciation for our research partners in the six countries, whose feedback and insights have been invaluable. We would also like to sincerely thank the experts from all the study countries who participated in the interview or helped in the case study, for their contribution to the collection of primary data and secondary information. In the process of writing this report, the team conducted numerous in-depth interviews with several policy-makers, academic leaders and health practitioners across the six countries. Without their insights and support, the project would have not been possible.

Finally, the authors would also like to thank the three external reviewers – Phyllida Travis and Thaksaphon Thamarangsi (World Health Organization Regional Office for South-East Asia), Soong-nang Jang (Chung Ang University, South Korea), Ms Radhika Arora and Dr Nima Asgari-Jirhandeh from APO secretariat for their valuable comments and insights, which helped in shaping the final version of the book.

This publication is based on research jointly funded by APO and the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors alone and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation nor that of WHO.

Author team

Editors

Chang Liu, Managing Director for Singapore and Mainland China, ACCESS Health International

Shenglan Tang, Mary & James Semans Professor of Medicine and Global Health, Deputy Director of Duke Global Health Institute

Chapter 1: Study background, objectives and study design

Hanwen Zhang, Research Manager, ACCESS Health International, Shanghai, China

Chapter 2: Overview of integrated health-care programmes on chronic diseases in six countries in the Asia Pacific region

Kamilla Anna Pinter, MSc, Duke Kunshan University, China

Hanwen Zhang, Research Manager, ACCESS Health International, Shanghai, China

Chang Liu, Managing Director for Singapore and Mainland China, ACCESS Health International

Chapter 3: Integrated care in China

Hanwen Zhang, Research Manager, ACCESS Health International, Shanghai, China

Chang Liu, Managing Director for Singapore and Mainland China, ACCESS Health International

Chapter 4: Integrated care in Fiji

Vikash Sharma, Assistant Professor (Internal Medicine), School of Medical Sciences, Fiji National University

Chapter 5: Integrated care in India

Prashanthi Krishnakumar, Assistant Programme Manager, ACCESS Health International, India

Anuradha Katyal, Technical Specialist – Research, ACCESS Health International, India

Maulik Chokshi, Director, Health Systems, ACCESS Health International, India

Chapter 6: Integrated care in the Philippines

Emmanuel Yujuico, Senior Consultant, ACCESS Health International, Philippines

Arianne Zamora, Project Development Officer, ACCESS Health International, Philippines

Karlo Buot, Programme Coordinator, ACCESS Health International, Philippines

Miguel Marasigan, Programme Manager, ACCESS Health International, Philippines

Chapter 7: Integrated care in Viet Nam

Bach Xuan Tran, Associate Professor, Institute for Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Viet Nam

Giang Thu Vu, Research Manager, Institute for Preventive Medicine and Public Health, Hanoi Medical University, Hanoi, Viet Nam

Chapter 8: Integrated care in Singapore

Hanwen Zhang, Research Manager, ACCESS Health International, Shanghai, China

Chang Liu, Managing Director for Singapore and Mainland China, ACCESS Health International

Chapter 9: Reflections on integrated care for people with chronic diseases in Asia Pacific countries

Chang Liu, Managing Director for Singapore and Mainland China, ACCESS Health International

Hanwen Zhang, Research Manager, ACCESS Health International, Shanghai, China

Abbreviations

A&E	accident and emergency
AIC	Agency for Integrated Care
ANM	auxiliary nurse midwife
APO	Asia Pacific Observatory
ASHA	accredited social health activist
AYUSH	Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy
BHS	barangay health station
CCM	Chronic Care Model
CHC	community health centre/care
CNY	Chinese yuan renminbi
COPD	chronic obstructive pulmonary disease
CPC	Communist Party of China
CSN	clinical services network
CSR	corporate social responsibility
CVD	cardiovascular disease
CWM	Colonial War Memorial (Hospital)
DFAT	Department of Foreign Affairs and Trade
DoH	Department of Health
DOHA	Direction of Healthcare Activities
EMR	electronic medical record
EPI	Expanded Programme on Immunization
GDP	gross domestic product
GP	general practitioner
HCPN	health-care provider network
HWC	health and wellness centre
ICP	Integrated Care Pathway
ICT	information and communications technology
IEC	information, education and communication

ILHZ	inter-local health zone
IMCI	integrated management of childhood illnesses
IT	information technology
JCI	Joint Commission International
LMICs	low- and middle-income countries
MCH	maternal and child health
MMR	maternal mortality ratio
MoH	Ministry of Health
NCD	noncommunicable disease
NCMS	New Cooperative Medical Scheme
NGO	nongovernmental organization
NHG	National Healthcare Group
NICCA	National Integrated Cancer Control Act
NPCDCS	National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke
NRHM	National Rural Health Mission
NTP	national target programme
OOP	out-of-pocket
PCIC	people-centred integrated care
PHC	primary health centre
Php	Philippine peso
PMJAY	Pradhan Mantri Jan Arogya Yojana
PPP	public–private partnership
PRISMA	Program of Research to Integrate the Services for the Maintenance of Autonomy
RHU	rural health unit
SDN	service delivery network
SHI	Social Health Insurance
SingHealth	Singapore Health Services
SLMC	St Luke's Medical Center
SPICE	Singapore Programme for Integrated Care for the Elderly

TB	tuberculosis
TIA	transient ischaemic attack
UHC	universal health coverage
UK	United Kingdom
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	US Agency for International Development
VHSNC	village health sanitation and nutrition committee
VND	Vietnamese dong
WHO	World Health Organization

Executive summary

In the Asia Pacific region, by 2050, one fourth of the population will be 60 years old or older, driven by declining fertility and increased longevity. Along with ageing of the population, the World Health Organization (WHO) predicted that a 20% increase in deaths due to noncommunicable diseases is expected in the Asia Pacific between 2010 and 2020. Many health systems in Asia focus on hospital-based acute care and treatment of disease, which does not adequately address the emerging challenges posed by ageing populations. As noncommunicable diseases become more prevalent, the need for comprehensive and continuous care is urgent. Shifting the focus from hospital care to ensuring care coordination and continuity of care across primary, hospital and post-acute settings is recommended as an important response to the ageing population and management of chronic disease.

Integrated care seeks to improve health-care delivery systems to ensure that patients receive appropriate, equitable and affordable health-care services. Integrated care models on chronic diseases have been developed and widely implemented in Europe and North America, and are emerging increasingly in the Asia Pacific region. In 2016, WHO issued a framework on integrated people-centred health services, which provided strategies to restructure the way health services were funded, managed and delivered. In this framework, empowerment of individuals and communities, participatory governance and mutual accountability, improvement of health service delivery, care coordination and favourable environment are identified as five key strategies to achieve the delivery of integrated care. Another widely adapted conceptual framework for integrated care is the Valentijn model. In this model, integration of care occurs in six dimensions – systemic integration, organizational integration, functional integration, professional integration, service integration and normative integration.

Many countries in the Asia Pacific region have implemented and piloted integrated care programmes. Countries in the region would benefit from cross-sharing experiences and best practices of integrating hospital care with primary care and post-acute care. The objective of this study is

to present existing cases and the development of integrated care in six countries of the Asia Pacific Region (China, Singapore, Philippines, India, Viet Nam and Fiji), to analyse the implementation of integrated health care, and to identify the facilitators of and barriers to implementation to improve existing cases and inform future cases. It is based on the findings of a combination of desk-based research, in-depth key informant interviews and deep-dive case studies.

Findings of the scoping review (Chapter 2) identified important facilitators of and barriers to design and implementation. The scoping review identified a total of 87 integrated care programmes for chronic diseases in all countries, with 44 in China and 21 in Singapore. Financial incentives were found to play a crucial role in facilitating integrated care and ensuring the sustainability of programmes. In many cases, the performance of programmes had not been adequately assessed.

Chapters 3 to 8 introduce the context of each country's health systems, provide an overview of the development of integrated care, as well as present detailed case studies and policy recommendations in the country. Chapter 9 summarizes the findings on care integration in the study countries, and provides policy implications for the development, evaluation and successful implementation of integrated care models.

Among the six countries, Singapore has the longest history of integrated care since the 1970s. In the city-state, development has accelerated in recent decades, backed by stronger political will, financial support and resources. In China, the integrated care movement started from 2009, since the "hierarchical medical system" has been in place. This then later evolved into the "regional medical consortium" model (2013), and the "people-centred integrated care model" (2016). In Fiji, reforms such as the Clinical Service Planning Framework were initiated since the 1990s to focus effort into promoting people-centred primary care and advocating for health as a shared responsibility requiring intersectoral collaboration among important stakeholders and the general populace. The plan of integration in Philippines was started in the 1990s with the initiative of the Inter-Local Health Zone. In the 2010s, the service delivery networks and the health-care provider network emerged from the Inter-Local Health Zone across

different public health facilities at the primary, secondary and tertiary levels. The 2019 Universal Health Care Act designates these plans as a national priority. Compared with the other four countries, India and Viet Nam have a shorter history of integrated care.

The levels of integration vary across the different countries. In Singapore, the design of integrated care covers coordination across a wide range of health-care providers, including community medical care, general practitioners, polyclinics, acute hospitals, rehabilitation centres, and daycare centres, extending to social care and mental care services. In China, the design of integrated care models is mainly vertical, with integration across primary, secondary and tertiary health-care institutions. Public–private partnership is a key feature of integrated care in China. In India, integrated care among the primary, secondary and tertiary levels of care is dependent on the degree of "linkage". Philippines formulated a vertical integrated care model, with primary care providing the entry point into the national health system. Instead of full integration, the Philippine situation of integrated care may better be characterized as one of "coordination". Fiji had a well-established clinical, transitional and administrative pathway from generalist to specialist care in its vertical integration. Horizontal integration in Fiji exists at the primary care levels with preventive and curative services. Viet Nam lacks a comprehensive integrated care system to fully address the increase in NCDs. However, Viet Nam established "linkage integration" such as the patient referral system between health facilities across different levels.

We selected nine specific integrated care programmes as case studies for more detailed analysis. These cases are the Karuna Trust (India), National Geriatric Hospital and National Cardiology Institute in Bach Mai Hospital (Viet Nam), Maternal and Child Health services (Fiji), patient-centred integrated care at the Medical City, and the Memory Center at St Luke's Medical Center (Philippines); Xiamen Hierarchical Diagnosis and Treatment System, and Tianchang County Medical Alliance (China), SingHealth Regional Health-care System (Singapore). For each case study, a series of interviews with key stakeholders were conducted to analyse the integrative processes and the levels of integration of the selected

cases, evaluate the care integration cases, and identify the barriers to and facilitators of successful implementation of the cases.

Drivers and triggers. Population ageing and the rising burden of chronic diseases, rising health systems cost, and imbalanced resources between acute care and primary care have been identified as key drivers in study countries. The overwhelming demand of hospital care and "bed crunches" have been common triggers.

Beneficiaries, advocators and objectors. While beneficiaries are consistently identified as the general population, financially disadvantaged patients and primary care workers, the advocators and objectors vary by country. In Singapore, China and Philippines, the advocators involve the government or governmental departments. In India and Philippines, non-profit organizations, lawmakers or civil society facilitate integrated care reforms. Other advocators include health-related industries in India as well as health-care providers and specialist clinical groups in Fiji. Objectors in the six countries include health-related departments, institutions, companies or individuals whose own interests are affected by care integration.

Early performance of integrated care. Indicators specific to measuring the performance of integrated hospital care with primary and post-acute care for people with chronic diseases are lacking and severely restricted. In the SingHealth Regional Health System (Singapore), the performance data on most new initiatives are systematically collected, and the health services and evaluation division support performance evaluations of the initiatives. Early results show positive performances. In Tianchang County Medical Alliance (China) and Hierarchical Diagnosis and Treatment System (Xiamen, China), the data were collected from the local government, publications and patients' interviews to evaluate the performance of integrated care. The research team found some small improvements in the capability of primary health-care institutions and an increase in the public understanding of the referral system. Based on qualitative data collected from expert interviews, the Maternal and Child Health (MCH) services programme in Fiji has been showing some positive outcomes in terms of providing access and care coordination. In India, the Karuna Trust has a strong electronic system, which facilitates collection of data to evaluate and

improve performance. Access to care has improved and health indicators have also improved, for example, the infant mortality rate and maternal mortality rate have decreased in areas where the Karuna Trust has been active. There is a lack of performance evaluation of integrated care in Viet Nam and Philippines, which needs to be developed in the future.

Barriers and facilitators. Some barriers identified included a lack of supporting policies or contradictions between policies at different levels, and lack of commitment in government and/or local administration. Limited public awareness and social stigma in the community and instability such as regular displacement of patients or conflict in the region also undermine the success of care integration. A lack of financial incentives affects the participation of both users and providers in integration programmes. Additional barriers include a shortage of professionals, lack of training, expertise and/or mentorship, and lack of patient engagement. Facilitators of integration consist of rules and policies that facilitate an environment promoting the integration of care and making integration possible. Strong leadership and political commitment as well as community engagement also act as strong facilitators of these programmes. Another important facilitator is a payment system that incorporates financial incentives. Non-financial incentives for both providers and patients were also identified.

The following are some policy considerations for the development, evaluation and successful implementation of integrating hospital care with primary care and post-acute care.

First, transformation to integrated care requires both top-down commitment and consideration of local flexibility.

Second, for countries interested in the transformation to integrated care, it is important to align both financial and non-financial incentives to enable behaviour changes for administrators, clinicians and patients.

Third, capacity development for primary care workers, community care workers and care coordinators is a cornerstone for integrated care in Asia. An important difference between integrated care programmes in Western

countries and Asia is the care coordinator. Our study found that care coordinators were not present in many programmes in Asia.

Fourth, accurate health information has the ability to transform health services by providing sound data to guide decision-making. There is an urgent need to upgrade the current health information system and increase its functions, availability and accessibility.

Fifth, governments may strengthen public education and tailored training to promote the concept and culture of "integrated medical care" and "health-centred care".

Last but not the least, to better understand the value of integrated care and develop strategies for implementation, more systematic performance assessment of integrated care programmes is essential.

Part I

Integrated care for people with chronic diseases: an introduction

Chapter 1: Study background, objectives, design and methodology

Hanwen Zhang

Background

According to the World Health Organization (WHO), hospital care consumes up to 50–60% of total health expenditure. Approximately US$300 million is lost per year globally due to hospital-related inefficiencies [1]. In 2017, the World Bank and WHO estimated that globally, half of the world's population lacks access to essential health care. Medical resources are far from sufficient to satisfy patients' needs, while utilization is also inefficient [2]. In the Asia Pacific region, one in four people will be 60 years or more of age by 2050. By then, the expected number of elderly people will more than double to 1.3 billion, driven by declining fertility and increased longevity [3]. Along with an ageing population, WHO predicts a 20% increase in deaths due to noncommunicable diseases (NCDs) in the Asia Pacific region between 2010 and 2020, which is higher than the 15% increase expected in some other regions [4].

Currently, many health systems focus on hospital-based acute care and treatment of disease. This does not adequately address the emerging challenges thrown up by ageing populations, increasing burden of NCDs, multimorbidities and increasingly unhealthy lifestyles, driving rising health-care costs and compromising the quality of health care [2,5,6]. The persistence and complex nature of these issues calls for a comprehensive response over a sustained period of time, which is not easily delivered by hospital models of care focusing on acute issues and single episodes [2,6].

As NCDs become dominant in terms of fatality and morbidity in a rapidly ageing population, the need for comprehensive and continuous care is urgent. In addition, constrained medical resources prompt countries, especially the more disadvantaged developing countries, to find ways to optimize their health-care systems [7]. Shifting the focus from hospital care and ensuring care coordination and continuity of care across primary, hospital and post-acute settings is recommended as an important response to the ageing population and management of chronic diseases.

Integrated care is defined as "the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs over time and across different levels of the health system" [8]. Integrated care needs to be increasingly established

and implemented. Integrated care is promising, not only for quality improvement but also for cost reduction. In most cases, this is achieved by enhancing the role of primary- and community-based care over specialized and hospital-based models [9]. First, fragmentation of care adversely affects the care delivered to patients with chronic disease and is a serious deterrent to treating patients appropriately in health-care settings other than acute-care hospitals. Care coordination and integration programmes have been shown to have a positive impact on health outcomes (including quality of life, independence, functionality and general well-being) as well as patient satisfaction and user experience. Second, service integration has been shown to relieve pressure on acute-care hospitals and reduce societal costs. Avoidable hospitalizations put very high pressure on acute hospital-centric health-care systems and contribute to soaring health-care expenditure. Better integrated care allows patients with chronic diseases to receive timely treatment and avoid unnecessary hospitalization or other adverse events. It also improves the efficiency of the health-care system [10].

Delivery of integrated care is more complex and needs effective communication, shared values and goals and strong leadership, which are all elements that facilitate the process of care integration. In 2016, WHO issued a framework on integrated people-centred health services, which provided strategies to restructure the way in which health services were funded, managed and delivered. In this framework, the five key strategies identified to achieve delivery of integrated care are empowerment for individuals and communities, participatory governance and mutual accountability, improvement of health service delivery, care coordination and a favourable environment [10]. Another main conceptual framework for integrated care is the Valentijn model. According to the Valentijn model, integration of care occurs in six dimensions: (i) systemic integration, (ii) organizational integration, (iii) functional integration, (iv) professional integration, (v) service integration, and (vi) normative integration (Table 1.1). Specific elements of integration are present in the six dimensions of integrated care identified above, including multidisciplinary teams, care coordinator/care manager, information-sharing system, risk stratification, referral system, defined eligibility criteria, single point of patient referral, single assessment, formulation of health plan, use of telehealth, engaging users, self-management support and support for informal carers [11].

Till the early 2010s, efforts at integration of health care were most extensively undertaken in North America and Europe [12]. For example, the Program of Research to Integrate the Services for the Maintenance of Autonomy (PRISMA), launched in Canada in 1999, improved the health efficiency and satisfaction level of elderly people through service coordination, single-entry point and assessment tool, case management, individualized service plan and a shared information system [13]. In 2013, the Connecting Care in Cheshire Pioneer Programme was developed in the United Kingdom (UK) to help integrate services in local areas. With the key elements of transitional care, self-management, stronger communities, continuing health care and shared care records, the Programme aims to provide consistent, high-quality, personalized and non-fragmented care and support to individuals and families in Cheshire [14].

Recently, due to the acknowledged benefits, many countries in the Asia Pacific region have also implemented and piloted integrated care programmes. These vary in their levels of integration, from linkage to coordination to full integration [5]. For example, in 2010, India launched the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) to prevent and control the major chronic diseases [15]. Referral and communication between hospital and primary care systems are enhanced through purposefully established NCD cells without any structural change of existing organizational units. Initial attempts to promote care integration have been surfacing in other less developed countries in the region, such as Viet Nam, Fiji and the Philippines. In 2010, the Philippines' government introduced a universal health-care scheme called Kalusugan Pangkalahatan to improve inequality in access to health care across different socioeconomic groups [16]. The scheme is designed to improve care coordination among various constituents of the health system through the adoption of common technology standards and the provision for encouraging referral mechanisms [17]. Another model of care integration – "medical consortium" – has been developed and piloted in China since 2009 to address the unequal distribution of medical resources across geographical areas and to strengthen primary health care [17]. A medical consortium involves coordination among public tertiary hospitals, secondary hospitals and community health-care centres through clinical information-sharing

and transition management of patients between different units [18]. However, in the medical consortium model, resources are not formally pooled from multiple organizations and multiple disciplines [18]. As one of the leaders of integrated care in the region, Singapore is systematically transforming its public hospital clusters into a regional health-care systems' model to better integrate primary, intermediate- and long-term care services under one roof. Singapore's Agency for Integrated Care was created in 2009. It works to have providers at all levels coordinate their efforts on behalf of the patient [19].

With rapid population ageing and the rising burden of chronic diseases, countries in the Asia Pacific region would benefit from cross-sharing experiences and best practices of integrating hospital care with primary care and post-acute care. However, little evidence exists in the region to analyse the implementation of integrated health care [20]. It is important to identify and analyse existing cases of integrated care and the facilitators and barriers in order to improve existing cases and inform future cases.

Study objectives and research questions

This report presents the development of integrated care in six countries of the Asia Pacific region – China, Singapore, Philippines, India, Viet Nam and Fiji. The aim of the study is to investigate some care integration cases in these countries, thereby providing new knowledge about care integration in the region for intercountry learning, producing practical advice and understanding policy implications that will help people with chronic diseases, health practitioners, hospital managers, case managers and policy-makers. The objectives of the study are:

- to identify some innovative cases of integrating hospital care with primary care and post-acute care in the selected countries, with particular focus on the cases designed to integrate care for people with chronic diseases;
- to analyse the integrative processes of the cases identified under a standardized conceptual framework of integrated care;

- to select a set of structure–process–outcome indicators that are suitable for evaluating the performance of care integration cases in the region and to assess the performance of the cases identified;
- to identify barriers and facilitators to successful implementation of the cases;
- to generate evidence-informed policy implications for the development, evaluation and implementation of integrating hospital care and primary and post-acute care in the region, especially in low- and middle-income settings.

Specific research questions of this study are as follows:

- What are some innovative cases of integrating hospital care with primary and post-acute care in the selected countries?
- What were the integrative processes like in the identified cases?
- How have the care integration cases been performing?
- What are the barriers and facilitators to successful implementation of the cases?

Study design and methodology

The following countries were included in this study: Singapore, China, Philippines, India, Viet Nam and Fiji. The selected countries represent a good mix of lower-middle-income (Philippines, India and Viet Nam), upper-middle-income (China and Fiji) and high-income (Singapore) countries in the region based on the latest World Bank classification of economies. Through maximizing the demographic, epidemiological and economic diversity of the selected countries, the research team increased the relevance of documented cases in the region, especially in low- and middle-income settings.

A combination of desk-based research and key informant interviews was used in this case study. The study consisted of four stages (Fig. 1.1):

- In Stage 1, before the in-depth analysis for each study country, a scoping review was carried out for listing candidate innovative cases of integrating hospital care with primary and post-acute care

to generate a regional perspective and a list of cases of integrated care in the selected countries (the results are summarized in Chapter 2). The research team also conducted desk-based research to summarize the country profiles. Information and data on geography and sociodemography, economic context, political context, health-care system and burden of chronic diseases were collected and summarized through the databases of the World Bank Group, WHO, the Commonwealth and additional literature reviews.

- In Stage 2, the research team conducted 12–18 in-depth interviews with experts from study countries to select indicators for case determination and performance evaluation. Targeted experts for interviews included local policy-makers, academic leaders in health policy and health practitioners (see the questionnaire and list of interviewees of in-depth interviews in Appendix B). Based on the list of candidate innovative cases from the scoping review and Donabedian Quality Assurance Model, i.e. structure–process–outcome framework for the development of indicators, cases for deep-dive study in Stage 3 and indicators for evaluating the performance of care integration were selected (see the list of candidate innovative cases and indicators in Appendix C).
- In Stage 3, the research team conducted deep-dive case studies through 30–40 interviews with key stakeholders to analyse the integrative processes and the levels of integration of the selected cases, evaluate the cases identified for care integration, and identify the barriers and facilitators to successful implementation of the cases. For each innovative case, a group of key stakeholders was selected, which included senior hospital managers, senior managers of primary and post-acute care providers, care managers or team members of care integration teams, health-care users and local policy-makers (see the questionnaire and the list of interviewees of deep-dive case studies in Appendix D).
- To analyse the integrative processes of the cases, evaluate care integration cases and identify the barriers and facilitators to successful implementation of the cases, the research team collected data from three sources: literature review, relevant aggregate second-hand data and semi-structured in-depth interviews with key stakeholders.

Valentijn et al.'s conceptual framework of care integration was used for the analysis of integrative process of the cases. Data for performance evaluation of the care integration cases, and information on key barriers and facilitators to successful implementation of the cases were also analysed [11]. As illustrated in Table 1.1, in line with a people-centred approach, Valentijn et al.'s framework identified different levels and types of integration. Functional and normative integration ensures connectivity across macro (systemic), meso (organizational and professional) and micro (clinical/service) levels.

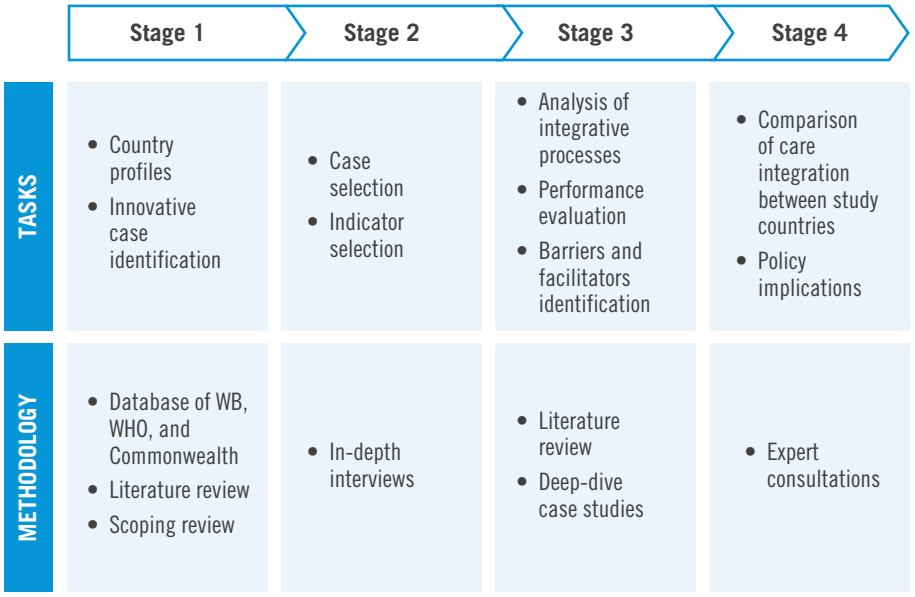
- In Stage 4, the team made summaries and held discussions on care integration in the study countries and consulted the experts for their comments on the outputs from the analyses. Policy implications for the development, evaluation and successful implementation of integrating hospital care with primary care and post-acute care were drawn based on previous analyses, together with additional inputs from expert consultations.

Table 1.1 Typology of integration

Integration	Definition	Example
Systemic	The alignment of rules and policies within a system	Partnerships that pass through the boundaries of the "cure" and "care" sectors
Organizational	The extent to which organizations coordinate services across different organizations	Joint governance and accountability arrangements
Professional	The extent to which professionals coordinate services across various disciplines	Multidisciplinary teams
Service	The extent to which care services are coordinated	The use of shared guidelines and protocols
Functional	The extent to which back-office and support functions are coordinated	Information and communications technology
Normative	The extent to which mission and work values are shared within a system	Shared cultural values

Source: Valentijn et al. (2013)

Fig. 1.1 Study design and methodology



Source: Author's summary

References

[1] WHO Global Health Expenditure Atlas. Geneva: World Health Organization; 2014 (https://www.who.int/health-accounts/documentation/atlas.pdf, accessed 24 February 2020).

[2] WHO, World Bank. Tracking universal health coverage: first global monitoring report. Geneva: World Health Organization; 2015 (https://www.who.int/health_financing/documents/tracking-uhc/en/, accessed 24 February 2020).

[3] Addressing the challenges of population ageing in Asia and the Pacific. Bangkok: United Nations Economic and Social Commission for Asia and the Pacific; 2017 (https://www.unescap.org/publications/addressing-challenges-population-ageing-asia-and-pacific-implementation-madrid, accessed 24 February 2020).

[4] Global status report on noncommunicable diseases 2010. Geneva: World Health Organization; 2011 (https://www.who.int/nmh/publications/ncd_report2010/en/, accessed 24 February 2020).

[5] Tham TY, Tran TL, Prueksaritanond S, Isidro JS, Setia S, Welluppillai V. Integrated health care systems in Asia: an urgent necessity. Clin Interv Aging. 2018;13:2527–38.

[6] Modern healthcare delivery systems, care coordination and the role of hospitals. Compiled report of the workshop organized by the Belgium Federal Public Health Service and WHO Europe, Brussels, Belgium, 21–22 November 2011 and the internal expert WHO meeting on roadmap development, Copenhagen, Denmark, 12 January 2012. Copenhagen: WHO Regional Office for Europe; 2012.

[7] The Accra Agenda for Action. Paris: Organisation for Economic Co-operation and Development; 2008 (http://www.oecd.org/dac/effectiveness/parisdeclarationandaccraagendaforaction.htm accessed 25 February 2020).

[8] Technical Brief No 1. Integrated health service – what and why? Geneva: World Health Organization; 2008 (https://www.who.int/healthsystems/service_delivery_techbrief1.pdf accessed 25 February 2020).

[9] Mounier-Jack S, Mayhew SH, Mays N. Integrated care: learning between high-income, and low- and middle-income country health systems. Health Policy Plan. 2017;32(Suppl_4):iv6–iv12.

[10] Framework on integrated, people-centred health services. Geneva: World Health Organization; 2016 (https://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_39-en.pdf?ua=1, accessed 25 February 2020).

[11] Valentijn P, Schepman M, Opheij W, Bruijnzeels A. Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. Int J Integr Care. 2013;3(1). doi: http://doi.org/10.5334/ijic.886.

[12] Sun X, Tang W, Ye T, Zhang Y, Wen B, Zhang L. Integrated care: comprehensive bibliometric analysis and literature review. Int J Integr Care. 2014;14:e017.

[13] Goodwin N, Dixon A, Anderson G, Wodchis W. Providing integrated care for older people with complex needs: Lessons from seven international case studies. Int J Integr Care. 2015;15:e021.

[14] National Health Service England. Integrated care and support pioneer programme – annual report 2014 (https://www.england.nhs.uk/pioneers/wp-content/uploads/sites/30/2015/03/icase-one-year-on.pdf accessed 25 February 2020).

[15] Kumar S, Kaushik A. Non-communicable diseases: a challenge. Indian J. Community Health. 2013;24(4):252–4.

[16] Romualdez A, Lasco G, Lim A. Universal health care in the Philippines. J ASEAN Fed Endocr Soc. 2014;27(2):180.

[17] State Council, Central Committee of the Communist Party of China. Guiding opinions of the General Office of the State Council on promoting the construction of hierarchical diagnosis and treatment system. 2015 (http://www.gov.cn/zhengce/content/2015-09/11/content_10158.htm, accessed 26 February 2020).

[18] Struckmann V, Quentin W, Ginneken E van, Innovative financing methods to improve integrated care delivery for people with multimorbidity: Verena Struckmann. European Journal of Public Health. 2015; 25(3):48.

[19] Cheah J, Kirk-Chua, W, Lim H. Integrated care: from policy to implementation – the Singapore Story. Int. J. Integr. Care. 2012;12(Suppl3).

[20] Chongsuvivatwong V, Phua KH, Yap MT, Pocock NS, Hashim JH, Chhem R et al. Health and health-care systems in southeast Asia: diversity and transitions. Lancet. 2011; 377(9763):429–37. doi: 10.1016/S0140-6736(10)61507-3.

Chapter 2: A scoping review of integrated health-care programmes on chronic diseases in six countries of the Asia Pacific region

Kamilla Anna Pinter, Hanwen Zhang, Chang Liu

To identify innovative cases of integrating hospital care with primary and post-acute care for expert selection at Stage 2 of the study, a scoping review of cases of integrated care was carried out in selected countries (see detailed method of scoping review in Appendix A). In this scoping review, data were extracted from 87 papers and findings were reported based on the case type and characteristics, targeted chronic diseases of the cases, delivery system design, self-management support and clinical information systems. The table of integrated care cases by country is presented in the Appendix C. From the publications identified, 19 were qualitative studies, 19 were a case or framework description, 35 were randomized studies and 17 were observational studies. The scope of implementation, breadth and degree of integration, case attributes and target conditions are presented in Table 2.1.

A structured synthesis and categorization of the selected cases was conducted, based on their characteristics and elements. In this review, the elements of care integration included those specifically related to service delivery, reflecting the key elements adapted from the Chronic Care Model (CCM) proposed by Wagner et al. [1], which has been a popular guideline for integrated health care on chronic disease. The CCM identifies six key elements of cases of comprehensive integrated care – self-management support, delivery system design, decision support, clinical information systems, the health-care system and community resources and policies [1]. Due to the limited availability of data from the included literature, the research team categorized the elements of integration relevant to the cases by delivery system design, self-management support and clinical information systems. Indicators related to performance of integrated care were grouped according to Donabedian's framework for health-care quality consisting of structure, processes and outcomes [3]. Barriers, both financial and non-financial, were identified and discussed to inform future cases of integrated care.

Case type and characteristics

The type of care integration within a case is defined by the breadth of integration (horizontal, vertical or both) and the degree of integration (full integration, coordination or linkage). Of all cases identified, the breadth of integration was vertical for 31 cases, horizontal for 13, both vertical and horizontal for 23 and unknown for 20. Regarding the degree of integration,

six of the cases were fully integrated, 29 were coordinated, 22 described a linkage, and were unknown for 24.

The scope of implementation of the cases varied, with 21 having a national scope, 63 regional and three cases unknown. Most cases (n=62) were public; only three were private and 19 cases had both public and private attributes. The integrated care cases targeted the general population suffering from chronic diseases, specific chronic conditions or more than one disease. Twenty-five cases targeted the general population with NCDs, 52 targeted patients with individual diseases and 10 targeted those with multiple diseases (Table 2.1).

Table 2.1 Basic characteristics of integrated care cases from scoping review

	Programme characteristic	Total (=87)	Country (N=)					
			China (=44)	India (=12)	Singapore (=21)	Fiji (=1)	Viet Nam (=5)	Philippines (=4)
Scope of implementation	National	21	2	12	5	1	1	/
	Regional	63	41	/	14	/	4	4
	Unknown	3	1	/	2	/	/	/
Breadth of integration	Horizontal	13	6	2	1	/	3	1
	Vertical	31	20	1	6	/	1	3
	Both	23	5	9	7	1	1	/
	Unknown	20	13	/	7	/	/	/
Degree of integration	Full	6	/	3	1	/	/	2
	Coordination	29	16	2	9	/	1	1
	Linkage	22	13	3	2	/	3	1
	Coordination & Linkage	6	/	4	1	/	1	/
	Unknown	24	15	/	8	1	/	/
Programme attribute	Public	62	36	2	15	1	5	3
	Private	3	2	1	/	/	/	/
	Public & Private	19	5	9	4	/	/	1
	Unknown	3	1	/	2	/	/	/
Target condition	General NCDs	25	14	2	8	1	/	/
	Individual Diseases	52	26	5	12	/	5	4
	Multiple Diseases	10	4	5	1	/	/	/

Source: Authors' summary

Targeted chronic diseases/conditions by country

Out of the total number of integrated care cases on chronic diseases, China had the highest number of cases identified in the literature (n=44). Twenty-one cases were identified in Singapore, 12 in India, five in Viet Nam, four in Philippines and only one case was identified in Fiji. The eCROPS[1] integrated care programme in China, the Integrated Care Pathway (ICP) case in Singapore and the Singapore Programme for Integrated Care for the Elderly (SPICE) were found to be described in more than one publication. All other cases in the other countries were described in single publications only. In most study countries, including China, India, Singapore and Fiji, the number of integrated care cases addressing broad categories of NCDs was higher than the number of cases addressing any other individual disease or a few specific chronic diseases. Table 2.2 presents the diseases targeted by the integrated care cases on chronic diseases by country.

Table 2.2 Number of integrated care cases by country and disease in the scoping review

Disease	Country (N=)					
	China (=44)	India (=12)	Singapore (=21)	Fiji (=1)	Viet Nam (=5)	Philippines (=4)
General population with NCDs	14	2	8	1	/	/
Diabetes	5	/	3	/	/	2
Tuberculosis	3	/	/	/	/	1
Hip fractures	/	/	3	/	/	/
COPD	3	/	2	/	/	/
Hypertension	3	/	/	/	/	/
Cancer	2	2	/	/	/	/
Dementia	/	/	2	/	/	/
HIV	4	1	/	/	4	/
STD	1	/	/	/	/	/
End-stage renal failure	1	/	/	/	/	/

[1] eCROPS stands for educating doctors and electronic supports, Counseling diabetes prevention, Recipe for lifestyle modification, Operational toolkit, Performance-based reimbursement for doctors and Screening service

Table 2.2 Number of integrated care cases by country and disease in the scoping review (contd)

Disease	Country (N=)					
	China (=44)	India (=12)	Singapore (=21)	Fiji (=1)	Viet Nam (=5)	Philippines (=4)
Pre-term infants	1	/	/	/	/	/
CVD	1	/	/	/	/	/
Mental-health disorders	1	1	/	/	1	1
Coronary health disease	/	1	/	/	/	/
Cardio-metabolic syndrome	1	/	/	/	/	/
Rheumatic diseases	/	/	1	/	/	/
Osteoporosis	/	/	1	/	/	/
Palliative care	/	/	1	/	/	/
Schizophrenia	1	/	/	/	/	/
Multiple above conditions	4	5	/	/	/	/

Source: Authors' summary

Elements of integrated care delivery

The service delivery elements of the cases extracted from the literature were summarized in the scoping review. Table 2.3 shows a summary of the elements of integrated care on chronic diseases by country, divided according to three dimensions of integration adapted from the CCM, i.e. delivery system design, clinical information system and self-management support.

While all the integrated care cases on chronic diseases included in the scoping review focused on clinical care, many also included broader and non-clinical elements of public health, namely, health promotion and disease prevention activities. All three dimensions of care integration included elements of public health. Delivery system design included health-care providers often providing patients with lifestyle coaching and educational material to promote their health and well-being. Within clinical information systems, telehealth is often used to facilitate lifestyle changes and provide patients with motivation. Finally, in some cases, both patients and informal carers received coaching to promote control of the patients' condition and prevent future episodes.

Table 2.3 Summary of the elements of integrated care found in the models identified from the literature

Dimensions of integration	Elements of integration	Total (=87)	Country (N=)					
			China (=44)	India (=12)	Singapore (=21)	Fiji (=1)	Viet Nam (=5)	Philippines (=4)
Delivery system design	Multidisciplinary team	63	26	12	19	/	2	4
	Care coordinator/care manager	43	18	5	14	/	3	3
	Referral system	30	16	2	8	/	1	3
	Defined eligibility criteria	33	11	8	9	/	2	3
	Risk stratification of patients	19	8	4	5	/	/	2
	Single assessment	11	/	3	6	/	2	/
	Formulation of health plan	35	14	6	12	/	/	3
Clinical information system	Information sharing system	33	20	5	6	/	/	2
	Use of telehealth	28	15	2	9	/	1	1
Self-management support	Engaging users	34	17	1	12	/	2	2
	Self-management support	42	22	5	12	/	/	3
	Support of informal carers	17	5	5	3	/	2	2

Source: Authors' summary

Delivery system design

The majority of integrated care elements identified within the cases fell under delivery system design (Table 2.3). Since a health-care delivery system includes service provider personnel, some service delivery elements of care integration are directly related to professional care providers. A multidisciplinary team reflects the integration of various service providers, and the care coordinator or case manager is responsible for patient

support, care planning and ensuring that transfer of patients between care settings occurs smoothly and efficiently. From the cases identified, 63 cases described the involvement of a multidisciplinary team and 43 mentioned the involvement of a care coordinator or case manager. Other elements of delivery system design include the existence of a referral system, defined eligibility criteria for the patient population, risk stratification of patients, whether patients undergo a single assessment or are followed up, and the formulation of a health plan. Thirty of the cases were found to have a referral system with a single point of referral, 33 outlined eligibility criteria for patients, 19 described risk stratification of patients, eight had a single point of patient referral, eight included only a single assessment and 35 cases involved the formulation of a health plan.

A multidisciplinary team often means that clinical specialists work together with primary care physicians, or clinical care teams work with social care teams or other patient support. The role of the care coordinator is to ensure seamless transfer of patients between care settings and to oversee the formulation of a patient care plan. A referral system selects patients into the integrated care cases based on the targeted chronic diseases. Risk stratification is important for separating patients based on the likelihood of certain health outcomes, thus predicting use of the health services and need for multiple assessments.

Clinical information system

Another dimension of the delivery of care integration is clinical information systems, which can be further broken down as the use of shared electronic medical records and the use of telehealth (Table 2.3). Thirty-three cases used an information-sharing system and 28 used telehealth. These elements of clinical information systems were often found to facilitate other elements of delivery system design, such as multidisciplinary team and care planning as well as self-management support. Many cases make use of an information-sharing system in the form of electronic health-care data or some customized IT system for storing patient records. Telehealth platforms were used in some cases for engaging patients, monitoring and as an educational and data-sharing platform.

Self-management support

Health care is also integrated at a personal level, defined by directly engaging health service users through self-management and informal and/or community care support (Table 2.3). Thirty-four cases reported engaging users, 42 provided self-management support and 17 supported informal carers. Self-management support is often enabled by other elements of integration such as telehealth, which can also act as an educational platform. Patients are often provided with counselling, coaching and education as well as incentives such as gifts to support self-management. Focus on supporting informal carers involves family members and/or community inpatient care through education, training of cases and/or community mobilization.

Performance assessment of integrated care cases

It is vitally important to assess the performance of these integrated health-care cases of chronic diseases. The research team summarized indicators related to the structure, process and outcome of the cases that were found in the literature and presented these as given in Table 2.4. The performance of the structure of the integrated care cases was mainly assessed based on the proportion of specialists to other doctors, the sharing of medical records between hospitals and other care providers as well as access to medical technology. The performance of the process of the integrated care cases was assessed based on access to health care, i.e. convenience of care utilization, patient waiting time, patient health-seeking pathway, etc., hospital and accident and emergency (A&E) attendances, patient transfers between care providers and care settings, personalized care planning, management of medications and coordination of primary care with other health care. The performance of the integrated cases' outcome was assessed based on the number of hospital readmissions, care utilization, i.e. hospital utilization and social care utilization, quality of life as reported by patient and/or carer, ability to live independently, ability to self-manage the condition, number of adverse health events, patient and/or carer reported satisfaction, transitions in care delivery, i.e. gaps in scheduled care, clear process when moving between care providers, information-sharing between care providers, total cost of care and clinical outcome, i.e. mortality, rate of complications, etc.

Table 2.4 The performance of the integrated care cases measured by Donabedian's framework for health-care quality and chosen indicators

Performance	Indicators	n
Structure	Proportion of specialists to other doctors	1
	Sharing of medical records	1
	Access to medical technology	1
Process	Access to health care	25
	Coordination of primary care with other care	6
	Hospital and A&E attendance	3
	Transferring between care providers and care delivery settings	1
	Personalized care planning	1
	Management of medications	0
Outcome	Clinical outcomes	26
	Patient and carer reported satisfaction	19
	Care utilization	18
	Quality of life	17
	Total cost of care	12
	Ability to self-manage condition	6
	Number of hospital readmissions	6
	Transitions in care delivery	1
	Number of adverse health events	0
	Ability to live independently	0

Source: Authors' summary

Formal performance evaluation of the integrated care cases based on chronic diseases was rarely applied by these studies, especially for structure measures. Overall, only three cases were found to mention indicators related to performance of structure of the models. Access to health care was the indicator related to process most often discussed, and clinical outcomes was the indicator most often discussed in relation to outcomes. Care utilization, quality of life, care satisfaction and total cost of care were also frequently discussed.

Although there are various definitions and forms of integrated care, the increasing trend of integrated care programmes has been recognized in the Asia Pacific countries. However, many studies do not have a rigorous performance evaluation for emerging pilot integrated care programmes. For better understanding the value of integrated care and developing strategies for implementation, more performance assessment of integrated care programmes is essential.

References

[1] Wagner W, Austin BT, Von Korff M. Organizing care for patients with chronic illness. Milbank Q. 1996;74(4):511–44.

[2] Kumar S, Kaushik A. Non-communicable diseases: a challenge. Indian J. Community Health. 2013;24(4):252–4.

[3] Donabedian A. Evaluating the quality of medical care. 1966. Milbank Q. 2005;83(4):691-729.

Part II

In depth country case studies

Chapter 3. Integrated care of chronic diseases in China

Hanwen Zhang, Chang Liu

Key points of integrated care in China

- The integrated care movement in China started in the early 2010s with the development of the "hierarchical diagnosis and treatment system". In the process of implementing various pilots on integrated care in different regions, China has made positive progress. However, challenges remain to health system transformation.
- With strong administrative enforcement at the Central Government level, the promotion of integrated care has taken a top-down approach. Local health systems have been pushing for transformation of integrated care, with the design of integrated care pilots varying from region to region based on local characteristics. Key facilitators of integrated care such as financial incentives and innovations in payment mechanisms are yet to be fully developed.
- In China, the design of integrated care models is mainly based on vertical integration. Vertical interactions across primary, secondary and tertiary health-care institutions are established through medical groups, community medical alliances, specialty alliances and telemedicine collaboration networks.

Basic information on China

Geographical, demographic, economic and political context

Located in east Asia, China is the most populous country in the world, with over 1.3 billion people. In 2013, 14% of the population of China was aged over 60 years [1]. Between 1989 and 2014, the national gross domestic product (GDP) showed an average annual growth rate of 9.75%. In 2012, the per capita GDP reached US$ 6093, making China a middle-income country. Despite the rapid economic ascendance, income gaps have been widening between urban and rural areas, among regions and between different groups of citizens [1,2]. Under the leadership of the Communist Party of China (CPC), the political system consists of multiparty cooperation and political consultation, regional autonomy of ethnic minorities and community-level self-governance. Community-level self-governance is an institutional arrangement whereby grass-roots organizations, including

villages in rural areas and communities in urban cities, are administered by committees that are organized by the communities themselves [1].

Health-care system in China

The Chinese health system, like ones in many other countries, is complex. This sub-section tries to briefly introduce the basics of healthcare financing and service delivery in China. The highest health administrative body is the National Health Commission (formerly the National Health and Family Planning Commission between 2013 and 2018, and the Ministry of Health prior to 2013). The Central Government plays a dominant role in both legislative and administrative decision-making. Local governments at all levels form and implement local plans and decisions based on the principles and directions established by the Central Government.

Health-care financing and coverage

In China today, the total health expenditure represents approximately 6.5% of the GDP, with 49.5% financed through public sources [3]. Within the public financing component, 30% is from earmarked taxes (government budget) and 68% from social security. The medical security system, covering urban and rural residents in China, consists of basic medical insurance schemes and medical financial assistance schemes. The medical financial assistance schemes are specifically designed for the low-income population [1]. The public health system, which is mainly financed by the government, provides basic public health services to all residents free of charge. In its role as a supplement to the medical security system, private medical insurance expenditure reached 5.6% of the overall health expenditure in 2019 [1,4].

Health service delivery system

The health service delivery system consists of the public health delivery system and the medical service delivery system. The public health delivery system is composed of disease prevention and control institutions, maternal and child health (MCH) institutions, health education institutions, health information institutions, health supervision and management institutions, etc. The medical service delivery system includes hospitals at provincial, city and county levels, as well as grass-roots health institutions [1,5].

Most general practitioners (GPs) in China work in the public sector. The training and utilization of GPs is still at a preliminary stage. A lack of qualified health-care professionals and the rapid turnover of the health workforce serve as bottlenecks to the improvement of China's primary care. By the end of 2018, there were 309 000 GPs (22 GPs per 1000 people). Since there is no fully developed gatekeeping and referral system in the health sector, hospitals also offer primary health-care services. Registration with a primary care doctor is not required, and patients have a free choice of accessing either primary care doctors or specialists [1,6]. Doctors in China are employed by hospitals, and their income and benefits were closely related to their workload before the health reform in 2009. Since 2009, income became performance-based with standardized subsidies and allowances as the two components of health professionals' income in public health and primary health-care institutions [1,7].

Overview of integrated care in China

Trigger, rationale and catalyst of integrated care for chronic diseases

The growing burden of chronic diseases is the key driver of integrated care in China. Chronic diseases have been the major disease burden in China in recent decades. This is attributed to factors such as population ageing and poor awareness of health promotion. Chronic diseases require a continuous and interconnected chain of services to integrate prevention, treatment and care. As a result, the key priorities of Chinese health systems have changed from provision of acute care to health management for reducing the progression of diseases and maintaining healthy living conditions. This shift requires reform at all levels of care in the entire system [8].

Currently, the health delivery systems in China are typically developed around acute health problems, which lead to autonomous clinical practices, organizational independence and the fragmentation of care delivery. After launching various incentives to strengthen the supply of health services, health delivery capacity has greatly improved at the national level. Nevertheless, due to the design of the health system and misaligned financial incentives, the delivery capacity and medical resources are largely concentrated in big hospitals. In 2017, about 58% of medical resources

were concentrated in tertiary hospitals, while only 18% of resources were available in primary health-care institutions. An official from the National Health Commission said, "Large tertiary hospitals have strong clinical capabilities, yet they are relatively far from most patients. The big hospitals also do not have enough capacity to serve all patients. On the other hand, the primary health-care institutions have strong will to provide services for patients, but their clinical capabilities are limited." Access challenges created by this imbalance became the trigger for transformation to integrated care in China [9].

With the increasingly prominent problem of fragmentation in the delivery system, China has started to undertake structural reform in the supply side. The "Healthy China 2030" plan and the health reform plan in the Fourteenth 5-Year Plan were issued in 2021. Both of them addressed the importance of integration of health-care service institutions across different levels, and promoted the systematic transformation from a disease-centred model to a more health-centred one.

History of health system reform and integrated care

A hierarchical medical system has been in place starting from the early 2010s. The integrated care movement in China is thus not a recent movement.

Hierarchical diagnosis and treatment system

The "Hierarchical diagnosis and treatment system" is a system of referring patients to the most appropriate medical institutions for diagnosis and treatment, according to the severity of the patient's illness. A policy document on deepening reforms to the health-care system was issued in 2009 to improve the allocation of medical resources through cooperation between different medical institutions, and clearly defined the responsibilities of medical service providers at different levels [10]. In 2015, the hierarchical diagnosis and treatment system was officially rolled out, and variations to the hierarchical diagnosis and treatment model were carried out all over the country. For example, in Shanghai, the hierarchical diagnosis and treatment system is recognized in the family doctor system. Residents can voluntarily establish a contracted service relationship with family doctors, who act as gatekeepers. According to the risk stratification

and demand classification of patients, family doctors provide Shanghai residents with the diagnosis and treatment of common diseases, health management services and referrals to secondary or tertiary hospitals when necessary. This system establishes a resource-sharing collaboration mechanism and a two-way referral mechanism in medical institutions at different levels.

Regional medical consortium

In 2010, to facilitate the establishment of the hierarchical diagnosis and treatment system, Shanghai initially issued the document "Guidance on the piloting of the regional medical consortium"[11]. It proposed "exploring the construction of a new urban medical service system through comprehensive reform of the management model of medical institutions, the payment model of medical insurance and the service delivery model for residents"[11]. In comparison to the hierarchical diagnosis and treatment models, the regional medical consortium has been committed to achieving seamless connection across primary, secondary and tertiary health-care institutions by stronger integration of human resources, finances and health-care facilities. In 2013, the National Health Commission stated that the construction of the medical consortium will become the focus of the next step in the health system reform and, by 2017, the General Office of the State Council officially requested the start of various medical consortium pilots.

People-centred integrated care model

In 2016, the document "Deepening China's medical and health system reform and building a value-based quality service delivery system" was jointly issued by five departments of three parties (World Bank Group, WHO, Ministry of Finance, National Health Commission and Ministry of Human Resources and Social Security). The research report suggested that China should fully adopt the people-centred integrated care (PCIC) model, focusing on improving health outcomes and the quality of medical services, and increasing the value of medical and health funding. PCIC not only pays attention to the needs of patients in terms of diagnosis and treatment of diseases, but also highlights the importance of integrating services such as health promotion, disease prevention and control, disease treatment, post-

hospital rehabilitation, health management, hospice care, etc. as well as providing continuing medical and health services to the public [12].

As of now, various integrated service model trials have been carried out in several locations across China. In 2017, the World Bank provided loans worth US$ 600 million to the Chinese government to support comprehensive reform of the health-care system in Fujian, Anhui and other places. These pilot projects are representative of the new health-care model. Starting in Tianchang county, Anhui has launched "county medical alliances", which combine services at county, township and village levels, and has introduced an innovative capitation payment system throughout this network.

The general design of integrated care

As chronic diseases are a major burden on the health-care system, they are an important focus area in the design of integrated care in China. China is currently pursuing breakthroughs in the four most common chronic diseases: hypertension, diabetes, tuberculosis and severe psychosis. There are two main pathways to establish a chronic disease service chain and, based on our research, some key dimensions of health-care integration design in China are described below.

Vertical integration among different levels of health-care institutions

Interaction across primary, secondary and tertiary health-care institutions is established through: (i) medical groups in cities; (ii) medical alliances at the county level, especially closely combined medical alliances; (iii) specialty alliance in undeveloped and weak specialist areas such as paediatrics department, respiratory diseases department, neurology department and severe infectious diseases department; and (iv) telemedicine collaboration network through information technology.

With the establishment of vertical integration, pre- and post-hospital health-care services are extended. Pre-hospital service extension focuses on disease prevention, including health management, health promotion, health education and implementing a family doctor system. Post-hospital service extension focuses on care upon discharge and rehabilitation. "Prior

to care integration, patients had no place to go after leaving the hospital. Now, coordination between primary health-care institutions, rehabilitation hospitals and large hospitals has been set up, and patients can go back to their home/community to receive care services," stated one health practitioner at a tertiary hospital in Xiamen.

Detailed information on the four methods of vertical integration, collected during the in-depth interviews, is summarized in Table 3.1.

Table 3.1 Four methods of vertical integration in China

Method	Detailed information	Representative case
Medical groups in cities	In the cities, tertiary hospitals or hospitals with strong capabilities will lead the cooperation with community health services, nursing homes and rehabilitation institutions to form a management model of resource sharing and division of labour. Cooperation within the medical union will be based on sharing of talent, technical support, mutual recognition of inspections, prescription flow and service connection.	Luohu Medical Group, Shenzhen Zhenjiang Rehabilitation Medical Group, Jiangsu
County medical alliance	County medical alliance focuses on exploring the integration of management based on county-level hospitals as leaders, township health centres as hubs and village clinics as fundamentals. It forms a labour cooperation mechanism in health-care institutions at three levels in counties.	Tianchang County Medical Alliance, Anhui
Specialty alliance	Taking advantage of the specialized medical resources and technical expertise of medical institutions in different regions, specialty alliances are established to form a supplementary development model, which improves the ability to treat major diseases.	Paediatric Alliance of Beijing Children's Hospital, Beijing
Telemedicine collaboration network	A telemedicine collaboration network is developed through information technologies to enlarge the coverage area of high-quality health services to the grass roots, to remote and underdeveloped areas and to avoid the need for patients to travel long distances to major cities for medical services. Public hospitals are encouraged to provide telemedicine, distance education, distance training and other services to primary health-care institutions.	Telemedicine Network of China–Japan Friendship Hospital, Beijing

Source: Author's summary

Public–private partnership

Public–private partnerships are being initiated to increase the capacity of integrated care to meet the demands of patients. "To meet diversified demands of the public on health care, the private sector is needed to provide multilayered services. In response, we have started to explore a cooperation mechanism between the public and private sectors. Currently, the most common public–private partnership in care integration is the combination of medical care and social care for the elderly."

Beneficiaries and opponents of integrated care

Beneficiaries

Experience has shown that the first beneficiaries of integrated care are health-care users. With care integration, health-care users are able to receive high-quality health services at the community level and professional health management at home. The second group of beneficiaries are primary health-care institutions. With the development of integrated care, primary health-care institutions will receive professional training to improve their service capabilities and receive more patients with more funds. Additionally, large hospitals will no longer be competitors for primary health-care institutions, as primary health-care institutions will be in the same group with the top-level large hospitals and they will share the same values and interests.

Opponents

"The interests and powers of some government departments will be affected with the implementation of integrated care. For example, medical insurance departments used to have a lot of power in payment decisions, but now the power has been restricted due to the pilots of packaged payment in many regions," stated a National Health Commission official. Additionally, compensation departments in the Ministry of Human Resource and Social Security may also oppose integration as their role in managing human resources and adjusting wages for primary health-care institutions would be transferred to the medical groups and county medical alliances. Some hospitals that have been used to operating independently may also oppose integrated care since they will have to adhere to the management of the medical group or county medical alliance after the

integration process. Pharmaceutical companies may oppose integrated care as the emphasis on health management in integrated care should decrease the number of medicines used by patients and some of the benefits to pharmaceutical companies will be lost. "However, the majority of these opposing voices occur only at the operational level at the current stage. We believe that the minor concerns on benefits and power will be overcome when the process of integration begins going forward," stated an academic leader from the Development Research Centre of the State Council.

Case study: Tianchang County Medical Alliance

Introduction

Tianchang county is located in the eastern part of Anhui province, adjacent to Nanjing city, where health service delivery capacities are abundant. According to statistics, the population of Tianchang county was 623 900 in 2018, and the annual disposable income per capita was Chinese yuan renminbi (CNY) 32 713. The county's annual GDP was CNY 40 billion. The health-care system in Tianchang county is divided into three levels – county level, township level and village level. Both township-level and village-level health-care institutions are primary health-care institutions.

The county medical alliance is the core component of developing an integrated health-care system in rural regions. Based on the geographical distribution of residents and allocation of health-care resources, the county medical alliance is formed by one county-level hospital as the lead, and a number of township-level and village-level health-care institutions. The alliance serves to integrate services (including basic medical care, public health and basic medical insurance settlement), and provide continuous and round-the-clock health-care services to the residents in the region.

Tianchang county designed two medical alliances – the City Hospital Medical Alliance and the Traditional Chinese Medicine Hospital Medical Alliance. Some of the key objectives of the Tianchang Medical Alliance are: (i) to establish integrated management among county, township and village level hospitals; (ii) to improve the capabilities of primary health-care services and maximize efficiency of utilizing funds through care integration; and (iii) to shift the focus of the health-care system from treatment to prevention.

Integrative processes

Systemic integration

Historically, the health-care system of Tianchang county has faced various challenges due to scarcity of medical resources. One official of Tianchang Health Commission characterized the previous health-care services in Tianchang as "weak at the county level, inactive at the township level and unstable at the village level". The lack of effective communication and coordination mechanisms within and between health-care institutions led to the inaccessibility of affordable and high-quality health-care services. A large number of Tianchang residents sought diagnosis and treatment outside the county, resulting in a serious outflow of social health insurance funds, and increasing the financial burden of medical care in Tianchang county.

In 2009, as one of the 32 counties selected by the Central Government to implement a pilot programme for health-care system reform, Tianchang county took the lead in initiating the reform of primary health-care institutions and county-level public hospitals. Through the public hospital reform, the overall health-care service capabilities of hospitals in Tianchang county have greatly improved, and the following two goals have been achieved: (i) increase in the Tianchang residents' outpatient visit rate inside the county to 90%; and (ii) improved accessibility to affordable and high-quality health care for residents.

In early 2015, after the public hospital reform, the number of people seeking medical services outside the county decreased significantly. However, during this time, the number of health-care services provided by primary care institutions in Tianchang county dropped as well, and county-level public hospitals provided a majority of the medical services. "Around 78% of the medical services in Tianchang county are provided by county-level hospitals", stated an official of the Tianchang Health Commission. The Tianchang government realized that the unbalanced health-care resources and service structure had led to a decline in primary health-care service capabilities, and health-care service providers at all levels were competing for resources and patients. Thus, three county medical alliances consisting of three county-level hospitals as the leads and 36 primary health-care

institutions were launched by Tianchang Health Commission to establish a comprehensive and hierarchical medical system. A feature of the new system was a first visit to primary health-care institutions and separate treatments for acute and chronic diseases.

The funding sources of the medical alliance include support from the Central Government and the rural New Cooperative Medical Scheme (NCMS). These funds are used for the construction of primary health-care institutions, transformation of informative health-care systems, promotion of family doctor services, provision of free medicines for patients with chronic diseases, daily operation of the medical alliance and the purchase of endowment insurance for primary health-care service personnel (CNY 10 million for the construction of primary health-care institutions, CNY 48 million for the county's health information system, CNY 2.53 million to promote the development of family doctor services, and CNY 4 million each year to provide free medicine for patients with chronic diseases).

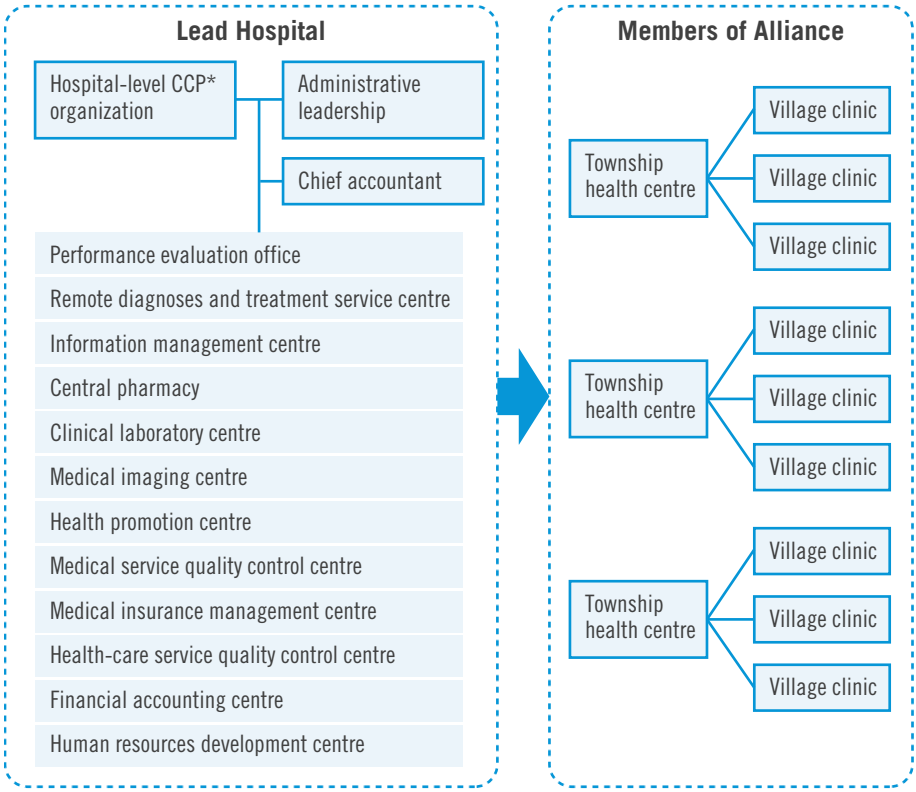
Organizational integration

In terms of the management mechanism of the County Medical Alliance, Tianchang set up a medical reform leadership team where the municipal party committee secretary and the mayor are team leaders. A public hospital management committee was also established to be in charge of decision-making on county-level hospital-related matters. The Tianchang County Medical Alliance is composed of the lead county hospital and primary health-care institutions. The lead county hospital is a secondary or higher-level hospital within the county region. Primary health-care institutions include community health service centres (stations), township health centres and village clinics. The roles of health-care institutions at different levels in the Tianchang County Medical Alliance are clearly defined. The lead county hospital has the right to determine human resources, internal organizational structure and income distribution within the Medical Alliance. Meanwhile, the performance evaluation standard within the Medical Alliance is developed and implemented by the remaining county hospitals, and the results of the evaluation are used to determine the financial subsidies and allocation of basic public health service funds. The hospital management committee is responsible

for the assessment of the Medical Alliance as a whole. The results of the assessment are linked to the lead county hospital director's performance-based salary and the allocation of funds to the Medical Alliance from the county government.

To carry out centralized management of staff, property and medical supplies in the Medical Alliance, the lead county hospitals have established different departments within the hospitals (Fig. 3.1). In addition to the centralized management, the lead county hospitals also establish the service pattern of the Medical Alliance and provide guidelines and assistance to the primary health-care institutions in the Medical Alliance regarding health-care service delivery.

Fig. 3.1 Organizational structure of Tianchang County Medical Alliance



CCP: Chinese Communist Party
Source: Author's summary

Responsibilities of the township health centres in the Medical Alliance include delivering basic medical services to patients with common diseases, providing public health services such as vaccine services and carrying out two-way referral services for patients. Concurrently, as the administrator of village clinics, township health centres are also in charge of assisting village clinics to develop contracted services by family doctors and to improve service capabilities.

Village clinics in the Medical Alliance offer family doctor services, pre-hospital consultation, post-hospital follow up, health management, disease prevention and control, health education and other relevant health promotion activities.

Service and professional integration

Service integration is reflected in a two-way referral system in Tianchang County Medical Alliance. Based on the design of the two-way referral system, all residents feeling unwell may seek medical help from village clinics and township health centres. As "gatekeepers", doctors at village clinics and township health centres are responsible for preliminary diagnosis, providing treatment for 50 common diseases and referring patients to the lead county hospital for diseases that cannot be diagnosed and treated at the village or township level.

Express referral channels and platforms between different levels of hospitals also exist within the Medical Alliance. Lead county hospitals have a dedicated person to help patients to complete referral procedures when referred from primary health-care institutions. If there are patients with critical, severe or complicated diseases that exceed the service capability of the lead county hospital, the lead county hospital will contact experts in the tertiary hospitals outside the county for remote consultation and professional guidance.

Patients who have completed treatment in the lead county hospital are sent home or are referred to primary health-care institutions for outpatient care. Referral information, treatment information and rehabilitation plans are detailed and recorded in the information system, which is accessible to health-care providers in the Medical Alliance.

After returning home or to primary health-care institutions, patients with complicated conditions are offered a contract for family doctor services. Each patient who has contracted for family doctor services has the services of a professional health-care service team consisting of three health-care providers from the county hospital, township health centre and village clinic.

Health-care providers in township health centres and village clinics are assigned to keep close contact with the patients and provide them with rehabilitation care as well as post-hospital follow up. One practitioner from a village clinic stated, "We know the patients very well. We know where they live and what chronic diseases they have. Patients with chronic diseases are required to come to us regularly for routine examination. For the elderly and disabled, we need to do home visits to check their health condition." Primary health-care providers are required to submit follow-up and rehabilitation care records (including date, time, live photos of the follow up, results of rehabilitation care, etc.) within a set time to lead county hospital doctors through the information system.

Doctors in county hospitals are responsible for the regular review of rehabilitation care records. If they find the results of rehabilitation care are not satisfactory, they will change the rehabilitation plan for patients. One doctor in the lead county hospital stated, "We visit primary health-care institutions periodically to carry out disease diagnosis for patients so that they can avoid going to county hospitals. We also provide professional guidance and training for the staff in primary health-care institutions."

Functional integration

At present, township health centres in the central area of Tianchang county have established a telemedicine system and an information system. A medical imaging centre, clinical laboratory centre and information management centre, which have been established in lead county hospitals, connect primary health-care institutions with lead county hospitals, and lead county hospitals with tertiary hospitals outside the county. With the help of the telemedicine system, experts from tertiary hospitals outside the county are able to provide professional support to the lead county hospitals of the County Medical Alliance. The specialists of lead county hospitals can

also provide guidance to primary health-care institutions and strengthen service training and communications among health-care institutions in the Medical Alliance. However, due to insufficient availability of resources, telemedicine systems and information systems have not yet been established in all primary health-care institutions. Therefore, Tianchang is now promoting primary health-care institutions in the central area of Tianchang to carry out daily medical quality control and audit management of the surrounding primary health-care institutions.

For residents who have contracted for family doctor services, each family doctor has set up a chat group through WeChat application (the most common digital social platform in China), which includes all the residents they need to serve. Family doctors use the WeChat group to remind residents to participate regularly in health education activities on health-related topics. Residents can also consult with family doctor teams on health-related issues through the WeChat group at any time and raise opinions and suggestions on the operation of the County Medical Alliance. Tianchang County Medical Alliance is currently trying to design a patient need and satisfaction scale for further improvement of the County Medical Alliance.

In addition to using information systems and platforms to provide personalized services for patients, Tianchang County Medical Alliance is also promoting the implementation of clinical pathways to standardize the behaviour of service providers, reduce wastage of medical resources and provide patients with unified and accurate treatment.

Normative integration

The design, implementation and promotion of the Tianchang County Medical Alliance required shared values across everyone involved in the integration process.

First, the government departments of Tianchang county needed to work together towards a shared vision. Establishing of the Tianchang County Medical Alliance was accompanied by reform of primary health care. This meant that the original medical structure and the order of diagnosis and treatment were significantly changed. Such a change could not be directly

promoted by only a single health department and required the cooperation and coordination of various government departments in Tianchang county. Therefore, all government departments in Tianchang county needed to understand the essence and value of the County Medical Alliance and have the same vision on delivering people-centred and health-centred services. "Training and discussion are organized in the county government to help personnel better understand the County Medical Alliance", stated an official of the Tianchang Health Commission.

Second, during the process of establishing the Tianchang County Medical Alliance, the Tianchang Health Commission popularized the concept of "health-centred services" to clinicians at county hospitals, and promoted disease prevention and health management. Many clinicians at county hospitals have since consciously carried out disease prevention and promoted it to primary health-care providers to help them start prevention and early interventions for chronic diseases as soon as possible. Currently, more and more training on early interventions for hypertension and diabetes are carried out at primary health-care institutions. In addition, the culture of the original lead county hospitals is gradually being extended to conform to the county medical alliance culture in order to have health-care providers at different levels feel that the county medical alliance is an inseparable whole.

Third, the concept of county medical alliance should not only be popularized among health-care providers but also be understood by users of health-care. At present, the public's understanding of Tianchang County Medical Alliance is limited to integration of information between county hospitals and primary health-care institutions, and the convenience of contacting family doctors. In terms of two-way referrals and disease prevention, during the interviews of our research team with 10 patients, seven patients mentioned that they had received relevant lectures and training. Further health education and publicity are still needed to improve public understanding of the county medical alliance.

Performance evaluation of the case

Analysis of outpatient visit rates showed that In 2015, outpatient visit rate within Tianchang county was 91.5%. By 2016, it reached 92.24%,

and between January and June 2017 it was 93.17%. This means that most patients can receive satisfactory medical services within the county. The report also showed that from January to June 2017, the average cost per hospitalization in Tianchang was CNY 4984.75, meaning that it had not increased as would have been expected. Since the implementation of the County Medical Alliance in 2015, the average cost of outpatient visits has declined, and the affordability of medical services for patients has increased [13].

In terms of the satisfaction of health-care providers, the salary of practitioners in primary health-care institutions is significantly higher than what it was prior to the establishment of the county medical alliance, which is effective in mobilizing the enthusiasm of primary health-care providers. However, a practitioner from one lead county hospital remarked that "with the further development of the county medical alliance, our tasks have increased. It is challenging for us to do training for both patients and primary health-care providers while completing daily clinical work".

Based on the data gathered by the research team from Tianchang Health Commission, the number of medical services provided by experts from county hospitals at primary health-care institutions in 2017 and 2018 was 3042 and 1869, respectively. The number of two-way referrals between county hospitals and primary health-care institutions was reduced from 10 850 to 7666 in this time. "This decrease in the number of referrals reflects the gradual improvement in both the service capability of primary health-care institutions and the patients' understanding of the hierarchical diagnosis and treatment system", explained a practitioner from one lead county hospital in Tianchang Medical Alliance.

The resource utilization analysis indicated that there was no significant change in the average length of hospital stays in 2017 and 2018 and that the bed utilization ratio decreased by 1.69%. Results of care delivery and transition indicated that the number of emergency and outpatient visits had increased slightly, while the inpatient number had decreased. Compared to the situation before the establishment of the County Medical Alliance, the degree of savings in medical resources has increased steadily.

Although detailed data on shared electronic medical records, access to primary care services, care coordination, self-management and user and caregiver experience were not obtained, the research team discovered that electronic medical records and data sharing has been used in lead county hospitals and township health centres.

The structure, process and outcome indicators collected from Tianchang Health Commission are given in Table 3.2.

Table 3.2 Structure, process and outcome indicators collected from Tianchang Health Commission

Indicator		Results (by year)	
		2017	2018
Structure	Number of medical services provided by experts from county hospitals at primary health-care institutions (n)	3042	1869
Process	Number of two-way referrals (n)	10 850	7666
	Number of clinical pathways (n)	271	271
	Completion rate of clinical pathways (%)	86.1	84.33
Outcome	Average length of hospital stays (days)	8.68	8.74
	Bed utilization ratio (%)	98.24	96.55
	Number of emergency patients & outpatients (n)	533 005	574 762
	Number of inpatients (n)	39 132	38 286

Source: Author's summary

Facilitators and barriers to successful implementation of the case

Facilitators to successful implementation of the case

As a pioneer of the county medical alliance system, there are two unique factors facilitating the development of Tianchang County Medical Alliance.

First, leaders of the Tianchang county government have taken a proactive attitude in establishing a county medical alliance. They held a dozen meetings with the director of the Anhui Provincial Health Committee to study typical integrated care cases around the world, and to discuss the design and plan of care integration in Tianchang county. Paying close attention to the County Medical Alliance, the government leaders of

Tianchang county personally followed up the progress of its construction and extended strong support in terms of policies and coordination between various government departments. For example, a policy support on medical insurance was launched where patients referred from primary health-care institutions to county hospitals are only charged once. Free medicines are provided for eligible patients with chronic diseases to increase the affordability of treatment.

Second, an effective financial incentive mechanism for medical service providers has further promoted the implementation of the Tianchang County Medical Alliance. A prepaid capitation payment mechanism is used, and the Tianchang Health Security Administration forwards the funds to the lead county hospital for management according to the estimated population. The funds are settled at the end of the year and any spending over the budget is borne by the lead county hospital. The surplus is shared among lead county hospitals, township health centres and village clinics in the ratio of 6:3:1. With such a payment mechanism, health-care institutions in Tianchang County Medical Alliance actively curb any irrational increase in medical expenses. At the same time, Tianchang County Medical Alliance links the performance assessment results with financial incentives to motivate health-care providers to deliver people-centred integrated health services. In addition to financial incentives, Tianchang county has also improved the welfare of primary health-care providers through measures such as purchasing social insurance for each.

Barriers to successful implementation of the case

Challenges that Tianchang County Medical Alliance is facing are as follows:

- Primary health-care service capability is suboptimal, and there is a lack of primary health-care service providers.
- Although the referral system for hierarchical diagnosis and treatment has been established, it is still hard to realize the full implementation of the referral system in Tianchang county due to challenges such as the fact that the patients' actual residences are often different from their registered addresses, and some residents still have insufficient trust in primary health-care institutions.

- Insufficient funds and human resources restrict the completion of a full-scale information system in the Tianchang County Medical Alliance.
- After the establishment of the Tianchang County Medical Alliance, the tasks and responsibilities of health-care providers in lead county hospitals have increased and are relatively heavy, stressful and challenging.

Case study: hierarchical diagnosis and treatment system in Xiamen

Introduction

Xiamen city is located on the south-east coast of China in Fujian province across the Taiwan Strait. According to the 2018 statistics from the Xiamen Municipal Government, the population of Xiamen was 4.41 million, and its annual disposable income per capita was CNY 50 948. The number of secondary hospitals in Xiamen is relatively small. In addition to tertiary hospitals, most health-care institutions are community health centres, i.e. primary health-care institutions. This major feature of the Xiamen medical system lays the foundation for Xiamen's medical system reform.

Integrated care in Xiamen city is a hierarchical diagnosis and treatment system characterized by the "1+1+1" model. The 1+1+1 model is established for patients with chronic diseases in Xiamen city. In this model, patients are assigned to a team of three health-care providers consisting of one specialist from a general hospital, one doctor from a community health-care centre and one dedicated health manager. Together, the team is responsible for managing each patient's health by means of health education and routine clinical follow up.

Integrative processes

Systemic integration

The head of a tertiary hospital remarked, "The burden of chronic diseases is heavy in Xiamen. In 2016, over 85% of the deaths were caused by chronic diseases." Early intervention and health management can effectively reduce the prevalence of chronic diseases. However, due to the separation of

the clinical medicine system and disease prevention system in Xiamen, a comprehensive model integrating prevention and treatment is not easily established. Meanwhile, Xiamen's original medical system faced problems such as weak capability for primary health-care services, overloaded outpatient clinics in tertiary hospitals, disordered visits, lack of continuity of medical services and waste of medical resources. An official from Xiamen Health Commission stated, "In response to these problems, we started to consider how to integrate the medical system with the disease prevention system, and how to integrate tertiary hospitals with primary health-care institutions. We were eager to establish a patient-centred health-care system, and to provide full-cycle health-care services for patients."

In 2007, the Xiamen Municipal Government issued the "Decision on reform and development of healthcare" document, proposing to implement medical reorganization in Xiamen to provide residents with the medical services of tertiary hospitals in community health-care centres. In 2012, Xiamen established the hospital–community integrated chronic disease management system. However, in recent years, the operation of large hospitals has been supported by outpatient income, which has led to the reluctance of tertiary hospitals to devolve patients to primary health-care institutions. Moreover, primary health-care institutions have been unable to treat and manage patients, due to patients' distrust and the lack of experienced professionals and infrastructure. The implementation of the hospital–community integrated chronic disease management system has faced great challenges. "In 2013, the total number of outpatient visits to tertiary hospitals in Xiamen was over 26 million. Nearly 80% of the outpatient visits were by patients with chronic diseases, and around one third were patients who went for prescribed medicines. The hospital–community integrated chronic disease management system had not worked ideally, so we began to update our solutions", one official from Xiamen Health Commission explained.

In 2014, in order to achieve the goal of hospitals willing to devolve, primary health-care institutions having capabilities for treatment, and patients willing to go to primary health-care institutions, the Xiamen Municipal Government and Xiamen Health Commission jointly explored a hierarchical diagnosis and treatment model with Xiamen characteristics.

This led to the setting up of the 1+1+1 model, which chose chronic diseases as pilots with the collaboration of specialists, general practitioners and care managers. After continuous trial and exploration, in 2015, the "Notice on the implementation plan for further promoting the pilot reform of the hierarchical diagnosis and treatment of chronic diseases" was officially launched, and a 1+1+1 model was officially promoted with the collaborative efforts of specialists, general practitioners and health managers. After 2015, with further reform and upgradation of the medical service system, the Xiamen Municipal Government has continued to improve the design and implementation of Xiamen's hierarchical diagnosis and treatment model. Meanwhile, it has also promoted the development of integrated care in Xiamen by strengthening the construction of a medical information system and establishing various forms of the regional medical consortium.

Similar to Tianchang County Medical Alliance, the trial and promotion of integrated care in Xiamen was initiated by the Health Commission under the leadership of the municipal government. The Xiamen Health Commission established: (i) a hierarchical diagnosis and treatment office, with the deputy director of Xiamen Health Commission as its head; (ii) a chronic disease prevention and treatment centre, with the director of the Center for Disease Control as the head; and (iii) a dual director system, where two directors are assigned to primary health-care institutions. One director from the tertiary hospitals is responsible for the linkage between primary health-care institutions and tertiary hospitals, and one director from the Center for Disease Control is responsible for professional guidance on prevention and treatment of chronic diseases.

In terms of funding sources, Xiamen raised funds through multiple channels to ensure the smooth implementation of hierarchical diagnosis and treatment. The Municipal Health Commission and the Municipal Finance Department established special funds for the construction and implementation of hierarchical diagnosis and treatment. Each administrative district of Xiamen also formulated a financial expenditure plan for each year to support the construction of hierarchical diagnosis and treatment. At the same time, each tertiary public hospital in Xiamen provided subsidies to the primary health-care institutions that it manages. As one of the most important parts in the hierarchical diagnosis and

treatment model, the family doctor service charges amounting to CNY 120 per patient per year were established. Of these fees, 17% is included in the establishment and operation fee of the hierarchical diagnosis and treatment model.

Organizational integration

During the process of promoting hierarchical diagnosis and treatment, several adjustments to the organizational structure have been made in accordance with actual developmental conditions and challenges.

Prior to implementing the hierarchical diagnosis and treatment model, primary health-care institutions were administered by district governments. At the start of the hierarchical diagnosis and treatment system, Xiamen tried a hospital–community integrated chronic disease management system, in which tertiary hospitals took over human resources, finances and facilities from primary health-care institutions. Three tertiary hospitals in Xiamen took over six, five and four primary health-care institutions, respectively. Xiamen Municipal Government handed over funds to the tertiary hospitals, and the tertiary hospitals conducted management, assessment and fund allocation to the primary health-care institutions. "However, the hierarchical diagnosis and treatment office soon found that such organizational structure not only did not effectively promote coordination between tertiary hospitals and community health centres, but even led to vicious competition for patients and medical resources", stated an official from the Xiamen Health Commission.

Based on the status quo, further adjustments to the organizational structure were made to allow joint management of primary health-care service institutions by district governments and the tertiary hospitals. District governments directly subsidize funds to primary health-care institutions for infrastructure construction, staffing and improvement of welfare benefits. Concurrently, responsibilities of health-care institutions at different levels are more clearly divided. "Considering that the current service quality of primary health-care providers has not yet reached a high level, for now the first diagnosis for patients must be made in secondary and tertiary hospitals", stated the director of a tertiary hospital. Clinicians in tertiary hospitals establish a treatment plan after diagnosis, and then refer patients

to the primary health-care institution. They also regularly visit primary health-care institutions to provide training and guidance and to improve the capabilities of doctors there.

Besides the integration between large hospitals and primary health-care institutions, Xiamen has established several specialized centres for chronic diseases, such as hypertension, diabetes, coronary heart disease, fatty liver, chronic gastrointestinal disease, etc. Specialized centres are set up as platforms for communication and information-sharing among all health-care providers responsible for the prevention and treatment of specific chronic diseases in different settings. Since some patients may suffer from multiple chronic diseases at the same time, interdisciplinary and multidisciplinary diagnoses and treatments are needed, and therefore, cooperation between specialized centres is encouraged.

Professional integration

One of the main features of hierarchical diagnosis and treatment in Xiamen, the 1+1+1 model envisages the integration of health-care personnel. It refers to a team of (i) a specialist at a tertiary hospital, (ii) a doctor at primary health-care institution, and (iii) a trained and certified health manager. This team is able to provide patients with whole-course, personalized and continuous management of chronic diseases in primary health-care institutions.

Among the team, specialists in tertiary hospitals are mainly responsible for diagnosing and formulating individualized treatment plans. Doctors at primary health-care institutions supervise the implementation of the treatment plan formulated by the specialists, pay attention to changes in the patient's condition, maintain follow-up records and report patients with poorly controlled conditions to the specialist in a timely manner. They are also required to actively communicate with health managers to jointly develop individualized health management education programmes for patients. The responsibilities of the health manager include assisting specialists and primary health-care doctors to contact patients, coordinating follow up for patients and primary health-care doctors, and providing screening services, health education and lifestyle interventions to patients.

"Currently, the pilot team focuses on diabetes and hypertension. We plan to expand our focus to other chronic diseases in the future", stated an official of the Xiamen Health Commission.

Service integration

To prioritize limited resources, Xiamen currently has identified 30% of the overall patients as those with a heavy burden of disease and has initiated the 1+1+1 model for their care. Most of those participating are the elderly and patients with complex chronic conditions. An official from the Xiamen Health Commission explained, "Xiamen now values service quality more than the number enrolled in the 1+1+1 model. In the next step, once quality and standard assessment is ensured, Xiamen will further extend the target groups. We want to be able to make elaborate extensions, not simply copy the original plan."

In Xiamen, patients with chronic diseases are first diagnosed in tertiary hospitals. When their condition is stable after acute treatment, specialists formulate a post-hospital plan based on diagnosis and treatment, and share the plan via a joint information system. Primary health-care institutions sign contracts with patients who have a heavy disease burden, and include such patients in the 1+1+1 model.

After signing the contract, patients are stratified into three levels according to their health status, which is indicated by a red, yellow or green label. A red label indicates that the patient has poor control of their chronic conditions, and the doctor at the community health centre must seek the guidance of a specialist to adjust the post-hospital plan for the patient. A yellow label indicates that the patient has a stable status, and the doctor at the community health centre must continuously follow the plan to provide care or health management. The green label indicates that the patient has successfully managed their condition and can be withdrawn from this service model.

Hierarchical diagnosis and treatment in Xiamen also emphasizes the training and support of patients and their families. Specialists visiting the community for lectures and publicity are effective ways of providing training. The director of a tertiary hospital mentioned that "many people

don't know much about chronic diseases. For example, some people with high blood pressure don't know that they are suffering from this disease. Through lectures and publicity materials, people's health can be improved and more patients can receive early detection, early diagnosis and early treatment to minimize deterioration of the patient's disease. Meanwhile, people in good health can understand how to avoid those diseases by improving their habits in daily life."

Functional integration

Xiamen has one of the leading medical and health information systems in China. As early as 2009, Xiamen started to set up the citizen health information system. Citizens use a unified card when they visit doctors in large hospitals in Xiamen. Hospitals are required to upload all objective medical records and information, in order to share patient data and information with each other, and to create a big data platform for citizen health information. In 2014, relying on the citizen health information system, a chronic disease management platform was developed.

Based on the original information system, interconnection of medical and health data across the city and districts facilitated resource-sharing and collaboration. This has improved the accuracy and efficiency of services, and has increased patients' trust in the system. It has also effectively supported referral, information-sharing, remote diagnosis and professional guidance between hospitals and primary health-care institutions. Experience on information management of chronic disease prevention and treatment has also been gained. Regarding the next step with the health information system, leaders of the Xiamen Municipal Health Commission said, "Next, we will start exploring the application of big data platforms on health-care management, teaching, research and case studies in order to improve the quality of medical services. In addition, Xiamen will also adopt the big data platform for managing real-time bed vacancy, mobile payment and more."

In addition to integrating patients' health data and information, Xiamen has also established a unified evaluation index for health-care functions. Based on the detailed health records in the citizen health information system, service capabilities of health-care institutions can be systematically

evaluated, and the quantity and quality of service by health-care providers can also be assessed.

Normative integration

In Xiamen, normative integration is mainly reflected in the consistency of vision of health-care providers. "Although each institution has its own culture, all health-care providers, whether clinicians in tertiary hospitals or health workers in community health centres, have the vision that citizens in Xiamen can access satisfactory health-care services", stated the director of a community health centre.

Tertiary hospitals in Xiamen are also actively exploring closer communication mechanisms with primary health-care institutions. "We regard primary health-care institutions as part of us though they are an independent entity. We co-organize regular working meetings, annual summaries and group building activities to promote cooperation and coordination between each other", explained the director of a tertiary hospital.

Performance evaluation of the case

Zeng et al. conducted a survey of 399 Xiamen patients and 107 health-care service providers from 2015 to 2016 to analyse the performance of hierarchical diagnosis and treatment in Xiamen [14]. The research results showed that after the implementation of hierarchical diagnosis and treatment, 70.7% of primary health-care providers had received training from specialists in tertiary hospitals. More than 99% of health-care providers understood the referral pattern, and 59.8% of them referred patients.

During the site visit, the research team also collected some information from health practitioners and patients on structure, process and outcome indicators. Performance of selected indicators of care integration is summarized in Table 3.3.

Table 3.3 Selected structure, process and outcome indicators on hierarchical diagnosis and treatment in Xiamen

Indicator description		Results
Structure	Medical staff	Proportion of primary health-care providers trained by tertiary hospital specialists was 70.7%.
	Facilities	All hospitals shared electronic medical records with other care providers.
Process	Access to care	When choosing a health-care institution for medical help, three out of 10 patients chose a tertiary hospital while the remaining seven patients chose community health centres.
		When asked about the capabilities of community health centres, eight patients stated that community health centres in Xiamen have improved greatly after the implementation of hierarchical diagnosis and treatment.
	Care transitions	As many as 99.1% of all health-care service providers understood the referral pattern.
		Of all health-care service providers, 59.8% had referred patients.
		Eight out of 10 patients expressed their willingness to be referred to a primary health-care provider after the diagnosis and treatment in tertiary hospitals.
Outcome	User and carer experience	Eight out of 10 patients were satisfied with primary health-care services.
	Self-management	Seven out of 10 patients stated that they received support and education on how to manage their chronic conditions.

Source: Author's summary

Facilitators and barriers to successful implementation of the case

Facilitators

In the process of continuous exploration and trial, Xiamen has designed a distinctive integrated care system. The collaboration between different departments in the Xiamen Municipal Government, multidisciplinary team and medical information system are key factors for implementation of the model.

First, the collaboration between the financial department, medical insurance department and Health Commission has played a vital role in the implementation of hierarchical diagnosis and treatment in Xiamen. The financial department cancelled outpatient subsidies for tertiary hospitals, and instead implemented differentiated subsidy policies, which diverted patients. Tertiary hospitals are now only subsidized for emergency visits and inpatients. The medical insurance department adjusted the original policy whereby patients with a chronic disease who have a clear diagnosis could be prescribed medicines only for seven days. These patients can now be prescribed medicines for 30–42 days at a time in primary health-care institutions. The medical insurance department has also expanded the types of drugs that can be prescribed in primary health-care institutions, so that the number of patients going to tertiary hospitals for prescriptions is reduced.

Second, the multidisciplinary team is also one of the key factors for this model. Practice has shown that the role of health managers in the prevention and treatment of chronic diseases is indispensable. Health managers can link health-care providers and patients as well as link prevention, treatment and care after discharge, which breaks the barriers between institutions at different levels in the original medical system and fully reflects the concept of patient-centred care.

Additionally, a health-care information system is also an important requisite for the implementation of hierarchical diagnosis and treatment. The regional health-care information system realizes comprehensive sharing of medical information across health-care providers in different settings. Thanks to this system, patients can avoid unnecessary repeated examinations, and services of specialists from tertiary hospitals can be provided remotely.

Barriers

Although hierarchical diagnosis and treatment has been implemented in Xiamen smoothly, there are still some challenges that need to be further resolved and improved.

First, there is still a need for further research and design in terms of policies to truly deliver health-centred services to patients. For example, the medical insurance department could adjust the insurance payment mechanism to encouraging more preventative activities, since the current payment mechanism is still focused more on treatment aspects. Innovative payment mechanisms focusing on health efficiency can be explored and piloted in the next steps.

Second, there is still a great shortage in the number of primary health-care providers in Xiamen. With the extension of the target group for the 1+1+1 model, more primary health-care providers will be needed in Xiamen. Although their salary has improved, few people are willing to work as primary health-care providers because of few promotion opportunities and low welfare benefits.

Finally, effective communication between different tertiary hospitals is still a major challenge. This is especially important since hierarchical diagnosis and treatment in Xiamen connects disciplines among tertiary hospitals. Led by the Xiamen Health Commission, a series of online and offline training and activities could be held regularly to strengthen the interaction between tertiary hospitals.

Discussion and policy implications of integrated care in China

China has already started a comprehensive trial of patient-centred integrated care and achieved positive results in some regions. However, integrated care in China still faces many challenges. In order to further promote care integration, the government needs to improve publicity of the concept of integrated care, primary health care, disease prevention, and information and evaluation systems, and facilitate the coordination of various government departments.

- The construction and management of patient-centred integrated care does not rely only on one department. It requires cooperation between various departments, especially the National Health Commission, the medical insurance department, the financial department, and the human resources department. Due to China's strong administrative

facilitation process, it is easy to achieve cooperation between various departments in a short time. However, in order to increase the willingness of all departments to cooperate with each other proactively and over the long term, innovation in financial incentives and payment mechanisms is still needed. In this way, effective and sustainable relationships between institutions can be maintained.

- Whether it is health-care providers or health-care users, people's understanding of health-centred care is crucial for developing integrated care in China. At present, people's understanding of health care is still disease-centred as opposed to health-centred. In order to shift this mindset, the National Health Commission, the propaganda department, as well as the education department can work jointly to promote the concept of health-centred care.
- In China, primary health-care services are an important aspect of implementing integrated care. Although China has made many policy-level designs in recent years to improve the capabilities of primary health-care institutions, there are still some challenges such as the lack of primary health-care personnel. Besides the subsidies for primary health-care institutions, other incentives for primary health-care providers such as more professional training and promotion opportunities could be used to address this problem.
- In recent years, many medical groups in cities and medical alliances in counties are piloting the integration between prevention and treatment of chronic diseases. However, the prevention of chronic diseases has not attracted much attention in China, and the prevention systems administered by the China Center for Disease Control and the medical system administered by the National Health Commission are disjointed. Therefore, although some pilots have explored integrated care in some regions, it is still challenging to provide all health-care users with whole-course care. To increase the focus on disease prevention and promote integrated care, changes at the systemic level and organizational structure from the top level down are needed.
- Although many places have evaluated effectiveness of integrated care pilots, China still lacks a systematic evaluation system. Current evaluations present the effectiveness of hierarchical diagnosis and treatment in keeping patients in primary health-care institutions.

However, there is still no strong evidence to show whether the health outcomes of patients are significantly improved. At this time, most models focus more on how to save money rather than on how to improve the patient's health condition. Additionally, although various regions are actively exploring the establishment of a medical information system, China has not yet set up a unified and standardized medical information system. As a result, there are large differences in the quality of medical data in different regions. To gain more professional technical support, the information technology (IT) industry and academic institutions could be engaged in establishing an information and evaluation system.

References

[1] Meng Q, Xu L, Zhang Y, Qian J, Cai M, Xin Y et al. Trends in access to health services and financial protection in China between 2003 and 2011: a cross-sectional study. Lancet. 2012;379(9818):805–14.

[2] The World Bank in China: Overview. Washington, DC: World Bank; 2018 (http://www.worldbank.org/en/country/china/overview, accessed 31 January 2020).

[3] China – health expenditure, public (% of GDP). In: Tradingeconomics.com [website] (https://tradingeconomics.com/china/health-expenditure-public-percent-of-gdp-wb-data.html, accessed 31 January 2020).

[4] iResearch. White Paper on China's Millionaire Medical Insurance Industry Development; 2021. (https://stock.finance.sina.com.cn/stock/go.php/vReport_Show/kind/search/rptid/663385125484/index.phtml, accessed 22 June 2021)

[5] Pacific W. People's Republic of China Health System Review. Geneva: World Health Organization; 2015 (http://iris.wpro.who.int/handle/10665.1/11408, accessed 31 January 2020).

[6] Bhattacharyya O, Delu Y, Wong S, Bowen C. Evolution of primary care in China 1997–2009. Health Policy. 2011;100(2–3);174–80.

[7] Mossialos E, Wenzi M. 2015 International profiles of health care systems. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2016 (https://www.commonwealthfund.org/publications/fund-reports/2016/jan/international-profiles-health-care-systems-2015, accessed 31 January 2020).Zhou M, Wang H, Zeng X, Yin P, Zhu J, Chen W et al. Mortality, morbidity, and risk factors in China and its provinces, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet. 2019;394(10204):1145–58.

[8] Browning CJ, Shane AT, Zeqi Q, Chapman A, Shuo L, Browning CJ. Frontiers research topics. Chronic illness and ageing in China [editorial]. Front Public Health. 2020;8:104 (https://www.frontiersin.org/research-topics/7544/chronic-illness-and-ageing-in-china, accessed 3 February 2020).

[9] Chen RY. On historical gradual progress and development of Chinese Classification diagnosis and treatment. Journal of Liaoning Medical University. 2016;13(3):7–10.

[10] Municipal Health Bureau, Municipal Development and Reform Commission, Municipal People's Insurance Bureau, Municipal Finance Bureau and Municipal Price Bureau. 2010. Guidance on the piloting of the regional medical consortium. (http://fgw.sh.gov.cn/sbzgg100w/20151231/0025-20638.html, accessed 31 January 2020).

[11] Deepening health reform in China: building high-quality and value-based service delivery – policy summary (English). Washington, DC: World Bank; 2016 (http://documents.worldbank.org/curated/en/800911469159433307/Deepening-health-reform-in-China-building-high-quality-and-value-based-service-delivery-policy-summary, accessed 3 February 2020).

[12] Lin WL, Dai T, Zhu XL. Analysis on the practice of health care alliance reform in Tianchang County of Anhui. Chinese Health Economics. 2017;36(4):74–7.

[13] Zeng Y, Yuan Z, Chen L, Wu J, Chen F, Fang Y. Primary care reforms in managing chronic diseases in Xiamen, China: a tentative assessment. Int J Health Plann Manage. 2019;34(4):e1609-e20. doi: 10.1002/hpm.2854 (https://www.ncbi.nlm.nih.gov/pubmed/31318101, accessed 3 February 2020).

Chapter 4. Integrated care in Fiji

Vikash Sharma

Key points of integrated care in Fiji

- The Fijian health-care system has, either intentionally in some respects, or inadvertently in others, developed over the years to embrace and support the integration of care. This has especially been so over the past decades, with refocusing on primary and preventive medicine in addition to curative care related to the rise in chronic diseases, persistent infectious diseases and climate change, placing massive demands on health service delivery.
- Certain aspects of care integration, including organizational and clinical integration, are fairly well established within the care delivery system. A greater degree of vertical integration is observed with linkages and coordination between the different levels of care, with accessibility to the levels of care being partially restricted only by geography. The ambition is to provide standardized care. Current strategies in health include priorities of various stakeholders owing to both a bottom-up and top-down approach to service planning.
- In the absence of chronic care disease models, the Maternal and Child Health (MCH) services provided a model to study care integration in Fiji. This model illustrated areas of successes and lessons that could, with effort and foresight, be applied to developing chronic care disease models.
- Progressive care integration aided by chronic care disease models has the potential to enhance people-centred care in Fiji and reduce health-care costs in the long term, if developed based on accurate health information to prioritize the areas of greatest need. Such development would require an investment of resources and further interagency and intersectoral collaboration to ensure that health is everyone's business and health care is continuous and sustainable.

Basic information on Fiji

Geographical, demographic, economic and political context

Fiji is an island nation in the South Pacific region with a total land area of 18 274 sq. km and a vast exclusive economic zone. The majority of the country's population is young, with half under the age of 27 years. Most of the population resides on the two major islands with the greatest land mass. Fiji has a diverse, multiracial population with 50% residing in urban areas [1,2,3]. The adult literacy rate is high, with English being the medium

of education delivery [4]. The country had a gross national income of US$ 5860 per capita in 2018 and is classified as a low- to upper-middle-income country [1,5]. Fiji predominantly relies on tourism, agriculture and industries such as sugarcane and bottled water as major foreign exchange earners. Historically, Fiji has been a British colony for almost a century before gaining independence in 1970. Since then, the Fijian Parliament has consisted of 50 elected members comprising the legislative branch of the State, with the majority party forming the government. The party/parties that are not part of the government form the opposition. The Fiji First Party currently forms the government and has been in power since 2014. Fiji has demonstrated exceptional resilience in shaping its current political and economic climate, despite facing several political upheavals in the form of military coups in its young history, becoming one of the business and economic hubs of the Pacific Island countries.

Health-care system in Fiji

Health providers

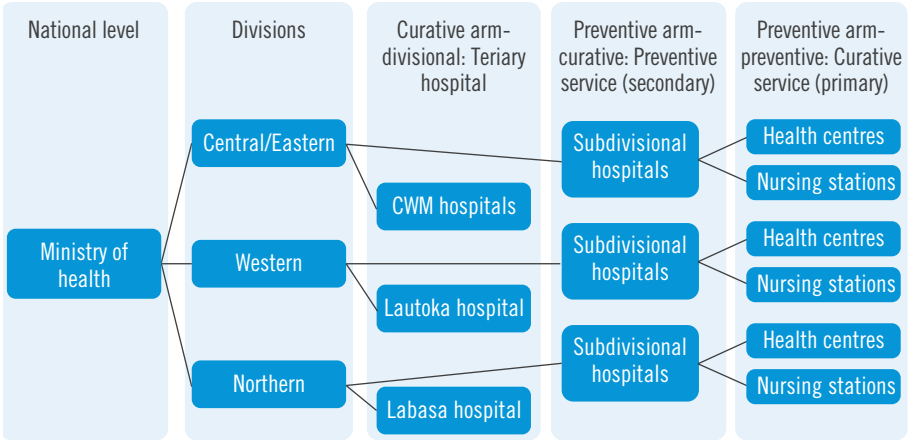
The Government of Fiji considers the provision of health services and maintenance of good health of the population as its mandatory role. Therefore, health services are free and largely government-funded through tax revenue. The Fijian health system is based on a primary-care model integrated vertically through primary, secondary and tertiary levels of care. The secondary and tertiary services provide complex curative care, while primary care services support care for minor ailments and the bulk of preventive health services in collaboration with health promotion units. Health service delivery is organized under the four geographical divisions – Central, Eastern, Western and Northern (Fig. 4.1).

Fig. 4.1 Administrative divisions of the Ministry of Health

Source: Fiji Ministry of Health

Within each division, there is a tertiary care divisional hospital, between four and nine secondary care subdivisional hospitals with bed capacity of 12–40, and several health centres and nursing stations serving their designated areas. Administration of tertiary services is separated from primary and secondary services. The divisional organization streamlines administration and allows for clear processes and channels for patient transitions. The tertiary centre for the Central Division is also the National Referral Centre. There are several privately run or multiple general practitioner (GP) practices and three private hospitals in the major divisions in all (Fig. 4.2).

Fig. 4.2 Organization of the Fijian public health system



Source: Adapted from Ministry of Health, Fiji (2018)

Most doctors in Fiji's health system, including specialists, are government employees [6]. Private set-ups offer general care and, in some instances, specialist care. There are approximately 820 registered medical practitioners in public service, 185 private general practitioners and 87 registered specialists [7,8]. Registration with the Fiji Medical Council is mandatory for all active practitioners.

Patients accessing health care are generally attended to by the available care provider who may function as a gatekeeper to higher levels of care. Tertiary hospitals do cater for emergency presentations of the critically ill. Private practice allows for the choice of a general or a specialist care provider, which is lacking in the public care system. Of note is that service charges in the private sector are neither scheduled nor regulated.

Health financing and coverage

Fiji aims to provide universal health coverage (UHC) for all citizens free of charge. There is also a growing private health sector that is funded largely by out-of-pocket (OOP) payments. The government also receives donor funds to assist in funding some health programmes. Approximately 63% of health expenditure in Fiji is financed publicly. This represents 2.7% of the

GDP [9]. The core funding source is government revenue through national income tax and other general taxes.

Overview of integrated care in Fiji

Trigger, rationale and catalyst of integrated care

The Fijian health system is overwhelmed with the increasing number of NCDs and persisting high burden of infectious diseases. Climate change threatens to pose further obstacles. There are limited resources to maintain wellness. An estimated 50% of the health budget is spent on curative care and only 22% on preventive care [9]. With rising curative care costs, the level of health care as such may not be sustainable and hence the need to refocus and revise strategy. There has been an increasing trend in expenditure on preventive medicine in the recent past [9]. Although slow, there is a movement towards promoting overall health and wellness, shifting away from a disease-focused reactive approach, which is not considered to be the best method to achieve UHC. People-focused care is considered likely to benefit all involved in health care, the general population and service providers alike, with wiser utilization of limited resources.

At present, Fiji lacks innovative, formalized chronic disease care models, despite the heavy burden of these conditions on the health system. Care integration is, however, achieved to some extent in the way the health service is organized through vertical integration of the primary, secondary and tertiary care services where patients easily transition through to the level of care needed. This may mean referral to higher centres for specialized care and transfer to lower levels for post-acute care and follow up. Although the former is easily achieved, the latter part of the service is fragmented, in that post-acute care and long-term follow up of patients with chronic disease is not robust within the primary care services, exposing gaps in integration. The intention of the health system is to provide seamless care for all. Formal integrated-care programmes can help accomplish this by triggering a system of continuous care for patients with chronic diseases, where care is well-coordinated right down to the primary care level. In this way, issues can be identified and rectified early, reducing the need for inpatient care as well as health-care costs. Integration

would also be useful in the local context where there are no long-term care facilities. Often, patients with chronic illnesses become dependent and are unfortunately perceived as a social burden as societal values change. With enhanced coordinated care, patients are likely to avoid such dire situations.

History of health system reform in integrated care

Fiji has traditionally modelled health service delivery around a primary care model, owing to the scattered nature and needs of the population. Very early on, with the introduction of formalized health care in the late 1900s, it was recognized that services needed to reach out to the community. "A 'hub and spoke' model of care was used then, where the spokes would reach out to the communities at the level of the nursing stations, which would focus on what is now referred to as the 'wellness approach' focusing on infant care, hygiene, sanitation and health education among other health-related activities", as stated in an expert interview (Fig. 4.3).

Fig. 4.3 "Hub and spoke" model of health care in the Fijian context (central body assumes administrative role while the spokes reach out to communities)

Source: Author's summary

There has been significant development of the health system structure over the years with advancing secondary and tertiary care. However, the essence of a people-centred approach has remained within the public health system.

For a brief period in the 1980s and 1990s, focus had shifted to greater tertiary-level curative care at the expense of primary care. However, with the resultant rise in health-care costs and decline in population health as evidenced by stalled progress in key health indicators during this period, it was realized that people-focused care with a wellness approach may provide the best value for money [10]. Reforms were then initiated to refocus effort into promoting people-centred primary care and advocating for health as a shared responsibility, requiring intersectoral collaboration among important stakeholders and the general populace. Planned decentralization of health services in the early 2000s was a part of these reforms, but could not be fully realized.

Further in line with the reforms, the government developed a clinical service planning framework in the mid-1990s in consultation with key stakeholders, with the aim of plotting the direction of health service development in the future. Work within the framework revealed that "although development of tertiary care was desirable as an advancing nation, prioritization of improvement and strengthening of primary care facilities would be the key to moving forward to promote wellness in society", as explained by one of the administrators. There needed to be better resourced primary- and secondary-care facilities and upskilling of human resources in these centres with ensuing refocus on the then neglected primary care services. To foster better coordination between the tertiary and primary care set-ups, national level, discipline-specific, clinical services networks (CSNs) were established, with support from the government and donor agencies such as the United Nations Population Fund (UNFPA) and Department of Foreign Affairs and Trade (DFAT) – Australia, formerly AUSAid (Australian Aid) through the former Fiji Health Sector Support Programme (FHSSP).

The CSNs were in the disciplines of obstetrics and gynaecology, paediatrics, medicine, surgery and anaesthesia, and included members from each of the four major administrative divisions. CSNs remain essential to health service delivery to this day. These networks include clinicians, nurses and allied staff from primary-, secondary- and tertiary-care centres, and are usually led by a tertiary centre-based discipline head. The purpose of this network remains to enhance communication between the various levels of care and bridge gaps between primary and tertiary care. These networks

allow practitioners to come together, have discussions and develop shared initiatives and plan services. It also allows identification of problems within the spectrum of service delivery and formulation of amicable solutions to enhance the overall functionality of the integrated care delivery system. Policies are also generated at this level and the networks help to disseminate and monitor these as well.

The clinical networks also conduct reviews of services, although in an ad-hoc fashion, to assess what works in order to identify barriers to the implementation of suggested changes. In addition to the CSNs, there are divisional plus committees, which can be considered as smaller subsets of the larger clinical networks within each of the major divisions that supplement the work of the larger CSNs.

The service organization in Fijian health care, albeit unintentional, has generally evolved as an integrated primary care model that is easily accessible in most localities, and care transitions can be achieved in most instances. Care integration, therefore, even if not structured as a formal model and given a label, is to some extent part of daily service delivery. More recently, however, some models of integrated care are either being formally introduced, such as the NCD Care Plan, or being specifically targeted for strengthening, such as the MCH Programme, which includes Integrated Management of Childhood Illness (IMCI) to achieve better health outcomes.

Design and practice of integrated care

"The Fijian health system has encouraged integrated care through its evolution since the early days", stated one of the hospital administrators. There is a greater degree of vertical integration with well-established clinical, transitional and administrative pathways from generalist to specialist care within the four divisions. A tertiary care centre is present in each division with several sub-divisional and primary care centres that coordinate care for the area. Horizontal integration, to some extent, exists at the primary care levels with preventive and curative services being offered; however, there is little interagency collaboration to nurture and enable an environment of wellness and health. Chronic diseases are managed within the framework of the current health organization and have only recently

started receiving much-needed attention. Specifically, designed care models have not been established other than the NCD Care Plan, work on which is ongoing.

Beneficiary, advocates and opponents of integrated care

The advocates for integrated health care have generally been the care providers in conjunction with government initiatives. The specialist clinical groups have been the major driving force. Unfortunately, the majority of the public still grapple with the idea of ownership of one's own health and perceive health as the responsibility of the care providers. Hence, they are reluctant to actively participate in the development of care programmes, although they are the intended major beneficiaries of the programmes. The other beneficiaries of an integrated health-care programme would include the service providers themselves with declining resource demands and a healthier population. Certain civil- or faith-based groups occasionally object to particular reforms, especially if ideas are perceived as divergent from strongly held beliefs – for instance, opposition to contraception use within the MCH programme.

Case study: maternal and child health (MCH) services

Introduction

It may seem counterintuitive to explore MCH services in a study of chronic disease care models. However, with the limited literature on integrated care in Fiji and the absence of identifiable functioning chronic care programmes, this established model was chosen to reflect on to identify concepts of care integration and recognize important lessons that may help inform sustainable chronic care models within small populations.

MCH services have existed within the Fijian health system for decades, making pinpointing of the exact time of introduction difficult. The MCH strategy envisages that "in a population where most individuals are cared for by the mother, addressing the health of the mother and the child would lead to improvement in the health of the family unit, and ultimately the health of the nation", as expressed by a policy-maker in the Ministry of Health (MoH).

MCH care permeates all levels of health care. The strategy emphasizes improving pregnancy and maternal health outcomes by ensuring that most pregnancies are planned, wanted and monitored through to delivery and the postpartum period, and child morbidity and mortality decreased through coordinated care and improving childhood immunization in pursuit of wellness for all mothers and children. There is a notion of providing a seamless continuum of care where low-risk patients are assessed and managed at the primary care level and higher-risk patients are referred to and managed at higher-level facilities, capturing the essence of integrated care by bringing services closer to communities.

"MCH services can be considered to be three-tiered, where MCH 1 addresses health issues and wellness for antenatal mothers, MCH 2 for children under 5 years of age, of which the IMCI is a vital component, and MCH 3 targeting school-aged children", as expressed by the administrator at the Family Health Unit in the MoH. Locally, the MCH programme thus has broad implications and therefore several components. including the IMCI strategy, Expanded Programme on Immunization (EPI), Child Health Strategy and Safe Motherhood Initiative. These components are linked and the priorities merge into the overall MCH strategy.

Although Fiji has shown improvements in terms of key health indicators relative to the Sustainable Development Goals, notably, a neonatal mortality rate of 10.9/1000 live births, under-5 mortality of 25.6/1000 live births and maternal mortality of 28/100 000 live births as of 2017–2018, it is appreciated that further enhancements can be made [11]. The MCH programme as a model illustrates a situation where continual improvement of functionality within existing infrastructure and systems can lead to better health outcomes.

Integrative processes

Systemic integration

Since their establishment through the health systems reforms, CSNs have helped service planning in the various areas of discipline. Within the MCH programme, it has led to the introduction of many of its components stated above. The idea of a healthy mother and child leading to healthy

families and a healthy nation is no novel concept, but a realization through reflection on past practice.

At its inception, the MCH strategy is likely to have developed within the colonial system of health care where planning was primarily the function of the elite few. The system of care was then adopted by the nation post-Independence in 1970. The initiative to revisit and strengthen the MCH strategy, however, had been that of the clinical network supported by the government. Although past policies within the strategy may have been reflective of the priorities of the authorities, "consequent to the collaborative nature of the recent approach with a wide consultative process, the national policy priorities currently to a large extent mirror the priorities of the service providers", mentioned one of the programme managers.

"There is occasional discrepancy, however, between the priorities of the service providers and that of the public at large. In the context of maternal health, there is public expectation that each service be available at the doorstep, for instance, birthing units at the village level. In contrast, providers feel that some centralization in this aspect of service delivery is warranted with good reason, as obstetric complications are unpredictable. Hence, some separation from family may be reasonable as this is likely to be counterbalanced by better pregnancy outcomes", explained one of the administrators at the hospital.

The IMCI component has been a revelation within the MCH strategy. Introduced in the early 2000s, it has played a central role in the integrated management of children under 5 years of age. "The programme allows for a multipronged approach where service providers, which in this instance includes doctors and nurses, assess and provide care for children, address immunization, provide counselling, address nutrition and micronutrient deficiencies, provide surveillance for rheumatic heart disease and assess the development of children, among other things", explained a paediatrician. The evolution of this component within the MCH strategy is paying dividends in terms of improving key childhood country indicators while ensuring better, accessible health care for children.

The MCH strategy fits well within the broader scope of health service reforms that are under way in the country. There were attempts to decentralize clinical services and health administration under the Health Management Reform Project, 1999–2003. However, it was soon apparent that complete decentralization would be an expensive affair and perhaps too large an undertaking for a struggling Fijian economy. "What has resulted, therefore, is somewhat of a hybrid where there is significant decentralization of the clinical services within the existing infrastructure, with linkages and preservation of centralized administrative structures, especially pertaining to the preventive arm of services within the divisions. Whether this is a sustainable management model in the long term remains to be seen, but it seems to be working", expressed the hospital administrator.

Several policies have been developed and implemented to ensure efficient functioning of the MCH strategy. These include, but are not limited to, the IMCI Policy, cold-chain guidelines, EPI Policy, Child Health Strategy, Child Protection Policy, Baby-friendly Hospital/ Breastfeeding Policy and Safe Motherhood Initiative.

The MCH programme, like most programmes, is primarily funded within the government's health budget. Some activities within the programme receive donor funding from bodies like the UNFPA, DFAT, WHO and United Nations Children's Fund (UNICEF).

Within the quasi-decentralized model of health care in Fiji, the MCH services attempt to align systems at the various levels of care by implementing component programmes and policies that help to efficiently guide delivery of services appropriate for the level to enhance the health of mother and child.

Organizational integration

The MCH programme itself has not seen any major reorganization, restructuring or mergers. Methods of budgetary allocation have largely remained unchanged, negating the need for modification of legal frameworks. Existing structures have been strengthened, partly through the Health Management Reform Project and also through the CSNs. A prime

example of the existing health system accommodating care integration has been the incorporation of the IMCI component of the MCH services, which has fitted easily as part of the regular service delivery.

The primary care facilities manage low-risk cases, promote wellness, provide immunization and give constant feedback. The open channels for feedback facilitate ongoing improvements. These roles played by primary care facilities are not limited only to the MCH programme but also cut across to other programmes, giving an indication of the burden on these service providers. To some extent, this is likely to adversely influence how well the mentioned roles are fulfilled in the different centres.

Tertiary care hospitals with the on-site specialist staff provide sophisticated care to very ill patients while both hospitals and the primary care set up provide post-acute care. In terms of maternal health, most tertiary centres are the focal point for birthing services. "Hospitals also provide support to the primary care centres through maintaining situational updates, so as to track patient progress and allow timely transition of patients for further care as needed. Specialists are designated to keep watch on one secondary or a few primary care facilities, making communication processes more streamlined and helping patient care in terms of early discussions and referrals", stated an obstetrician. Tertiary centres also provide frequent outreach services to primary care centres to help bring specialist care closer to people. As part of outreach services, specialists travel out to primary or secondary care centres periodically and, in addition to contributing to clinical care, conduct continuing medical education activities, training, competency assessments and foster a collegial relation, further promoting integration. "The vigour of the oversight in care by the higher centres may not be universally consistent, something which can be worked on", was expressed in the course of one of the interviews.

The nursing manager stated, "the CSNs under the leadership of the divisional hospital consultants in obstetrics and gynaecology and paediatrics have been at the forefront of promoting the integrative process". These networks have been aided by the divisional plus committees (for adult medicine) and the divisional and subdivisional child health

committees. The leadership has been highly effective in judging the execution of the programme and improving care and outcomes of patients.

Professional integration

Professional integration in the MCH approach focuses both on multidisciplinary care management and care coordination. Multidisciplinary teams are generally involved in inpatient care at a tertiary level and may include the responsible obstetrician or paediatrician, as appropriate, other needed specialists such as surgeons or physicians, nurses, allied health staff and counsellors when necessary. "Over the years, collegial networks have developed within these tertiary care settings that make collaboration of such teams easier. Clinicians are being guided and trained to enunciate management issues explicitly to partners in management", expressed one of the specialists interviewed. The accessibility to similar teams in the primary care setting is often difficult and hindered by human and financial resource constraints.

The use of designated case coordinators or managers is lacking in the MCH programme owing to the likelihood of it being an additional financial burden and the fact that the idea of having such personnel within the system has not really been explored. Certain service providers, including clinicians and midwives do, however, oversee care of patients in particular areas, which delves somewhat into the concept. Although these are by no means formalized roles, raising concerns about accountability, they do contribute to coordination of care through the various levels.

Clinical and service integration

The clinical component of the MCH strategy may arguably be the most well integrated and likely to have stemmed from the efforts of the CSNs. Communication channels are established and open, as are the referral processes. Ideally, these processes function well, but there are occasional lapses that are probably symptomatic of the health system as a whole at this time.

The referral patterns are ultimately defined by the points of first contact, which may be either at a primary, secondary or tertiary level. An

obstetrician stated, "With maternal health, quite often the first contact may be the tertiary centre, especially in the central division where about 60–70% of antenatal mothers get booked and followed up at the major hospital. In the other divisions, this percentage is lower as the population is more spread out and the initial contact is likely to be with a primary or secondary care setting." With paediatric patients, there is a greater likelihood that the initial contact is with lower levels of care.

Well-established referral processes exist, and higher-risk cases are invariably referred to higher centres as appropriate. The set-up allows for bidirectional referrals within the vertically integrated system. These generally occur within the geographical divisions. Exceptions include the highly complex cases that are ultimately referred to the Colonial War Memorial (CWM) Hospital. There are mechanisms and guidelines for urgent and non-urgent referrals. There are also retrieval pathways for emergent cases. The system does not allow for self-referrals. Documentation for the purposes of referrals is still maintained as hard copies.

All patients accessing public health services are evaluated and treated free of charge without restrictions of finances or insurance cover. The MCH strategy is designed for antenatal, intrapartum and postpartum care, and care of children up to the age of 5 years. Gradually, care of older children is being incorporated as per the MCH 3 initiative alluded to earlier. The IMCI coverage, however, is strictly for children under 5 years.

Protocols and guidelines are developed through the CSN and disseminated to help deliver standardized, evidence-based initial care to all patients, regardless of the locale and level of the health service accessed. Obviously, the complexity of the identified cases thereafter determines the need for, and urgency of, referral. Audits of adherence to guidelines are generally uncommon except within the IMCI programme, attested to by its ever-increasing success in rendering child health services.

Telehealth and telecare are underutilized within the MCH programme and the health system in general. This is due to poor access to information technology (IT) services in the public service domain. Although connectivity is available on personal devices, self-subscriptions come at a

cost and are hence not universal. The paucity of institutional commitment to IT makes advanced telecare a challenge. The obstetrician said, "We use 'Viber' (a messaging application) in closed groups to discuss cases, make referrals and provide feedback. Although not advanced, these communication forums also help specialist advice reach primary centres."

Ownership of one's health and well-being should be an individual's priority. While this is true for some, "most of the population regard health care as a responsibility of the service providers, an attitude likely to have been inherited and reminiscent of the colonial times when people expected health decisions from authorities who were only too happy to oblige and plan services for the public", expressed one of the administrators. Currently, the role of service users in MCH is still limited to health-seeking behaviour and occasional participation in discussion forums to influence service planning, but this is dependent on the individual.

Informal caregivers and family members have prominent roles locally as the burden of ongoing care of patients outside a health facility rests with these individuals in the absence of intermediate or long-term care facilities. For maternal health, they are engaged from antenatal clinics to the postpartum period; however, the consistency of this engagement is variable. Most patients have this support in some form.

Mothers and family members are often engaged in the welfare of the child. They are educated and counselled on recognizing a sick child, feeding practices, immunization and administering medications among other things. Sectors other than health such as women's groups or wellness groups also promote child welfare. "Child protection services also hold parents accountable for the child's health and welfare", stated a paediatrician. There is great potential to further strengthen the roles of informal care providers and family members who are at this time inadequately supported by the health system.

Primary care providers, including nurses, have vital and well-established roles in maternal and child care. These include clinical care of low-risk cases, recognition and timely transition for higher-risk cases, providing follow-up and post-acute care for cases with the relevant

level of complexity, maintaining open communication channels with various levels of care and being advisors, advocators, counsellors, educators and managers.

The core of clinical integration is encompassed by the MCH programme, although several areas need reinforcing.

Functional integration

Clinical services in the four divisions are separated into the curative and the primary and preventive arms. The administrative arms of these services are also separated as are the support services. The preventive arm in a division, which is inclusive of subdivisional set-ups, health centres and nursing stations, shares common support services allowing coordination, whereas there are distinct and dedicated administrative and support services for tertiary hospitals. Although the administration is separate, there is communication between the curative and preventive services.

Use of IT is an area that can be greatly enhanced in the Fijian health service. "There is a patient information system (PATIS), which is supposed to be available to all centres, however, this is not the case. This system is unfortunately only available to the tertiary centres and a few subdivisional hospitals and health centres", mentioned a nursing sister. This platform contains basic patient data, including identifiers, episodes of service contacts, patient diagnosis, medication use, laboratory and radiology test results. It is currently not designed to include clinical information and is not able to track patients through the health system or provide medical alerts of any form. The system relies heavily on user updates, which are not consistently done. The information system requires further strengthening and needs to be made more widely accessible. There also needs to be an overhaul of the IT infrastructure, including enhanced connectivity; however, this is restricted by financial shortfalls. An ideal system would identify an at-risk patient, allow tracking and pre-emptively provide alerts.

Alternatively, use is being made of messaging applications to improve electronic communication, but this has inherent data security risks. An encouraging development recently has been the introduction of a free "Fiji Host" guideline application that has some locally developed

guidelines that are free to access. Telecommunication services are widely accessible and utilized.

Some functional and needs assessment tools are part of the MCH service but their use may not be consistent. “For maternal health, there are audit tools like the health facility audit tool, which assesses the readiness of a facility to deal with obstetric emergencies, and the clinical practice audit tool, which looks at specific obstetric scenarios and the consistency in evidence-based management of these within the facility”, explained an obstetrician. The administrator at the Family Health Unit expressed that “the IMCI programme has an audit tool in place to assess application and efficiency of application of the programmes. Ninety-eight per cent of the facilities are trained to implement IMCI, but application rates are not as high. The IMCI audit tool assesses facilities’ readiness to deliver the programme and competency of those delivering services.” Programmes implemented locally are likely to face challenges in monitoring and audits.

Funding for the MCH strategy is primarily from government budget allocations. These are not specific MCH activity funds but operational budgets for facilities distributed along divisional lines for the overall functioning of facilities. Tertiary hospitals have their own operational budget. A specific budget is provided to the Family Health Unit in the MoH to support the MCH programme, monitor its activities and promote implementation of the components. There are no financial arrangements or incentives to encourage care coordination, as could be expected in a low-resource setting delivering free services with little to no generation of funds. In the private sector, users pay for service. The government at this time does not subsidize private care and thus does not have any special payment arrangement with the sector.

Normative integration

The MoH has a mission statement that outlines the purpose and a vision of where it aspires to be. Values and the expected work culture and ethics are also outlined. These are adapted within the various programmes, including the MCH strategy. “These statements are quite clear and the National Executive Committee comprising directors and heads of departments, CSNs and divisional plus committees help make it clear and play an important

role in propagating these ideas and ideals", stated the Family Health Unit administrator. Clinical heads, senior clinicians and their subordinates also help in propagating the mission and values. The CSN and divisional plus committees additionally ensure that the needs of the target population are reflected in these statements through the engagement of important stakeholders. The MCH programme still has some way to go towards fulfilling the aspirational targets.

Performance evaluation of the case

The research team had identified 10 indicators after conducting a Delphi survey to help assess the performance of the MCH programme relative to the structure, processes and outcomes. The following section outlines the qualitative assessment of the programme based on those parameters.

Structure

The indicators used to assess the structure were medical staffing and facilities. The proportion of specialists to generalists remains low. Fiji is perhaps still recovering from the large exodus of qualified individuals as a result of the political upheavals of the recent past. "The number of specialists within maternal health has steadily increased in the past decade from five to 18", stated an obstetrician. A paediatrician mentioned that, "registered child health specialists are still very limited". Increasing specialists within the health sector has been the result of the local specialists' training programmes in the major discipline areas being delivered by the Fiji National University. Innovative approaches such as training nurses to deliver services, as in IMCI, has improved heath access significantly.

Facilities explored focused on the use of the electronic medium. Unfortunately, as highlighted earlier, the electronic data system has several shortcomings with ongoing reliance on hard copies of records.

Overall, the programme seems to be improving in terms of specialist numbers but is struggling to implement a comprehensive electronic medical record system.

Processes

Several indicators were chosen to evaluate the processes within the programmes. The MCH strategy showed mixed performance in these. Access to service was deemed to be good. Most facilities, even rural, are capable of delivering IMCI. According to the obstetrician, "more than 90% of mothers have about four antenatal visits and 99% deliver in hospitals". However, it was qualified by the hospital administrator that "although access to care is consistent, access to quality care may be variable. Herein lies the need for further audits and quality improvement activities." Specialist services have limitations in their reach owing to numbers. The geographical isolation of some communities, especially in maritime zones and mountainous regions, make access to higher levels of care tough but transition processes try to mitigate this.

The MCH programme attempts to facilitate care transitions as best as it can within the confines of the resources. "The system is barely coping and is at risk of faltering", mentioned an administrator. Although clear processes are in place, it lacks formalized means to effect transfer with an underdeveloped paramedic and patient transfer system, which is prone to breakdowns and delays. Ambulance services run in an ad-hoc manner with facilities managing their own fleet of a limited number of vehicles. Informal transitions are to a large extent supplemented by patients. The Medevac system in place for retrieval of emergency cases from rural areas include chopper or flight services, which seems to be working well.

Comprehensive care of patients with chronic conditions requires substantial planning. Within the MCH programme, acute care of patients is generally holistic, with a multidisciplinary approach. Long-term care of patients is not as extensively planned, and this is where the programme can improve. Gaps in the application of the strategy have been highlighted in audits.

Care coordination seems to be relatively well worked out within the MCH programmes. Essential structures are in place to help in the delivery of services. Evidence-based guidelines and protocols are developed, disseminated and utilized in patient care. Training is conducted to promote adherence to these guidelines; however, occasional lapses are encountered.

A glaring absence in the Fijian health system till recently has been the use of quality assessment surveys to identify priority areas for redressal.

Outcomes

Detailed evaluations of health resource utilization are essential to guide health planning. Being overwhelmed with performing its primary function of service delivery, the health system currently falls short in the collection of much-needed, accurate health information. Although detailed statistics are lacking, it is perceived that the MCH programme is one of the bigger consumers of health resources. Most deliveries occur in hospitals and most mothers attend at least four antenatal clinics. In peak months, the major divisional hospital could deliver around 800–900 babies per month. Mothers with medical comorbidities tend to have longer inpatient stays. Additionally, neonatal care is another significant consumer of health resources. There is a high turnover of patients within these services.

There is no real sense of users' capability, willingness and support for self-care within the MCH programmes. No formal data are available on this. Also, it is difficult to judge the experiences of users and carers within the MCH programme as there have been no formal evaluations. The IMCI programme counsels, educates and empowers parents, especially mothers, to assume a greater role in child health care. There exists a system of reporting user experiences, be it commendations or complaints, although it is unclear how this information is utilized as it hardly filters down to service providers unless there have been significant mishaps.

Care delivery could be improved within the MCH programmes. An obstetrician mentioned, "there needs to be a better system to judge whether patients are receiving too much, too soon. With obstetric care, this could imply early inductions of labour or caesarian sections when those could be avoided. Current caesarean section rates have increased by 3–5% in the past decade. Audits to assess appropriateness of the indications for these need to be ongoing."

There exist patient-reported gaps in care, especially with the unavailability of expected services likely to reflect a system capacity or failure issue. Effecting care transitions is a challenge, but the roles of service providers

are clear in the transition process, in that the receiving facility assumes responsibility for providing the highest level of care possible for the patient. When transitioning to higher levels of care, advanced plans are generally not created; however, post-acute and long-term care plans are documented during the transition from tertiary care centres.

It can, therefore, be surmised that the MCH programme seems to be performing relatively well in terms of the process indicators used for the purpose of the study, especially in terms of providing access and care coordination. Structure and outcome measures indicate a significant room for improvement.

Facilitators and barriers to successful implementation of the programme

As with any health-care programme, care integration models are faced with several factors that either facilitate the success of the programme or create impediments to its implementation. These factors may be political, institutional, organizational or financial in nature, to mention a few.

Facilitators

Although fraught with impediments, there have been several factors ensuring sustainability of the MCH programme over the years.

- First is adaptability of the programme and ability of the initiatives to be implemented within the existing infrastructure, thus decreasing the burden on already strained and limited resources. Any care coordination activity would have to be mindful of this and adopt such an approach for low-resource settings. A stand-alone, parallel organization of a care system or programme may be destined for failure.
- Another facilitator is the sense of ownership through local implementation and motivation gained from observable change in health status. Programmes are likely to be sustainable if the impact is apparent, as is the case for the MCH programme. High-impact programmes with little resource consumption are likely to succeed.

- Normative integration is demonstrated by clinicians' shared values, culture and drive to go above and beyond their designated roles with intentions and aspirations to improve service. Shared values and vison across the health system would promote the success of care integration programmes.
- Clinical coordination being promoted through open and easy communication channels and forums allows for patient management matters to be discussed and resolved easily. Outreach services by specialists to primary care centres promote collegiality, mentoring, allow for integration, education and better networking. These links, which are almost universal, would facilitate any chronic care initiative. Partnership among stakeholders involved is strengthened with intersectoral collaboration. A chronic care disease model would benefit from these relations.

Barriers

Impediments to better implementation of the MCH programme include, but are not limited to, the points discussed below.

- **Right-sizing of and role delineation within the workforce.** Successful implementation of any programme requires the appropriate workforce, with each individual fully aware of their role, so as to function as an important cog in the overall mechanics of the programme operation. Having many professionals with diverse roles, functions and approaches to tasks presents difficulties in coordination. Role duplication, red tape and bureaucracy within the system may also complicate administration and service delivery. Additionally, "the public service retirement age of 55 years may be creating redundancies of experienced clinicians who are important mentors, administrators and planners and are vital to the system; however, they are being made to assume ever minute roles, if any at all", mentioned one of the administrators. Leadership is vital to realization of any programme and for care integration. Innovative performance measures are necessary to guide the workforce.
- **Lack of resources.** Positive outcome in a programme is commensurate with the resources available to run it. This does not imply that an

abundance of resources alone ensures the success of a programme; however, it goes a long way to help achieve better outcomes. The MCH programme is confronted with several resource constraints, including infrastructure, limited consumables, out-of-stock drugs and equipment as can be expected in a resource-limited setting with lack of financial support. Donor agencies are often involved in supplementing services and the CSNs help plan the best course of action within the limitations. Lack of resources is likely to impact care coordination as well.

- **Limited quality improvement initiatives.** The MCH programme lacks a comprehensive system of feedback and reflection to evaluate performance and inform evidence-based adjustments. Experienced clinicians can contribute immensely towards these activities. A system of checks and balances would be crucial in enhancing people-focused care.
- **Fragmented IT support.** The MCH programme suffers from poor integration of IT services, making it difficult to keep track of all patient data and transitions. Hard copies of documentation are often resorted to, which are prone to loss or damage. Care integration would benefit from a robust IT system, hopefully obviating the need for hard copy documentation.
- **Health-seeking behaviour.** This influences uptake and, for that matter, the impact of any programme. Seeking alternative care is commonplace in traditional settings. For a successful care integration initiative, there needs to be trust in the programme and utilization of the opportunities. This can be brought about through awareness and education of the population.
- **Limited awareness of policies and guidelines.** Well-informed policies and guidelines help orderly delivery of programmes and services. These are essential for any care integration as well. Awareness of, and adherence to, existing guidelines and policies often impacts the success of programmes and significant effort has been put into addressing this. Administrative barriers such as laborious back office processes, disorganization and centralization of decision-making capacity hinders smooth running of programmes, including MCH

programmes. This is likely to be a factor in any potential chronic care programme. Streamlining of such processes and decentralization to some extent would be necessary.

Discussion and policy implications of integrated care in Fiji

The Fijian health system has traditionally been people-centred and has fortunately evolved over the years in a fashion conducive to care integration. Chronic diseases, including cardiovascular diseases, diabetes, chronic respiratory diseases and cancers currently pose the gravest health threat to the local population. These conditions also comprise the largest consumers of limited health resources. As a result, the health system is strained and needs a renewed strategy to provide long-term holistic, equitable, cost-effective and sustainable health care.

Development of structured, integrated models of people-centred care may present a way forward for the Fijian government to meet the health-care needs locally. This by no means implies that the design of the current system does not support integration. The organization and administration of the delivery system into functional geographical regions, the networking and linkages, outlining of processes, including those for transitioning care, are all existent to promote integration. This is exemplified by the case study discussed. What is needed, therefore, is strengthening of these systems, tightening and streamlining of processes, and formalizing and incentivizing chronic care programmes to increase awareness and adoption. Incentives may not necessarily be monetary in the local context of financial constraints. Chronic care models with context-specific design are therefore likely to be successful.

Achieving greater integration in health care will demand further social mobilization with multidisciplinary, interagency and intersectoral collaboration. This is the essence of horizontal integration that remains underexplored and underutilized. Wellness and health are a responsibility for all and stakeholders, including service users, need to participate actively to secure this.

For any health-care reform, sufficient resources are required and these include finances, infrastructure and human resources. The political and economic climate of a country impacts its financial well-being. Maintaining a stable political environment is therefore crucial for ongoing economic growth. As taxation revenues are the greatest financial resource for funding most of the government budget, tax laws need strengthening to ensure that dues are paid. Innovative financing schemes such as subsidized user pay services may need to be developed within the health sector to supplement resources to run programmes, promote integration and reduce the strain on the system. Feasibility of a universal health insurance scheme needs to be explored. Further, training of specialists, service providers and allied staff would contribute towards a more capable health system.

Accurate health information has the ability to transform health services by providing sound data to guide decision-making. Increased health-related research is required to define the burden of illnesses, assess patterns of resource utilization in health, and evaluate impact and performance of care programmes. These would in turn help identify priority areas, resources available to address these and ascertain what actually works. Incorporating quality improvement initiatives through research would be invaluable. Central to collection of accurate basic health data would be a comprehensive electronic health information system, decreasing the reliance on manual data collection and storage. There is an urgent need to upgrade the current health information system and increase its functionality, availability and accessibility.

References

[1] Country profile – Fiji. Manila: World Health Organization, Regional Office for the Western Pacific; 2019.

[2] Fiji. In: The World Bank: data [online database]. 2018 (https://data.worldbank.org/country/fiji, accessed 2 March 2020).

[3] Index Mundi – Factbook – Fiji [online database]. 2020 (https://www.indexmundi.com/fiji/#Introduction, accessed 2 March 2020).

[4] TheGlobalEconomy.com [website]. Fiji: literacy rate (https://www.theglobaleconomy.com/Fiji/Literacy_rate/, accessed 2 March 2020).

[5] Classifying countries by income. Washington, DC: World Bank; 2019 (https://datatopics.worldbank.org/world-development-indicators/stories/the-classification-of-countries-by-income.html, accessed 2 March 2020).

[6] Fiji Ministry of Health and Medical Services Annual Report. Suva: Ministry of Health; 2018 (http://www.health.gov.fj/wp-content/uploads/2018/03/MoHMS-Jan-July-Report-2016.pdf, accessed 2 March 2020).

[7] Fiji Medical and Dental Council data. Suva: Fiji Medical and Dental Secretariat; 2018 (http://fijimds.com/, accessed 2 March 2020).

[8] Fiji College of General Practitioners data. Suva: Fiji College of General Practitioners; 2018 (https://fijigp.com/, accessed 2 March 2020).

[9] Fiji health accounts, national health expenditure 2011–2015 Suva: Ministry of Health; 2016 (http://www.health.gov.fj/wp-content/uploads/2018/03/Fiji-NHA-Report-2011-2015.pdf, accessed 27 February 2020).

[10] Roberts G, Irava W, Tuiketei T, Nadakuitavuki R, Otealagi S, Singh S et al. The Fiji Islands health system review. Health Systems in Transition vol.1 no.1. Manila: World Health Organization,

Regional Office for the Western Pacific, Asia Pacific Observatory on Health Systems and Policies; 2011 (https://iris.wpro.who.int/handle/10665.1/5534, accessed 4 March 2021).

[11] Global Health Observatory data – Fiji: country profiles [online database]. Geneva: World Health Organization; 2019 (https://www.who.int/gho/countries/fji/country_profiles/en/, accessed 11 March 2020).

Chapter 5. Integrated care in India

Prashanthi Krishnakumar, Anuradha Katyal, Maulik Chokshi

Key points of integrated care in India

- India's health system as envisaged at the time of Independence in 1947 laid emphasis on universal health coverage through a tiered public health system, with preventive and curative services integrated at all levels. This was supplemented by disease-specific vertical health programmes (centrally led, with dedicated resources). Alongside, allopathic care, India also has established traditional systems of medicine Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy (AYUSH). Over time, chronic systematic constraints and inadequate resourcing led to a weak public health system that in conjunction with government policies in 1980's fuelled the growth of a robust private health sector which now accounts for over 70% of outpatient care in India.
- Recent reforms aim to improve integrated health care across levels. These include, but are not limited to, the post-MDG era efforts to improve essential health indicators under the National Rural Health Mission in 2005 – which evolved to the current National Health Mission. The different National Health Policies introduce mechanisms for different levels of integration. The NHP of 1983 outlined strengthening primary health with greater community engagement and involvement of outreach workers and strengthening ties with the private and not-for profit sector. NHP 2000 aimed to develop integrated and coordinated services to strengthen family planning and reproductive, child health services, while the NHP of 2002 aimed at leveraging the private sector in the delivery of health services. More recently, the National Health Policy in 2017 takes a multisectoral approach to strengthening healthcare from strengthening comprehensive primary health care, to innovative financing mechanisms among others
- Case study on Karuna Trust is outlined to illustrate an effort at integration using a public-private partnership (PPP) model to strengthen health services, especially comprehensive primary health services for vulnerable and remote populations. The components of integrated care for patients with chronic diseases, responding to the needs of the local community and complementary use of the alternate AYUSH systems are takeaways from the Karuna Trust.

Basic information on India

Geographical, demographic, economic and political context

India is a country in South Asia. It is the seventh largest country in the world, and the second-most populous with nearly 1.37 billion people. India is a remarkably heterogenous country with a rich geographical and social diversity – multiple ethnicities, different religions, languages, and other social customs. Nearly one-third of people live in urban areas, and the country has some of the most populated cities in the world. India has a democratically elected parliamentary form of government with a federal structure. The President is the constitutional head of the country, and a council of ministers headed by the Prime Minister at the central/union level. At the state level governance is led by a council of ministers headed by a chief minister as its head, and a Governor of state. Policies are made at the national and state levels, including those on health

Nearly 25% of India's population is below the age of 14, and the share of the elderly above the age of 65 is growing. It is now at 6.5% as compared to 3.8% in 1990. Over 60% India's population is in the working age, and investing in education, health and development for its people can enable the country to leverage its demographic dividend. India is one of the fastest growing economies in the world with an annual growth rate of 5% in terms of real per capita GDP since the 1990s until 2019. India transitioned to a lower-middle income country in 2009, yet health and other development indicators continue to lag.

Health system in India

Health-care providers

India has a mixed and pluralistic health system, with both the public and private sectors providing health-care services across different systems of medicine. Health is a state subject with overall stewardship provided by the central government. The central government also contributes to the policies, financing, regulation, and delivery of health care in the country.

Health services by the government are provided via a tiered health system from the primary to tertiary levels, with outreach workers at the community

level. Public health facilities include subcentres (SC) and primary health centres (PHC), and community health centres (CHC). District hospitals also serve as first referral units aimed for 24x7 emergency obstetric and newborn care. Multispecialty/super specialty hospitals and medical colleges provide care at the tertiary level and are largely concentrated in urban areas. There is a referral system, but no gatekeeping or restrictions on the level of care people must access first. In addition, people are not restricted to access facilities by geography or other factors. The government is primarily responsive for preventive and promotive care. In addition, the public sector also anchors vertical disease-control and health system programmes. India has a large private health sector comprising of for-profit and not-for-profit establishments. Nearly 82% of outpatient visits, 58% of inpatient expenditure and 40% of births take place in the private health sector. This is a significant rise from the 5-10% of total patient care at the time of Independence in 1947 [1]. Most of the Private providers work either as individual practitioners or in private hospitals with very few working in polyclinics or group practices. The quality, affordability and availability of private health services is marked by significant heterogeneity.

Different traditional health systems are practiced in India. These include Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH). AYUSH services are often found in the private sector. There is an increasing effort to integrate AYUSH systems of medicine at the different levels of the public health system. An analysis from a national sample survey in 2014 suggested that about 7% of the respondents recollected having availed outpatient care from AYUSH facilities in the past 15 days. Notably, utilization was higher for chronic disease conditions [11].

Across the levels of care and providers – public, private and across systems of medicine – there are challenges of resource constraints, regulation, quality, and access and affordability to care.

Health-care financing and coverage

Successive policy recommendations have focused on increasing government expenditure on health however total government expenditure on health has hovered around 1% of the GDP with a slight increase post NRHM. The national health policy 2017 emphasized the need to increase

government expenditure on health to 2.5% by 2025. Current expenditure on health is approximately around 3.8% of the GDP[2]. The National Health Accounts estimates for India in 2017 suggest that 62% of India's total health expenditure is borne out of pocket by households[3]. The most common health conditions leading to impoverishment were cancers, injuries, cardiovascular, genitourinary and mental disorders. Expenses on medicines formed the largest component of OOP on healthcare. About 47% and 31% of inpatient care in rural and urban India were paid by loans and sale of assets, respectively [3].

Health insurance coverage is low with less than one third (29%) of households having at least one member covered under health insurance or a health scheme [4]. Health insurance mainly covers inpatient care. Since 2017, a number of state and national social insurance programmes have been initiated for the poor by individual states. More recently, the Pradhan Mantri Jan Arogya Yojana (PMJAY) was introduced in 2018 as part of the central-level Ayushman Bharat scheme. The PMJAY is the largest public insurance programme, offering health insurance coverage to 40% of the country's population – nearly 500 million people [5].

Overview of integrated care in India

Trigger and rationale for integrated care for chronic diseases

India is witnessing a rapid epidemiological transition to noncommunicable and chronic diseases fuelled by an ageing population, increase in risk factors such as tobacco and alcohol consumption, and a growing sedentary lifestyle among others. Nearly a quarter of deaths from NCDs occurred among those between the ages of 35-64 years, and nearly 25% of households with a member with CVD experience catastrophic expenditure. An estimated reduction in economic growth by 5-10% have been attributed to NCDs [6, 7]. In a country with a weak health system, NCDs present an additional burden to the system, for example it is estimated that 35% of all outpatient visits to hospitals in 2004 were for NCDs, and 40% of hospitalizations. The National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) launched in 2010 outlines some measures to address issues of integration, yet gaps and challenges remain.

The increase in NCD and chronic care conditions, and a growing ageing population necessitates available, accessible and affordable NCD and chronic care services [8]. In the absence of mandatory gatekeeping, and limited capacity at the outreach and primary levels, higher levels of health facilities are often first point of contact for health services irrespective of disease severity. Limited early access to health services or screening might also imply a delay in diagnoses and treatment. There is also the cost of treatment for secondary/tertiary care that can be better invested in primary and preventive care.

The tiered public health system in India offers an opportunity for vertical integration – strengthen and establish mechanisms for NCD-related health services across levels, especially at the community and primary levels, thereby reducing costs – for the health system and households, enhancing prevention, screening for early diagnosis, and establishing mechanisms for the management of NCD and chronic conditions. Integrating care can also facilitate a better use of limited resources, affect quality of care and offer a greater people-centred approach in the screening and management of NCDs.

Another dimension and opportunity for integration lies in strengthening the integration of vertical disease programmes into the horizontal health system towards service delivery [9]. India has a history of implementing disease-specific programmes, i.e. vertical programmes. The programmes have dedicated implementation plans, funding, workforce and other relevant resources. While the vertical disease control programmes served the objectives they were designed for, they were limited by broader health system constraints in a low-resource setting – including a shortage of health workforce, poor infrastructure and deficient supply systems, at the same time offered opportunities to support those gaps in the system. External funding for the implementation of vertical disease programs raised concerns of the influence of global health initiatives on national policy, and implications of better-funded disease-specific interventions within a weaker health system, and long-term sustainability of these programmes [10].

Greater coordination between the Ministry of Health and Family Welfare and the Ministry of AYUSH may provide opportunities to mitigate lack

of health personnel and shortage of services for chronic care. Some of opportunities for integration include efforts by the Ministry of AYUSH include co-locating AYUSH facilities at PHCs, CHCs and district hospitals under the National AYUSH Mission, and 10% of health and wellness centres under the Ayushman Bharat initiative to be developed by the Ministry of AYUSH.[2] Efforts at integration also empanelment of AYUSH services under government insurance schemes such as the Central Government Health Scheme, and integrating AYUSH practitioners in the delivery of health programmes such as in the detection of leprosy and tuberculosis. A senior faculty respondent was of the opinion that "micro-coordination between AYUSH doctors and medical practitioners should be well-integrated at the levels of the PHCs and the CHCs". Models like the Karuna Trust and National Institute of Siddha (NIS), Chennai offer valuable lessons in coordinating AYUSH services with the mainstream health system. There is a separate ministry for AYUSH in India.

Development of integrated care in India

There have been a series of changes spread over a decade related to advancing more integrated care. The objectives of these efforts have changed over time. The Government of India made a major reform attempt at strengthening primary and community-level health care through the 2005 National Rural Health Mission (now National Health Mission). The NRHM aimed to strengthen health systems, including primary and secondary health care, with an initial focus on meeting the essential health indicators under the Millennium Development Goals, including reproductive, maternal, newborn and child health (RMNCH) services, and communicable diseases such as TB, HIV/AIDS and vector-borne diseases.

The current NHM's scope includes a greater emphasis on NCDs and chronic conditions, and also includes urban health. Alongside, vertical disease control programs on NCDs are being revised to weave in greater integration components. The 1975 National Cancer Control Programme (NCCP) was revised in 1985 to emphasize primary prevention and early detection of cancers [12]. The National Programme for Prevention and Control of Diabetes, Cardiovascular Disease and Stroke (NPDCS) was

[2] https://pib.gov.in/PressReleasePage.aspx?PRID=1576158

established in 2008, and merged with NCCP in 2010 under the NRHM as the National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) [12]. Within NHM, NPCDCS aims to implement its objectives across different tiers of the public health system, to strengthen health information and surveillance on NCDs and to integrate interventions with other programmes such as via the Ayushman Bharat's health and wellness centres, as well as the Pradhan Mantri National Dialysis Programme (PM-NDP).

The National Health Policy 2017, recommends a comprehensive, integrated health-care system. The policy articulates the development of health and wellness centres to address the emerging epidemics of NCDs and mental health[13]. Based on the recommendation of the policy, the Government of India launched the Ayushman Bharat programme in 2018 which has two components:

- **Health and wellness centres (HWCs).** Existing sub-health centres and PHCs to be transformed into 150 000 HWCs to deliver comprehensive primary health care;
- **Pradhan Mantri Jan Arogya Yojana (PMJAY).** PMJAY offers financial protection of INR500 000 (~ US$ 7000) per family per year.

The design of integrated care in India

Using Walter Leutz description of integrating medical and social services [14], the arrangement for vertical integration among primary, secondary and tertiary levels of care in India may be described as a form of linkage.

Within the public health system, there are referral and follow-up processes between the tiers, i.e. from subcentres and PHCs to CHCs at the lower levels, with links to district hospitals and tertiary hospitals for secondary and specialty care. It is not mandatory for the patient to access primary care first and then higher levels of care. Also, every PHC is mapped to a certain population. The health-care field staff of the PHC provide outreach in the mapped communities. Access to health services are not restricted to assigned PHCs or other facilities. People may avail services from any health facility, at any tier, anywhere in the country. The NRHM introduced a cadre of female volunteer community level health workers – the Accredited Social

Health Activist (ASHA). The ASHA worker and auxiliary nurse midwives (ANMs) provide community outreach services – their services include a focus on RMNCH, nutrition, and more recently screening for select NCDs and COVID-19 related outreach activities. Interviewers emphasised the role of frontline health workers in the delivery of care, and an expert suggested that "ASHAs and ANMs should be involved in developing more integrated care through proper performance-incentivized models, training and awards."

While there is a clear understanding of who pays for what, there are gaps in overall case management. At the state level, the Department of Health and Family Welfare finances and governs PHCs, CHCs and district hospitals, i.e. facilities providing primary and secondary care while the Department of Medical Education manages and finances the tertiary and specialty hospitals. Staff help patients to access public health systems from primary to the secondary and tertiary levels of care. However, there is no integrated IT system or electronic medical records which would allow easy sharing of patient records and care management notes across different tiers.

There is no coordination between public and private providers. Opportunities to bridge this gap may arise through insurance mechanisms. For example, government-sponsored health insurance schemes at national and state levels include empanelled private hospitals. Most government-funded insurance schemes target below-poverty-line population and cover catastrophic secondary and tertiary treatments but not outpatient or primary care – which along with expenditure on medicines form a significant part of household spending on health. The beneficiaries of these schemes can avail treatment from public or empanelled private hospitals. Reimbursement from the government goes directly to the provider and is cashless for the patient. The NHM has brought the focus of primary care in India to include noncommunicable diseases along with other essential health services, yet there are inadequacies in the delivery of NCD care at the lower levels of the health system.

Ayushman Bharat is expected to facilitate comprehensive care inclusive of NCDs. The status of implementation of the programme in Indian states as in July 2021 is given in Table 5.1. The Ayushman Bharat reform is being

implemented in 24 out of 28 Indian states and eight Union Territories which are administrated directly by central government. A majority (21) have adopted a model in which a Trust is constituted to manage and govern the social insurance scheme. The scheme aims to provide comprehensive health services – primary and preventive health services via the health and wellness centres, complemented by secondary and tertiary level care via the PMJAY insurance scheme. The Ayushman Bharat has general guidelines for the implementation of the HWCs these focus on an expanded package of services including homebased care and mechanisms to ensure, screening and follow-ups to identify and NCDs such as hypertension and diabetes in the community. In addition HWCs will undertake community-level promotion activities towards overall wellness [15]. NCD prevention and promotion of healthy behaviours are also weaved in the HWCs.

Table 5.1 No. of the states / union territories with types of PMJAY implementation modes utilized. (As of July 2021)

Implementation mode	No. of states
Insurance model	7
Trust-based model	21
Hybrid mode	4
Non-implementing states	3
No information available	1

Source: Adapted from Ayushman Bharat Pradhan Mantri Jan Arogya Yojana website (https://pmjay.gov.in/states/status-implementation)

Beneficiaries, advocates and opponents of integrated care in India

The general population would benefit from integrated care. Improved availability, access and affordability of care for health services, including NCDs and chronic conditions, covering screening, treatment and management of these conditions. If this gap if filled, it would benefit the general population, and overtime lead to increased well-being and productivity of the population.

Improved integration of care would also lead to most cost-effective prevention and management strategies for chronic conditions and NCDs,

thereby reducing the burden on secondary and tertiary levels of the health system. Integration may also lead to more effective utilisation of resources under the existing health system, providing benefits for the wider health system and related stakeholders.

During this study, no stakeholders were identified by interviewees as opponents of integrated care.

Case study: Karuna Trust

Introduction

Karuna Trust is a non-profit organization which started in 1986 with the aim of empowering vulnerable communities in Karnataka, India. The organisation was instituted in 1986 as a charitable trust to respond to the widespread prevalence of leprosy in Yelandur Block of the state of Karnataka in India. The Trust aims "provide an equitable and integrated model of health care, education and livelihoods by empowering marginalized people to be self-reliant." In 1996, Karuna Trust first partnered with Government of Karnataka to run the Gumballi PHC in Chamarajanagar district. As of 2020, Karuna Trust had served over 1.3 million people, managing over 71 PHCs (under a public private partnership model) in five states of India, two mobile health units, one eye hospital and one first referral unit employing about 2000 health-care staff [16].

In this PPP model, the state government contracts out the operations of PHCs to Karuna Trust, while providing finances and essential medicines and supplies. Karuna Trust has also partnered with and provides technical support to local nongovernmental organizations (NGOs) managing PHCs, such as in the state of Odisha. Karuna Trust also runs a few clinics that are fully funded through corporate social responsibility (CSR) sources.

The Trust assumes total responsibility for preventive, promotive, curative and rehabilitative health services to populations of 20 000 to 30 000 at each centre. Each centre provides 24x7 emergency/casualty services and outpatient care. Each centre also has a 24x7 labour room and minor operation theatre and manages a 5 to 10 bed inpatient facility. Karuna Trust

ensures regular availability of essential medicines and laboratory tests. The Trust also manages the cluster of subcentres attached to the PHC.

Rationale for studying the case of Karuna Trust

Karuna Trust was selected as an example of integration in the Indian context because the model incorporates different dimensions of care across the health system tiers, with a focus on community engagement and people centred care. The system ensures that the health of patients, especially those with chronic health conditions, is tracked from the community level through to the primary, secondary and tertiary levels of care. The Karuna Trust model is a strong case with valuable lessons for health and wellness centres in India. The model has integrated vital elements of strong community outreach, other care services such as mental health care (which were traditionally not included in public primary care in India), delivered efficiently through the use of effective governance and financial and technological mechanisms.

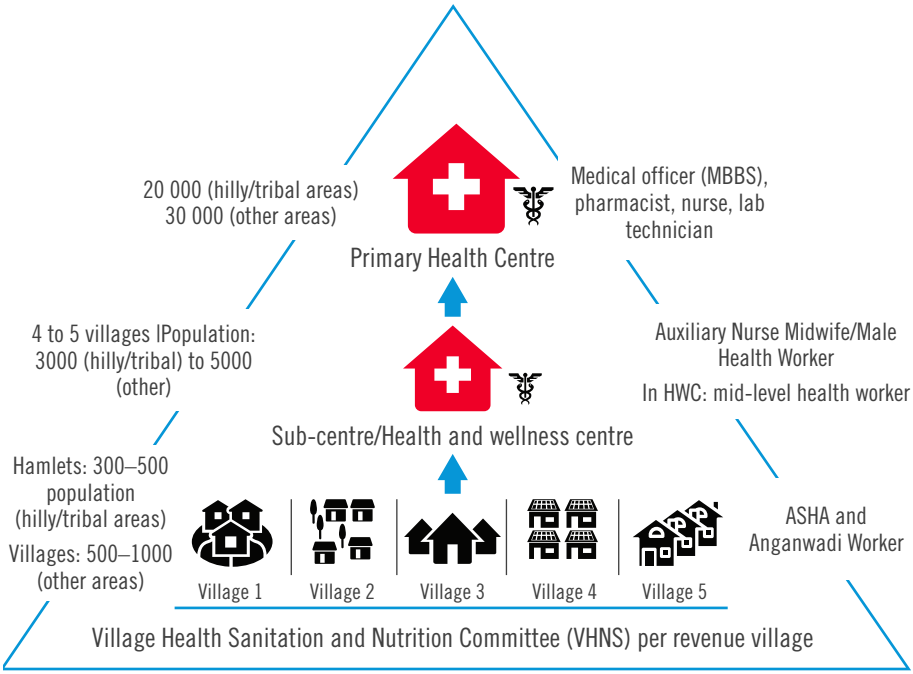
The case study on Karuna Trust in India explores the fundamental changes that the Trust has brought about in strengthening the provision of primary health care, with a focus on NCDs.

Integrative processes

Systemic and organizational integration

In many complex health systems, policymaking is often top-down, where the local community and patient voices are largely unheard. Policy decisions are made with little participation from the community. Karuna Trust has been working relentlessly to engage the community. In many complex health systems, policymaking is often top-down, where the local community and patient voices are largely unheard. Policy decisions are made with little participation from the community. Karuna Trust has been working relentlessly to engage the community.

Fig. 5.1 Population coverage of Karuna Trust units



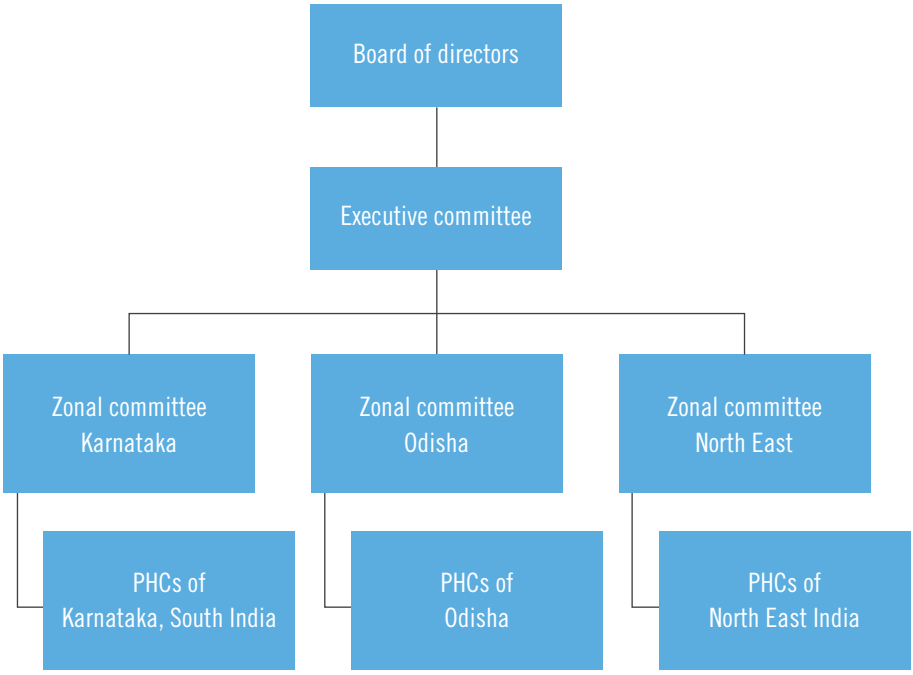
Source: Karuna Trust

A good practice in organizational integration is that Karuna Trust PHCs coordinate with other government departments through the village health sanitation and nutrition committees (VHSNCs). VHSNCs are village-level structures of the health department that bring together members from other departments such as local governance (*gram panchayat*) and women and child welfare department (*anganwadi* worker) with the local community, to include the village health and sanitation committee and community-based organizations such as women's self-help groups and youth committees [17]. Karuna Trust works closely with VHSNCs through monthly meetings to seek community feedback and deliberate on decisions being taken.

Effective engagement with the government, and the governance structure of the Model is a key strength of Karuna Trust by which it is managing to run even remote centres effectively and harmoniously with the government. Under the model, every centre has an "Arogya Raksha Samithi" (PHC

management committee). The Committee has staff of the centre as members and representation from local political leaders, local government such as panchayat raj and community volunteers. The committee meets monthly to plan activities for the month and address any issues in care delivery. The Samithi also coordinates with the VHSNCs. The governance structure of Karuna trust is given in Fig. 5.1.

Fig. 5.2 Karuna Trust governance structure at national level



Source: Author's summary

The vision of Karuna Trust provides an equitable and integrated model of health care, including education and livelihood strengthening by empowering marginalized people to be self-reliant. Gumballi, the flagship PHC, is a strong example where Karuna Trust has set up a solar panel for powering the PHC throughout the year with solar energy. The innovation was in response to the challenges in running the PHC with irregular power supply. Karuna Trust has partnered with the local government, i.e. the village panchayat, which provides funds for the operational maintenance of

the solar panel. Today, solar energy arrangements have been scaled up to 32 other PHCs across the country.

Karuna Trust supports the staff to integrate traditional remedies into the treatment provided at the PHC. The Trust advocates for mainstreaming of the use of traditional medicines which the communities have been using.

Clinical integration

The Trust integrates the secondary and tertiary levels of care through a referral pathway down to the primary centres, thus linking the community with primary care. In the next step of the referral pathway, the patient visits the subcentre or PHC for outpatient care. For those requiring further treatment, PHC staff refer the patient to secondary- or tertiary-level institutions, i.e. CHCs or hospitals, respectively. The ASHAs and ANMs track the health of referred cases in subsequent community visits and effectively track health outcomes through the digitized medical records. This approach facilitates linkage of institutional treatment with post-acute care in the community.

Ensuring specialist services such as gynaecology, ophthalmology and dentistry is a common challenge in primary-level institutions. To overcome this challenge, specialists provide outreach by running clinics at primary level on predetermined days and using telemedicine. For example, in the Adugodi Centre, Bangalore, a full-time obstetrician is engaged to meet the need for obstetric care. An optometrist conducts basic vision tests while an ophthalmologist is connected remotely via telemedicine for providing treatment guidance for eye care. A dentist is also available at the health centres.

Professional integration

The staff have weekly meetings to discuss the functioning of the PHC. The staff at the PHC (Fig. 5.3) work with government-appointed field staff such as ASHAs and ANMs. The ASHAs and ANMs are the pillars for providing care to the community. The PHC and field staff together implement national health programmes to align the PHCs and attached subcentres with the framework of the state and national health system and provide integrated care for the patient.

Karuna Trust encourages its staff to stay close/at the headquarters of the district where the PHC is located. The Trust tries to provide accommodation for staff near the centres in rural or inaccessible locations such as in Arunachal Pradesh. By providing residential accommodation, the Trust is able to ensure the availability and attendance of the staff at centres.

The Trust has a cadre of supervisors. These supervisors visit the PHCs and subcentres on a monthly basis to resolve any administrative challenges faced by the centres and to provide overall supportive supervision. The supervisors help ensure that all centres managed by Karuna Trust function in a similar manner, meet the expected performance outputs and can learn from each other's successes and lessons.

Fig. 5.3 Staff at a Primary Health Centre managed by Karuna Trust

Source: Author's summary

Functional integration

The defined process flows, robust technology backbone and financial management from the standpoint of sustainability are some of the strong support systems that Karuna Trust integrates with care delivery to provide patient-centred, population-based care. Referral pathways are defined and followed, and reporting and feedback mechanisms are non-ambiguous. All the patient records in Karuna Trust-managed centres are completely digitized. Field staff have tablets or smartphones for accessing and entering patient information digitally and safely.

The integration has been extended beyond clinical to include financial integration. The Trust co-finances about 10–20% of the budget of the centres it manages and taps multiple alternate sources of funds to ensure that a set of comprehensive services are provided, and that staff are paid on time.

The trust also works with a number of charitable and industry partners to bring novel solutions to the PHCs. These include electronic health records and digital inventory tools for management of medicines and consumables. The Trust has started two skill lab units – one in Mysore, Karnataka and the other in Itanagar, Arunachal Pradesh with support from a non-profit organization, the Manudhane Foundation. The skill labs train staff nurses and doctors in evidence-based protocols through simulated and hands-on practice. There is also a digital platform, ECHO, which is used to conduct periodic training and support clinician decision-making.

Normative integration

The vision and mission of Karuna Trust is to provide holistic integrated care to marginalized people through a dedicated service-minded team. The founder has been instrumental in encouraging the staff to put the patient first and ensure overall well-being of people in a sustainable manner. The leadership at Karuna Trust speaks strongly of service mindedness with senior leadership of the trust working on a voluntary basis.

The staff in rural PHCs are often from the local community, which ensures a sense of belonging and interest to better the health of their people. The leadership revisits the core values in periodic meetings with their staff. The supervisors are strongly oriented in the service-minded culture and trained

to be able to supervise medical and administrative tasks of PHCs. As one of the members of the Executive Committee noted, "some of our supervisors have been associated with Karuna Trust for nearly 20 years. They act as ambassadors of the Karuna Trust way to the PHC, field staff and the local communities that they serve."

A performance evaluation of the Karuna Trust is given in Table 5.2.

Table 5.2 Performance evaluation of Karuna Trust

Indicator		Results
Structure	Facilities	Thirty-five PHCs, which form 52% of the PHCs run in a PPP mode with the government, have electronic medical records, with the help of which data on follow up and post-acute care after referral visits can be tracked. Thirty-eight PHCs, which form 58% of the PHCs run in the PPP mode, are enabled with Logistimo, an inventory management application for maintaining stock and supplies of medicines and consumables.
	Staff	The PHCs managed by Karuna Trust in a PPP mode have gynaecology, ophthalmology and dentistry services, which were not available in government-run PHCs. The latest reform of UHC in India, the Ayushman Bharat, is revamping primary care centres into HWCs. These centres have these specialist services, which Karuna Trust has ensured since many years.
Process	Access to care	The percentage of women delivering in health facilities (institutional deliveries) in the populations assigned to Karuna Trust PHCs of Karnataka state has been 99% since 2015. The aggregated average for the state of Karnataka was 94% in 2018.
	Care coordination	Karuna Trust regularly coordinates with government entities outside of the health department at the community level. Supervisors from Karuna Trust PHCs attend meetings with the committee under the local government, i.e. the VHSNCs twice each month. This helps to remain engaged with the context of the communities it serves.
Outcome	Health indicators	The averaged IMR in the PHCs managed by Karuna Trust in Karnataka has been around 5.3 from 2016 to 2019. The state average IMR was 24 in 2016. The average maternal mortality ratio (MMR) for Karuna Trust PHCs was 40, compared to the state average of 108 in 2014–2016.

Sources: Interviews, Karuna Trust Annual Report 2017–2018, national health databases

Barriers and facilitators to successful implementation of the case

Barriers to successful implementation of the case

Barriers in service delivery. The nature of the Indian health system often means that the management of diseases can be fragmented and be hampered by lack of coordination. For example, there are several vertical disease-based programmes with little or no integration with primary health care. Services at the primary health care level emphasise RMNCH and communicable disease control, with dental care or ophthalmological services largely restricted to the higher tiers of the health system. NCDs including mental illnesses, CVDs and cancers are also traditionally screened for and managed by higher centres of care, with little integration for all the vertical programmes under primary care.

Barriers in financing. A major challenge in the PPPs has been the delay in release of funds from the government. Health centre staff, especially front-line workers, are severely demotivated due to delay in payments.

Facilitators to successful implementation of the case

Karuna Trust has been working on community engagement. The aim is to extend beyond health-care delivery to providing an equitable and integrated model of health care, education and livelihood by empowering marginalized people to be self-reliant. This vision is common to every employee from the field staff to the board members.

The Arogya Raksha Samithi at every centre and the overall organogram of Karuna Trust set the model up for success by ensuring accountability and sound regulatory oversight. The committees comprise members from the PHC, field staff, Karuna Trust, other departments and civil society, allowing for community participation and a wide perspective on the performance of the PPP.

The Trust supports staff to integrate traditional remedies into the treatment provided at the PHC. It advocates for mainstreaming of the use of those traditional medicines that the communities have long been using effectively.

Discussion and policy implications for integrated care in India

After the independence in 1947, India introduced a set of national programmes to mitigate communicable diseases such as malaria, leprosy and tuberculosis (TB). These stand-alone initiatives addressed specific diseases but were not integrated into the mainstream public health system. In recent years, India is taking significant steps to strengthen health systems towards UHC. The latest reform of Ayushman Bharat has two components: a health insurance for catastrophic secondary and tertiary treatments, and a component of strengthening public primary care institutions to provide comprehensive and integrated care for patients.

There is a significant presence of the private sector. However, these private providers vary in their geographical presence, quality and affordability. Recently, the government has started purchasing secondary- and tertiary-care services from private providers through the public health insurance programmes, while the implementation is not uniform across the states. The country has alternative schools of medicines in the form of AYUSH, but these are not integrated into the mainstream health system.

An example of a integration of services can be seen in the Karuna Trust model. The model integrates primary care with community-based and ambulatory care, and other social development initiatives. The major takeaways for strengthening integrated care in India are given below.

First, the success of integrated care programme rested on adapting the integrated care concept to the local context to ensure acceptability with the local staff and patients, as well as other key stakeholders. The Karuna Trust customized the basket of services provided at primary and secondary levels of care to suit the needs and epidemiological profile of the local community. It has focused on lifestyle diseases, mental health and eye care in urban areas while livelihood support has been the strength of the village model, it also forged strong collaborations with the local communities to address issues outside of the direct purview of care provision in order to ensure effective care and livelihood of the people. Adaptation and adjustment to local needs is necessary to push the integrated care agenda.

Second, leveraging partnerships with other stakeholders, government departments, the private sector, and community-based organizations to fill in gaps in service delivery. This may also include opportunities to weave in learnings from their functioning such as management techniques, policy alignment, building community trust and engagement, and links with different avenues of financing. It is also crucial to develop a culture of people-centred care to build trust and improve quality of care. Commitment from leadership, feedback mechanisms and periodic contact with the staff across all levels of the organizational set-up may help to build this culture.

Third, the role of technology and IT systems is critical to facilitate the integration of care and enhance the quality and continuum of health care. Accurate health information has the ability to transform health services by providing sound data to guide decision-making. Use of technology tools such as electronic medical records and applications for inventory management of medicines and training of staff can effectively improve efficiencies and data-driven decision-making. There is a need to upgrade the current health information system and increase its functions, availability and accessibility.

References

[1] A. Sengupta and S. Nundy, "The private health sector in India," (in eng), *BMJ (Clinical research ed.),* vol. 331, no. 7526, pp. 1157-1158, 2005, doi: 10.1136/bmj.331.7526.1157.

[2] World Bank. Current health expenditure (% of GDP) [Online] Available: https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS

[3] National Health Systems Resource Centre, Ministry of Health and Family Welfare, and Government of India, "National Health Accounts Estimates for India FY 2016-17 ", 2019. [Online]. Available: https://nhsrcindia.org/national-health-accounts-records

[4] N. C. Sharma, "Just 20% women and 23% men are covered by health insurance in India, says survey," in *Mint*, ed, 2018.

[5] S. Kamineni, "What India's route to universal health coverage can teach the world," ed, 2019.

[6] A. Mahal, A. Karan, and M. Engelgau, "The Economic Implications of Non-Communicable Disease for India," in "Health, Nutrition and Population (HNP) Discussion Paper," The World Bank, Washington DC, 2009. [Online]. Available: https://openknowledge.worldbank.org/bitstream/handle/10986/13649/529130WP0Box341cationsofNCDforIndia.pdf?sequence=1&isAllowed=y

[7] J. Thakur, S. Prinja, C. C. Garg, S. Mendis, and N. Menabde, "Social and Economic Implications of Noncommunicable diseases in India," (in eng), *Indian journal of community medicine : official publication of Indian Association of Preventive & Social Medicine,* vol. 36, no. Suppl 1, pp. S13-S22, 2011, doi: 10.4103/0970-0218.94704.

[8] K. A. Pinter *et al.*, "Elements and Performance Indicators of Integrated Healthcare Programmes on Chronic Diseases in Six Countries in the Asia-Pacific Region: A Scoping Review," (in eng), *Int J Integr Care,* vol. 21, no. 1, pp. 3-3, 2021, doi: 10.5334/ijic.5439.

[9] J. Heeringa, A. Mutti, M. F. Furukawa, A. Lechner, K. A. Maurer, and E. Rich, "Horizontal and Vertical Integration of Health Care Providers: A Framework for Understanding Various Provider Organizational Structures," (in eng), *Int J Integr Care,* vol. 20, no. 1, pp. 2-2, 2020, doi: 10.5334/ijic.4635.

[10] K. D. Rao, S. Ramani, I. Hazarika, and S. George, "When do vertical programmes strengthen health systems? A comparative assessment of disease-specific interventions in India," *Health Policy and Planning,* vol. 29, no. 4, pp. 495-505, 2014, doi: 10.1093/heapol/czt035.

[11] S. Rudra, A. Kalra, A. Kumar, and W. Joe, "Utilization of alternative systems of medicine as health care services in India: Evidence on AYUSH care from NSS 2014," (in eng), *PLoS One,* vol. 12, no. 5, p. e0176916, 2017 2017, doi: 10.1371/journal.pone.0176916.

[12] National Institute of Health and Family Welfare. "National Cancer Control Programme." http://www.nihfw.org/NationalHealthProgramme/NATIONALCANCERCONTROLPROGRAMME.html (accessed 18 February 2020.

[13] Ministry of Health and Family Welfare and Government of India, "National Health Policy 2017," 2017. [Online]. Available: https://www.nhp.gov.in/nhpfiles/national_health_policy_2017.pdf

[14] W. N. Leutz, "Five laws for integrating medical and social services: lessons from the United States and the United Kingdom," (in eng), *Milbank Q,* vol. 77, no. 1, pp. 77-v, 1999, doi: 10.1111/1468-0009.00125.

[15] Ministry of Health and Family Welfare and Government of India, "Ayushman Bharat Health and Wellness Centres Accelerating towards health for all April 2018-September 2019," ed, 2019.

[16] Karuna Trust, "Karuna Trust Annual report April 2017 - March 2018," 2018. [Online]. Available: http://www.karunatrust.com/wp-content/uploads/2011/03/KT_FINAL_ANNUAL_Report_17-18.pdf

[17] Ministry of Health and Family Welfare and G. o. India. *Handbook for members of village health sanitation and nutrition committee*.

Chapter 6. Integrated care in the Philippines

Emmanuel Yujuico, Arianne Zamora, Karlo Buot, Miguel Marasigan

Key points of integrated care in the Philippines

- The Philippine government has plans to vertically integrate care for chronic illnesses across different public health facilities at the primary, secondary and tertiary levels. The 2019 Universal Health Care Act designates these plans as a national priority.
- However, the recent integration plans involving health-care provider networks are still in their infancy. In the past, the Philippine public health system had tried to foster greater vertical care integration through service delivery networks and, before that, through inter-local health zones (ILHZs). The hope is that this time additional funding earmarked for universal health care will provide sufficient resources to implement an effective vertical care integration effort.
- Until then, the most sophisticated vertical care integration initiatives for chronic illnesses remain those of top-ranked private hospitals. In this study, we make deep-dive case studies of how two of these were formed and are being implemented – cancer care at the Medical City and cognitive care at St Luke's Medical Center (SLMC)
- These two private hospitals have been studied as examples for the implementation of forthcoming public vertical integration efforts. With suitable modifications such as accounting for payments mostly coming from the national insurer, PhilHealth, instead of private insurance or OOP expenses, the examples hold promise in identifying best practices for implementing a vertically integrated nationwide system.

Basic information on the Philippines

Geographical, demographic, economic and political context

Philippines is an archipelagic country. The archipelagic configuration and geographical variation have a significant bearing on the health of its population. The United Nations Development Programme (UNDP) estimates that 34.3% of the variation in the Philippines' human development index and 24.7% of its life expectancy is explained by geographical factors [1].

The Philippines is a relatively young country. The median age is 24.3 years of age, with 31.8% of its population being up to 14 years of age [2]. Its total fertility rate as of 2017 was 2.7 births per woman. Life expectancy at birth is 69 years. The Philippine population presently stands at 106 million persons. By 2045, its population is expected to increase to 142 million. These demographic trends indicate a still-growing population, albeit at a slowing pace, as the total fertility rate continues to decline and life expectancy continues to increase.

Economically, the Philippines is one of the faster growing Asian nations. In 2019, it recorded a 5.9% GDP growth rate. Its GDP in 2019 was about US$ 366 billion. The unemployment rate in 2019 was estimated to be 5.1%. Meanwhile, its labour force participation rate is 61.5%. Its family poverty incidence rate is 16.1%. A notable feature of Philippines is its large number of overseas workers, believed to number over 10 million. In 2018, they collectively sent US$ 28.94 billion in workers' remittances. These remittances help to fund domestic consumption and investment by members of overseas workers' families.

Politically, the Republic of the Philippines is a democracy with a unitary government structure. Its legislature is bicameral, with 24 senators in the upper chamber elected nationwide and 303 congresspersons in the lower chamber, mostly representing congressional districts. The Philippine president is limited to serving a single term.

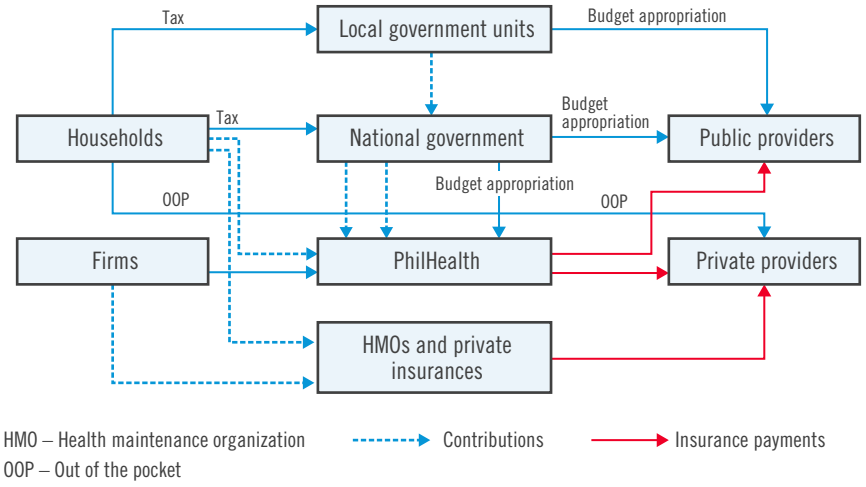
Health-care system in the Philippines

Health financing and coverage

The Philippines' health financing remains reliant on OOP spending, with about half the spending still accounted for by personal expenditure. Other sources of health financing include the national health insurer PhilHealth, health management organizations and private health insurers. This complex scheme for health financing is further complicated by the national and local governments providing separate funding for publicly provided care (Fig. 6.1).

In 2019, transfers from government domestic revenue allocated for health purposes constituted the largest source of public health funding at Php 271.6 billion, followed by social insurance contributions to the national insurer PhilHealth totalling Php 53.4 billion. Nevertheless, both are eclipsed by household OOP spending of Php 379.3 billion, which accounts for 47.9% of all health expenditure for the year[3].

Fig. 6.1 Sources of Philippine health financing



Source: Obermann et al., 2018 [4].

In 2019, Philippines passed Republic Act No. 11223, otherwise known as the Universal Health Care Act. This Act is meant to help the country achieve UHC by the year 2030 as mandated by the United Nations' Sustainable Development Goal 3.8. Now, all Filipino citizens are automatically enrolled in PhilHealth. However, this theoretically universal coverage is belied by the reality that many geographical areas of the country still experience sparse actual coverage. Not only are geographically isolated and disadvantaged areas difficult to reach, but they are also less well-off economically. As a consequence, health-care professionals do not find it attractive to work in these areas. Although there are government programmes incentivizing health personnel to work and remain in these areas, their results are mixed. Also, difficulties have been noted in reimbursing PhilHealth claims in a timely manner.

Health providers

There are four distinct classifications in the Philippine health-care system, including primary care and secondary care (levels 1, 2 and 3 hospitals). At the primary care level, public health services are provided by barangay health stations (BHSs). In rural areas, BHSs are satellites of rural health units (RHUs). There are also private clinics that provide similar services at the primary care level. Level 1 hospitals feature rudimentary services and do not have intensive care units. Level 2 hospitals have intensive care units as well as in-demand specialist services such as gynaecology or paediatrics. Level 3 hospitals are able to provide specialist and subspecialist tertiary care for a wide range of conditions. Regardless of their classification, all hospitals offer emergency room services.

Role of primary care (as the entry point into the system)

There has often been a reluctance on the part of patients to go to facilities such as BHSs, RHUs and the like, either because residents are unaware of them or because these facilities are perceived as being underequipped for their health needs. Therefore, a challenge has been to not only raise awareness of the existence of these primary care facilities but also to increase the public's trust in them as being adequately equipped to meet their health needs.

KPMG international in an analysis of service delivery [5] notes ineffective gatekeeping by primary care providers, since it is often difficult in practice to make patients follow a succession of care from primary to secondary and then to tertiary care providers. Instead, hospitals are overcrowded with patients with less serious cases more suitable to being addressed at RHUs or BHSs. A number of causes are identified for insufficient utilization of primary care as an entry point into the health system: low health literacy, perceptions of hospitals as offering better care and higher-level hospitals being legally obligated to attend to patients on their premises regardless of the severity of their conditions.

Meanwhile, primary health care should be seen as the "gate opener" for Filipinos requiring health services, to ensure that they do not bypass lower levels of care except in emergency situations and when direct access to a specialist is necessary. Once more, mapping is needed to define clear roles

and responsibilities among health providers, both public and private, who want to be part of a service delivery network (SDN).

In response to these observed shortcomings in primary care serving as an entry point into the health system, the implementing rules and regulations of the Universal Health Care Act envision primary care providers "acting as the navigators and coordinators of health care within the (national) network" [6, 7], where "navigation" refers to the function of coordinating and directing the individual to obtain the health services needed to manage a wide range of health needs [6]. More specifically, the primary care provider "shall act as the navigator, initial and continuing point of contact in the health-care delivery system" [8, 9]. Importantly, however, the implementation of UHC is still in its early stages, and the practicalities of primary care providers acting as navigators for patients are still to be determined, such as how to link with hospital and post-acute care providers. Nor are there specific instructions given in these implementing rules and regulations for handling NCDs.

Overview of integrated care in Philippines

Trigger, rationale and catalyst of integrated care for chronic diseases

Philippines faces a set of challenges including an increasing burden of NCDs, an ageing society, rising demand for specialty care, significant overcrowding of higher-level hospitals while underutilization of other existing resources, hospital-based provision of low-complexity care, fragmented service delivery systems, broken referral systems and weak primary care. In the Philippine context, one observed consequence of fragmented service delivery is patients "zigzagging" from provider to provider to resolve an illness episode. This phenomenon results in the rapid depletion of social health insurance (PhilHealth) benefits, which, in turn, drives higher OOP expenses. These challenges call for care integration in service delivery.

The overall objectives of vertical integration are: to reduce fragmentation and poor communication between providers at different levels of care; to improve quality of care and health outcomes; and to reduce inefficiencies

within the health system. By focusing on continuity of care through increased provider coordination across different levels of care, vertical integration ensures that the complex needs of patients are continuously tracked and attended to, which ultimately reduces unnecessary hospitalizations and improves patients' quality of life.

History of health system reform for integrated care

Philippines has taken important steps towards strengthening care integration in service delivery. Pursuant to recent government policy statements, administrative orders and pending congressional bills, the country's guiding service delivery strategy is the formation of SDNs. Their main objective is to vertically (and horizontally) integrate service delivery between and across provider tiers. SDNs are one pillar of the government's overall policy framework for health in 2017–2022, known as FOURmula One Plus for Health (F1+). Department of Health (DoH) Administrative Order 0014 of 9 August 2017 details the framework for redefining SDNs. The administrative order mandates a strong primary health-care approach with a focus on primary care and gatekeeping as well as the multisectoral, multidisciplinary and coordinated provision of care.

More recently, as part of its pursuit of UHC, the Philippine government has passed the Universal Health Care Act, Republic Act 11223. The bill highlights the following SDN attributes:

- Payments or contracting rates for individual services provided by SDNs will be determined by PhilHealth, while DoH will determine the level of financing for population-based services.
- Primary care will be the gatekeeper and coordinator of care within a network.
- Regulations will set the minimum structural standards for SDNs.
- SDNs will be organized at the provincial and city levels, integrating existing municipal and urban systems under governance arrangements consisting of the province and/or city health boards. The provincial government will provide management and technical supervision.

- All revenues directed to an SDN will be pooled into a special health fund.
- Installation will be done of electronic health records and prescription systems.
- On 30 May 2018, DoH issued implementing guidelines for F1+ (Administrative Order No. 2018-0014) along four strategic pillars: financing, service delivery, regulation and governance. Under the service delivery pillar, SDNs are identified as the organizational platform for delivering a package of comprehensive care. The administrative order also calls for a comprehensive assessment of SDNs, in part to determine future infrastructure needs.

The design of integrated care

As a result of the discontinuities in the provision of care for chronic diseases, Philippines has been attempting to create vertically integrated care, with primary care providing the entry point into the national health system. This section will first discuss the evolving role of primary care in Philippines before turning to the general design of integrated care.

The inception of these vertical integration efforts can be traced to the devolution that occurred in the early nineties after the passage of the Local Government Code [10]. In part, these efforts have aimed to reconstitute the level of integration observed prior to devolution. Over time, vertical integration efforts have evolved to account for legal considerations as well as changing priorities in the public health sector. These priorities are affected by factors such as global health trends promoted by international organizations and the requirements of domestic health legislation. At the outset, it must be noted that these forms of integration remain publicly oriented in nature up to the present time.

In sequence, there have been three major vertical integration initiatives in Philippines: (i) the ILHZ, (ii) the SDN and (iii) the health-care provider network (HCPN). Although these networks have chiefly been organized through government action, they do feature private sector participants. In addition, they have also been informed by private sector practices deemed worth emulating by national health authorities. In the Philippine

experience, there are memorandums of agreement or understanding among care providers; referral manuals delineating care pathways and the roles and functions of participants; and the use of navigators to guide patients' journeys through the network.

How facilities included in a network are arranged and designed – their roles, responsibilities, authority and modes of interaction – are included in the subtheme of organizational forms. Whereas the optimal form of organization is a fully formalized and integrated network having a single budget, various hindrances have prevented the Philippine forms of vertical integration from reaching this ideal. These include legal impediments to pooling public and private sources of funding as well as political impediments introduced with the aforementioned passage of the Local Government Code of 1991.

Instead of full integration, the Philippine situation may better be described as one approach that has been used to strengthen the coordination of several health programmes [6]. The actual extent to which integration is achieved remains partial in the public sector. Since Philippines' implementation of integrating primary care with hospital and post-acute care is still at an early stage, its situation may best be characterized as being partial in practice. That is, coordination is still beset by fragmented linkages between different providers. Moreover, there is only limited awareness among users of public health services about primary care providers serving as entry points in availing care.

Inter-Local Health Zone (ILHZ)

The driver for the initial vertical integration effort post 1991 was the fragmentation of health services after devolution, wherein many hospitals were still being run by the DoH, while other care providers were now under the charge of local governments at the provincial or city levels. Hence, the ILHZs were intended to reintegrate care provision at the local level. ILHZs are most closely patterned after the district health system. ILHZs featured a number of municipalities combined together with a referral hospital, usually a level 1 hospital, through memorandums of agreement. Supervision of these ILHZs was conducted by the municipalities involved as well as the province. None the less, ILHZs were usually limited to addressing only primary care health concerns.

Documentary guidance provided by the DoH for ILHZs is contained in the *Health referral system manual* [11], which emanated from workshop conducted in December 2001 to address deterrents to the implementation of an effective referral system, including:

- poor accessibility due to geographical location (remoteness);
- inadequate human resources for health;
- inadequate logistic and technical support; and
- poor knowledge, attitudes and skills among health providers.

Some ILHZs registered with the National Securities and Exchange Commission to establish themselves as legal entities. This set-up enabled pooling of funds from different participating local government units at both the municipal and provincial levels to finance ILHZ activities such as meetings, provision of additional services to patients, or even sharing of human resources among facilities and across municipalities if the need arose. Still, there was no inbuilt mechanism to assess ILHZ functionality. Also, ILHZ formation was purely voluntary, rendering their continuing operations uncertain and making it possible for local governments to opt out – especially during leadership changes.

Service delivery network (SDN)

SDNs emerged from ILHZs. Whereas the ILHZs largely concerned the provision of primary care, SDNs were intended to connect facilities at the secondary and tertiary care levels as well. Instead of being headed by a level 1 hospital as with ILHZs, SDNs are headed by an apex or level 3 hospital capable of providing specialist or subspecialist care. The pertinent documents containing references to SDNs are the implementing rules and regulations of the Responsible Parenthood and Reproductive Health Act of 2012 as well as the Sin Tax Law of 2012. It should be noted that many SDNs prioritized maternal, newborn and child health and nutrition – family planning (MNHCN-FP) since that form of care provision was championed by the US Agency for International Development (USAID) that funded a number of SDN studies and implementations.

Hence, there was no unified model for SDNs. While some were established along service lines such as the aforementioned maternal care, others were constructed atop existing ILHZs like the province of Sorsogon. In terms of PPPs, although SDNs are still mostly public sector initiatives, there are a number of private providers who have signed memorandums of agreement or understanding with these SDNs to provide specialized tests or treatment that may not be available in public facilities.

Health-care provider network (HCPN)

HCPNs were defined with the passage of the Universal Health Care Act of 2018 as "a group of primary- to tertiary-care providers, whether public or private, offering people-centred and comprehensive care in an integrated and coordinated manner, with the primary care provider acting as the navigator and coordinator of health care within the network". Whereas ILHZs and HCPNs were formed voluntarily by the concerned local governments, the intent with HCPNs is for them (eventually) to become the organizational basis for delivering universal health care. As such, there will be reorganization and recentralization involved at the provincial and municipal levels.

In addition, primary care providers are designated as the entry point into the network as the "navigator" or "coordinator" of care provision. This arrangement is specially intended to be observed for chronic diseases.

HCPN governance is envisioned as being either purely public or purely private for legal reasons. The government oversight body, the Commission on Audit, follows strict rules that discourage the pooling of public and private funds. Although arrangements are similar to SDNs wherein memorandums of agreement or understanding can be signed with private entities by mostly public networks to avail of services unavailable in the public sector, it remains inconceivable to pool public and private funds at the current time. Instead, the DoH is exploring the formation of private HCPNs based on existing examples of mostly private care networks such as Ayala Healthcare Holdings' "FamilyDOC" and the Medical City's polyclinic model.

For recent evaluations of these public vertical integration efforts, see [12, 13, 14, 15].

Beneficiaries, advocators and objectors of integrated care

Beneficiaries

The general public stands to be benefit the most from these vertical care integration efforts. Since the devolution of government-provided care with the Local Government Act of 1991, care integration has been advocated. This was because delinking services provided by the national and various local governments has resulted in discontinuity in care. These have generally had negative effects on the overall well-being of public sector patients. Coupled with more robust national health insurance provided by PhilHealth, there are opportunities for making significant improvements to the care received by the general public due to laws that have been passed and measures that are currently being implemented.

Advocators

There have been three main parties advocating for vertical integration of care, namely, health bureaucrats, lawmakers and civil society advocates. Each will be covered in turn. Health bureaucrats, especially those at the DoH, have often spoken positively about the system that existed prior to the 1991 devolution of many health services to local governments. Different organizational forms of vertical integration that have been advocated, i.e. ILHZs, SDNs and now HCPNs. These have been the DoH's attempts to reintegrate health services. What has been lacking, though, has been a strong incentive for the public and especially private care providers to participate in these networks. However, these issues are being addressed through better incentives that were put in place with the Universal Health Care Act of 2018, such as being given allocations at the start of the fiscal year and larger amounts being provided to PhilHealth participants at the current time.

Noting that health care is a top issue, politicians have been pushing the health-care agenda strongly as well, including vertical care integration. Their efforts have included the various "sin taxes" on alcohol, tobacco and sugary drinks which help fund UHC. Moreover, the relative ease with which universal health care legislation itself was passed indicates a very broad coalition for improving the status of Philippine health care provided for by the State. Finally, the rise of the Internet and social

media has been accompanied by the emergence of civil society actors championing improved public sector care such as the Alliance for Improved Health Outcomes.

Objectors

Given the popularity of greater State-funded health care at the current time, it should be no surprise that active objectors to vertical integration are few. Moreover, if they do object, they either do not do so publicly or face widespread public disapproval. Mainly, those objecting to vertical care integration at the current time are physicians who had become used to the old system of non-integrated care. Although the old system may have been disjointed, some physicians became used to being paid individually for the inputs they provided and believe that they were paid sooner. After care integration, there is a belief shared by some physicians that their share of the payment may be reduced and/or delayed by participating in integrated schemes.

Case study 1: patient-centred integrated care at the Medical City

Introduction

A number of reasons account for the selection of the Medical City for a deep-dive case study. First, the Medical City is one of the Philippines' most advanced privately managed hospital groups. Aside from its main hospital in Pasig, Metro Manila's second-largest commercial district after Makati, it has other facilities elsewhere in the country such as in Pampanga, Iloilo, Pangasinan and Santa Rosa (Laguna).Its Pasig facility is one of only five nationwide facilities accredited by the Joint Commission International (JCI). In addition, its vertical integration practices are among the most advanced nationwide, having pioneered patient-centred approaches in private facilities. Aside from the tertiary hospitals mentioned above, it maintains primary care facilities in several Metro Manila area shopping malls that help provide integrated care. Although it is a private facility, the Medical City's example has helped shape national-level legislation and eventual operationalization of vertically integrated care. In consultation with government authorities, it has provided inputs to the design of national programmes for the care of chronic illnesses such as cancer.

Integrative processes

Systemic integration

The introduction of vertically integrated care for chronic illnesses came as a response to patient requirements when generalists' understanding of their conditions was exceeded. The benefit of having specialists on hand was especially evident when conducting tests, since advances in imaging and diagnosis could better be utilized with these specialists' inputs. That said, these providers also needed to keep cost–benefit considerations in mind when involving more specialists, especially for patients who were paying from OOP or largely OOP while availing of private integrated care. Identifying symptoms and causes of pain became starting points for the whole process, especially through identifying a chronology of symptoms. To be comprehensive, referring to other specialists was utilized to an extent not observed before.

Two major private hospital operators in Metro Manila, St Luke's and the Medical City, began to understand the need for multispecialist care to address overall well-being such as emotional and psychological factors. At the Medical City, there are multidisciplinary team meetings for chronic diseases: radiation, surgery and medical oncology, nursing care, palliative care, post-surgery care, voice and swallowing (ancillary needs), physical therapy, and so on, as the condition requires. Moreover, a primary care physician, who is a specialist attending physician organizes the care team and coordinates the entire process. Mapping of need is done for individual patients with a plan that accounts for emotional and psychological needs, or even a social worker for indigent patients. The physician also determines if hospice care is feasible (at a hospice or home care, where visit frequency is determined by patient needs). As such, it is a team-based process for providing care.

This model was devised more as an initiative of the Medical City than as one that emanated from the public sector. Since the Medical City is a private facility, the major funders of the vertical integration programme have been the hospital itself. For example, there was no concerted care for the health of cancer patients prior to this integration effort. There was also no baseline data/registry. Earlier, the practices observed were more of "paternalistic

medicine" than "evidence-based medicine." However, they now utilize a "participatory medicine" approach.

With regard to cancer care, there was originally no cancer registry in Philippines. Hence, there was a move to create a hospital-based cancer registry system as an NGO initiative. This registry contains records of all patients who have been diagnosed or treated for cancer in a number of affiliated facilities, 27 in total: six in Mindanao, two in Visayas, and the rest in the Luzon island group, which includes Metro Manila (19). It integrates the database of these facilities.

Overall, the Medical City's model is more patient-centred and bottom-up. The effort started with focus groups involving patients to solicit feedback. Subsequently, physicians started involving their counterparts to strategize the treatment approach for individual patients. Meanwhile, coordination was done through the use of a patient navigator (nurse). Eventually, more doctors started participating until it became standard practice in the entire hospital regardless of the case in question and whether the chronic illness was cancer or some other illness. Generally speaking, if there are five or more physicians involved, then it is considered a team practice.

Regarding local and national health reforms for cancer in Philippines, the National Integrated Cancer Control Act (NICCA) (Republic Act 11215) was passed on 14 February 2019. One of the interviewees was part of the technical working group writing the corresponding implementing rules and regulations of this new Act. Given the Medical City's advanced implementation of a cancer registry, the doctor was included as a technical advisor to prepare the national law. The new law states that every hospital needs to have a cancer registry. With this law, there will be a population-based national registry that is similar to that being implemented by the Medical City and some other high-level private institutions. The NICCA will be funded by the national government.

Organizational integration

For the Medical City, sequencing of different levels of care is being practised, though affordability limits their integration. In addition, means testing may be done to ascertain patients' ability to pay for vertically

integrated care that also affects the extent of vertical integration. The origins of organizational integration were the result of the efforts of two specialists in palliative or hospice care who led the integration initiative at the Medical City. It was through their initiative that the process of integrated care was introduced and operationalized in this facility. Although it was originally their own initiative, these practices became standardized facilitywide when perceived improvements were noted that were attributed to better coordination. A particular innovation in service delivery was to include the patient and the family of the patient in designing care programmes to ensure that responsibilities are clear during the care delivery and the handing off processes, e.g. to the oncologist and radiologist.

Moreover, the Medical City follows the guidelines of the national-level Universal Health Care Law 2019. Less advanced level 1 facilities can diagnose cancers. Level 2 facilities and upwards, such as the Medical City, which is a level 3 facility, have the ability to not only diagnose but also treat different forms of cancer. As such, there is an emerging network of regional and then specialty centres. In this case, the Medical City falls under the classification of an "advanced comprehensive cancer centre". Lower tier levels 1 and 2 hospitals in its immediate geographical vicinity refer to the Medical City for advanced care. In addition, the Medical City in Pasig (their largest and most advanced facility) has a network composed of different Medical City facilities in the country as mentioned earlier.

The legal documentation collected did not change from what existed prior to the introduction of vertical care integration. With this kind of integration, however, stipulations in the consent form about the treatment plan provide documentation of how to proceed on what has been agreed upon by the patient, family members and care providers. It is not so much of restructuring as the creation of new structures. Importantly, there was a move away from a silo-based approach based on, for instance, body parts. Instead of a stand-alone hospital, there has been a move to a network of a hierarchy by including other departments as well as other Medical City hospitals. With regard to various other hospitals also managed by the Medical City, there were intra-organizational arrangements put in place to facilitate vertical care integration. For those under universal health care

involving other hospitals in the area, the pertinent legal frameworks are those of the Universal Health Care Act.

Regarding roles played by hospital care, primary care and post-acute care during the integrative processes, primary care providers do not handle cancer cases so much since general practitioners seldom have specialized knowledge of cancer. It is more of hospital care coordinating its activities with hospice care providers if patients are being treated on an outpatient basis. The nurse (navigator) coordinates activities with those providers.

Professional integration

There is more direct care coordination as described through the formation of multidisciplinary teams. The team's composition, though, is fluid and depends on the patient needs. There is no real set of guidelines about who should be on the multidisciplinary team, but there is a foregone understanding of what they need to perform in roles such as chemotherapy, palliative care, etc. During team discussions, they usually prepare a diagram or flowchart where the different procedures to be applied by various team members are shown. Moreover, the team has a care coordinator/care manager, with the primary contact person always being a clinician. A nurse-navigator acts as the care coordinator or case manager for cancer patients receiving vertically integrated care. These nurses must be registered nurses. Fig.6.2 summarizes the participatory medicine process. It proceeds as below.

(i) The initial step involves the multidisciplinary team reviewing the patient's case.

(ii) At the same time, patients and members of their families also do their research concerning treatment and care options.

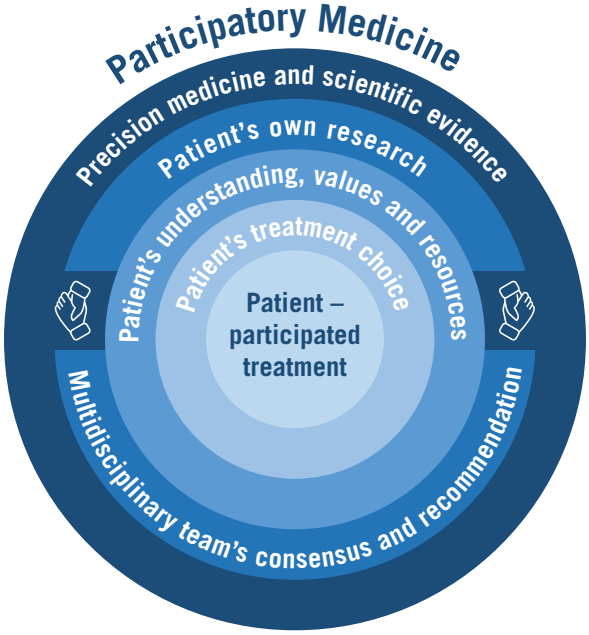
(iii) Then, clinicians and patients meet to discuss the multidisciplinary team's recommendations based on the consensus they arrived at before meeting with patients.

(iv) Patients' understanding of the condition, their values and the financial resources they have (whether OOP, from health management organizations or medical insurance and publicly funded sources) are then taken into consideration.

(v) Based on these different factors, patients make informed choices about what treatment choice to pursue.

(vi) Regardless of what treatment regimen is followed, a patient-centred approach is followed to help ensure better treatment outcomes.

Fig. 6.2 Medical City illustration of the "Participatory medicine" process



Source: Adapted from The Medical City

There is a typical composition of the team that must be present in all cases – the referring doctor, the patient, the patient's family, a nurse-navigator and other doctors (based on patient needs such as specialists in comorbidities). The roles of those participating are well-defined, and the participants know what roles they are to perform, especially after conferring with each after to discuss details of the patient's case. Among others, specialists may include a nutritionist, a palliative care specialist, a psychologist, etc. depending on the patient's particular needs.

Although the primary care physician of the patient outside of the Medical City is not always included in the care team, the patient may include this physician if so desired.

Clinical integration

With regard to transitions among primary, hospital and post-acute care, the movement or transition is accounted for in the care plan. It may be a contingency, e.g. if *x* happens to the patient, they should proceed to *y* post-acute care provider. Eligibility for participation in this clinical integration is dependent on tests to see if the patient can cope with the toxicity of chemotherapy, radiation or surgery. As for protocols for care, it mostly involves hospital and post-acute care through the care plan agreed to by health-care providers, patients and members of their families. There is also a primary care physician assigned first who then identifies additional specialists needed to address management of the chronic illness in question.

There are different entry points for the Medical City. Some could be other Medical City facilities in other parts of Philippines, or level 2 facilities in the geographical vicinity of the main facility (in Pasig, Metro Manila). With regard to cancer specifically, the Medical City and its affiliated service providers broadly follow the national comprehensive cancer network (NCCN) guidelines. Presently, telehealth and e-health remain limited in the application, and teleconferences are sometimes held with foreign experts on certain conditions (especially in pathology or biopsies). However, these are not standard practices.

As for involving external parties such as informal caregivers and family members, they are included in the care plan preparation. People who will help in the care of the patient are defined. For instance, these may involve arranging for the housing of out-of-town patients. Trusted family physicians may become middlemen in relaying to the patient that the specialists have good treatment plans designed for them.

Functional integration

Concerning information and communications technologies for health, the Medical City staff can access electronic information within the integrated

care team, although not with others outside the organization. The Medical City group is in the process of rolling out an integrated electronic medical record (EMR) system. As of now, different facilities in the group have different systems which are not interoperable. However, there is already a "patient portal" app through which patient can contact physicians.

There are regular needs and functional assessments. Needs assessments are part of the "participatory medicine" approach outlined above. These are conducted by the multidisciplinary team and in consultation with the patients as well as members of their families. Regular assessment is done and different rounds of tests and imaging are performed to see how the disease has responded to treatment. Also, risk stratification is followed based on general medical guidelines based on age, condition, pathological features of the disease and so on, according to international medical practices.

Normative integration

The Medical City's vision and mission have been identified as key normative principles followed by hospital staff, including the director of its cancer institute who oversees the vertical integration of care for cancer patients. The vision is "To always be a leader in shaping how Filipinos think, feel and behave about health and how health services are accessed by and delivered to them, and to use such leadership to serve equity in health, life and development". While the mission of the group is "to always keep patient centre stage and deliver service of greater worth, engaging strategic partners who share vision and passion, constantly proceeding from what we do best. In the process of carrying these out, we align the interests of our employees, our professional staff and our shareholders with the interests of those we serve".

Performance evaluation of the case

The cancer institute director notes that the Medical City, like most other Philippine health-care facilities, does not have strong formalized mechanisms for monitoring and evaluation of vertical integration initiatives. There are structures and systems in place that can help provide responses pertaining to overall performance.

In terms of structure, the physicians of the Medical City are almost entirely specialists. However, there will also be a "family medicine" department in line with the Universal Health Care law requiring generalists as well. EMR is not shared outside the Medical City system unless asked for by the patients, in which case conditional permission is granted. Strict observation is required in compliance with the Philippines' Data Privacy Act of 2012, which had medical records especially in mind.

As a private facility, access is conditional on the patient's ability to pay. The Medical City has an "emergency room dashboard", which notes that there has been an improvement in turnaround time from a patient flow perspective. Respondents generally believe that care transitions have been handled better through vertical integration, since hand-offs of care are included in care plans of when oversight should be transferred, based on patient progress with criteria that are already well-established. As mentioned earlier, care planning is thorough, with convened teams getting together to prepare holistic care plans. Care coordination is practised, especially at the hospital level (and occasionally at the post-acute level) as required by the patient's condition. As a result of their observations, there has also been a new palliative section created, which is meant to speed up these transfers. Evidence is still being collected to compare outcomes of those undertaking vertically integrated care with those who are not.

On outcomes, resource utilization does not apply so much since payments are largely shouldered through OOP expense or through the patient's existing insurance and/or health management organization plans. Resources for indigent patients are being mobilized with the national health insurer PhilHealth's Z package and the Medical City's own Akbay Ginhawa foundation. Overall, patients are believed to have improved self-management capabilities since they are more aware of the nature of their conditions and of what is occurring. Comparisons are also complicated somewhat by different units within the hospital, having been established as the result of adopting an integrative care approach, making before/after comparisons difficult in terms of various metrics on the user/carer experience. Yet, care delivery and transitions have been improved

overall by the use of nurse-navigators to guide patients through their care programmes.

Enablers and barriers to successful implementation of the case

Enablers

Enablers observed in this case for sustaining a move towards better integrated care include increased patient satisfaction, suggesting progress in the desired direction. Another is culture-centred change, with more doctors willing to work in teams instead of individually. Hospital leadership has also embraced patient-centred care, as reflected by its organization moving from hierarchical to matrix structures for this purpose.

Barriers

A barrier is the affordability of treatment regimens, including the various diagnostic tests. Charity beds that the government requires private hospitals to maintain make care at Medical City affordable to a number of less well-off patients. PhilHealth Z packages for common chronic diseases such as breast and colon cancer also help defray costs for those enrolled with PhilHealth. These packages make a fixed payment per case of a particular type of condition.

Another barrier is that there are still some doctors who are unwilling to participate in team-centred care since they are unsure about what is in it for them individually and are fearful of delays and reductions in their payment if they participate in these integration schemes.

Case study 2: the Memory Center at St Luke's Medical Center

Introduction

St Luke's Medical Center (SLMC) in Quezon City, Metro Manila's largest suburban area, is another pioneer in the Philippine provision of integrated care. Like the Medical City, it is a private institution that relies mostly on OOP payments or health management organization and insurance payments to a lesser extent. It also runs two of five JCI-accredited Philippine hospitals. Aside from its original Quezon City location, it has another in the bustling Bonifacio Global City area, within the boundaries of Taguig City, Metro Manila. It is also a tertiary institution with advanced facilities. The case study was conducted in both facilities.

SLMC has been included as a deep-dive case study not only due to its more advanced implementation of vertical integration, specifically for cases of memory loss, but also its role in setting an example referred to nationwide. Similar to the Medical City, though, a limitation is that this is a private sector effort, since public ones are not yet as advanced in their implementation.

Integrative processes

Systemic integration

The Memory Center at SLMC started in 2000. Initially, the focus was on group therapy for those with memory impairment, however, the team was faced with two challenges: i) patient's expressions of memory impairment varies and is dependent on the environment they live in and ii) reluctance of patients to interact together in group work. Hence, the lead clinicians changed their approach to a more individualized or person-centred one, where patients are evaluated individually and therapies are based on their needs.

In SLMC, the infrastructure is still moving towards vertical integrational although the system remains segmented. For example, the cardiologist is viewed as a primary-care physician. Elderly patients develop vascular symptoms in the earlier stages of life. Hence, the patients may have had

longer relationships with their cardiologist than with their neurologists or geriatric experts. The care is relational. The care is also often doctor-centred, so the network is frequently within professional networks and settings familiar to the physician.

The Memory Center has a multidisciplinary team in terms of therapy. The Centre has a nurse, an occupational therapist, a psychologist, a speech/language therapist and uses others, depending on the needs of the patient. The nurse also assigns a caregiver and arranges for the education of the families of carers. The patient assessment is multidisciplinary but there are no referrals to outside of the SLMC system.

Organizational integration

The Memory Center is seen as part of the care and is often not the point of entry since patients may already have seen other specialists or primary care physicians before they are referred. However, for patients who are primarily the lead physician's patient or that of the Memory Center, care integration proceeds as follows. First, the patient is seen by the internist/physician at the Memory Center. Next, the patient is referred to other departments if necessary. Here, the coordination of care is facilitated by the initial physician handling the case in the hospital. They will then be referred to specific treatment experts within the centre, e.g. speech pathologists, physical therapists, psychologists, and so on. In this process, the physician oversees the process, while an assigned nurse handles navigation.

In terms of reorganizing hospital processes, there was already a trend towards specialized care. Now, there is an interest in providing comprehensive care, which patients also demand since they have concerns about navigating care processes. For example, the occupational therapy, language and psychology units previously had separate teams. Now, the Memory Center structures itself by networks reflecting the brain's structure and not simply by function.

Overall, the benefits of integration are: (i) treatment being a one-stop-shop for patients; (ii) generation of data kept in the Centre; and (iii) building long and lasting relationships with patients and their families. The drawback,

though, is that providing this kind of care is costlier for the patient and for third-party payers.

Concerning care integration among primary, hospital and post-acute care, patients of the Memory Center will be referred to specialist members of the multidisciplinary team. In some cases, there can be some conflict in the referral of patients. For example, on issues concerning swallowing, a member of the multidisciplinary team within the Memory Center can provide care since this can also be a neurological issue. However, the hospital itself has its own specialists for swallowing in the gastroenterology department. In such scenarios, there is an informal agreement between physicians and nurses concerning patient referral. The primary physician can be consulted as to where the patient will be referred for care.

In situations where the concern is outside the purview of the Memory Center's care, patients can be referred to other centres or specialists (nephrology, cardiology, etc.) within the SLMC system.

Professional integration

Concerning professional coordination of services across disciplines, the focus is more on care management, although with some care coordination. The multidisciplinary teams may be composed of internists, nurses, speech and language therapists, pathologists, occupational therapists, psychologists, neurologists, etc. All these roles are well-defined by the Memory Center. The care coordinator or case manager remains the physician who primarily attends to the patient. Requests for treatments and prescriptions come from this doctor.

Clinical/service integration

Following on from the doctor in the hospital overseeing care programmes, downward referrals (to primary care) and referrals to other specialists at St Luke's are usually handled by the same person. Eligibility to receive care used to be limited to those 60 years and older, but there is presently no limit. There is no single point of entry for the Memory Center, instead, patients may come from direct referrals or their primary care physicians. Referrals may also emanate from laboratory findings showing brain injuries or from St Luke's wellness centre. A number of patients are also self-referrals, especially those with a family history of neurological disorders.

Concerning telehealth or telecare, dementia or cognitive disorder is not yet utilizing these technologies.

The Memory Center encourages families to send caregivers to receive training on caring for those with neurological disorders. Once suitably trained, these caregivers are able to provide the medical team with actionable information regarding the overall progress of these patients.

Functional integration

Concerning medical records, the Memory Center can access the EMRs of the hospital, but the EMR of the Memory Center is only accessible within the Center. This is a policy that the Memory Center insists upon, given the sensitivity of the data they hold. The records of the Memory Center are not part of the hospital's records, but the Centre ensures that this does not limit the care provided to patients. Members of the multidisciplinary team can gain access to the patient's records with consent from the patient. Access to the records by family members is also restricted to a degree.

Normative integration

Overall, St Luke's has the following values stated on its website, many of which relate to vertical care integration, especially those concerning patient-centred care, innovation and synergy. Hospital staff is well aware of these values, especially the providers of integrated cognitive care whom we interviewed. Also, patients expressed similar appreciation of the care provided.

- Integrity and professionalism. We always do what is professional, ethical and right.
- Patient-centred care. We put the needs of our patients at the core of what we do through outstanding clinical outcomes and great patient experience.
- Innovation. We always seek opportunities to continuously improve work to maintain the highest standards of patient care and service delivery.
- Passion for excellence. We strive to consistently exceed the highest standards of quality in everything we do.

- Synergy. We always work as a team to ensure the delivery of the best possible health-care experience to our patients and their families.
- Social responsibility. We live up to our commitment in extending our health-care expertise for social service, community health and environment safety.

Performance of the case

In terms of structure, SLMC does not have any general practitioners as a tertiary-level hospital. The Memory Center itself has five neurologists, with 16 allied health professionals aside from doctors. As mentioned above, the Memory Center has access to the hospital's records, but St Luke's does not have access to those of the Memory Center for data privacy/security reasons.

On process, there is improved access to primary care services as evidenced by the Center's targets and metrics. For care transitions, there are no significant delays in the transfer of care of patients from the hospital to their homes or other care facilities. Patients bring their records with them for ease of reference and communications with other attending physicians are sought for coordination purposes. Care planning for patients is individualized and holistic, wherein families are involved in treatment planning. While care coordination is generally high at the Memory an occasional challenge is coordinating with insurers regarding treatment coverage. Client satisfaction surveys indicate that patients are content with the coordination achieved so far.

The Memory Center works on an outpatient basis. Their basic principle is to ensure that patients are discharged as soon as possible. For self-management, patients with cognitive impairment are usually provided assistance since their abilities to provide self-care are limited. Overall, patients perceive benefits from having the Memory Center integrating services under one roof. Care delivery and transitions are also monitored. There are no reports of unnecessary care from patients. Physicians in the Center ensure that only vital tests are done. Consistent follow ups with the patient's schedule are also done to make sure that there are no missed appointments.

Enablers and barriers to successful implementation of the case

Enablers

Enablers include the culture of health care in Philippines being relational in context (promotes patient-centred care), policies implemented on safety and security as well as the conduct of conferences involving family members. There is also freedom of implementation within the Memory Center, which fosters innovation in terms of systems and practices.

Barriers

Barriers include the adaptation of international guidelines that sometimes are not applicable in the local (Philippine) context due to differences in the setting from where it originated, e.g. western nations and unnecessary tests for patients being prescribed by some physicians. Having personal family physicians also pose a barrier in some instances when they see themselves as the overseers of all aspects of their patients' care and therefore downplay the inputs of SLMC's medical professionals. Consequently, some patients accept SLMC's suggested courses of action only after their family physicians eventually expresses agreement.

As a private facility where patients primarily pay out of pocket, many indigent patients who cannot normally afford the kinds of services that the Memory Center provides. PhilHealth coverage for patients can also help in sustaining in the model, although these kinds of conditions are not covered by existing packages at the current time.

Discussion and policy implications for integrated care in Philippines

In general, there are two main sources driving integrated care.

First, there is the public demand for improvements in health care. Among key issues, health is consistently ranked near the top by the general public. Moreover, there is a growing expectation that health care should be provided to all Filipinos, regardless of their ability to pay for it. In a country that historically had a large part of its health expenditure shouldered OOP,

this nascent expectation has helped bring about the Universal Health Care Act of 2018. As early as 2010, for example, a widely cited public poll by the Social Weather Stations noted that 87% of those polled indicated that State-provided care, regardless of ability to pay, was a government duty. There was strong convergence on this across all social groups and all educational attainments [15]. Likewise, the United Nations championing UHC has further motivated the national government's current move towards providing vertically integrated care.

Second, there has been increased funding for public health services. In particular, "sin taxes" were applied in 2012 on alcohol, tobacco and sugary drinks, and subsequently increased in both 2017 and 2019. Eighty per cent of the proceeds from such sin taxes' are hypothecated to the national health budget for achieving universal health care.

Philippines presents an interesting case for care integration. While there exists examples of advanced integration practice in the private sector as exemplified in the case studies here, the national implementation of care integration is significantly less advanced. Since the large majority of the population relies on the public health system, and a rising prevalence of chronic diseases, the lack of integration in the public sector is becoming a concern.

The devolution of health care to local governments in 1991 fragmented the Philippine health-care system, and there have been several attempts to reintegrate it such as ILHZs and SDNs. While well-intentioned, these changing networks in the public sphere have complicated reintegration of care for NCDs and other conditions requiring closer coordination across health system. It is hoped, though, that the 2019 passage of the Universal Health Care Act can finally provide a compelling reason for health-care facilities, both public and private, to help improve care coordination at different levels. Given the advanced level of care coordination achieved by private hospitals, these examples may serve to inform the implementation of care coordination in the forthcoming HCPNs that will form the building blocks of UHC nationwide.

The deep-dive case studies are instructive in a number of respects for the public sector implementation of vertical care integration initiatives, as described below.

Overcoming resistance to vertical integration

A barrier frequently observed in private efforts is of physicians being unwilling to participate since they believe that they might not be compensated on time, if at all, by participating in these care networks. However, many participants have found that there are not only benefits to patients but also care providers, attributable to improved treatment outcomes. As such, there are potential win–win situations at hand for patients and medical professionals alike. That said, clarifying roles within these networks should be accompanied by clarity on compensation – who gets paid what and when.

On forming multidisciplinary teams

Public sector care is far from achieving the level of sophistication the private hospitals have in being able to provide specialists from several areas to work together in devising care plans for patients with chronic illnesses. To begin with, tertiary-level hospitals with such specialists are sparse outside of large metropolitan areas like Manila. Hence, public sector efforts will have to be more economical with the allocation of medical professionals like specialists with in-demand qualifications who are fewer in number outside of large cities. To an extent, these concerns can be mitigated by creating networks covering wider areas, although there comes a point when human resources may become spread too thin.

Economies of scale

The public sector may stand to benefit from economies of scale. Because the number of chronic conditions tends to cluster around a limited number of types, packages by the public insurer PhilHealth can help. Standardizing treatment packages around illnesses incurring the most disability-adjusted life years (DALYs) can also drive down the costs of dealing with frequently encountered chronic illnesses, using resources that individual private hospitals cannot muster but the national government can.

Building on the example of private vertical integration in the public sector

Physicians affiliated with private hospitals advocated the passage of the NICCA, which eventually became part of Philippine law. By implementing cancer registries nationwide following the practices of private facilities like the Medical City, the public sector may stand to benefit from the experiences of private care providers. In this manner, there will be knowledge-sharing and knowledge transfer between the private and public sectors. Even though physicians may work in private hospitals, quite a few are civic minded in being willing to not only advocate helpful national-level programmes but also provide inputs on how to make them work effectively, based on their experiences of working in private facilities.

It is acknowledged that there will be clear differences between private and public sector vertical integration. Whereas private sector vertical integration tends to be specific to hospital groups, public sector ones will have to rely more on primary care providers – especially to alleviate crowding in public hospitals. In particular, BHSs and RHUs will have enhanced roles in public settings since tertiary-level public facilities are sparse, and private hospitals are not always willing to participate in these public networks. Hence, the navigational role that private hospitals assign to registered nurses has to be moved downward to the primary care level in public health-care networks. None the less, the procedures they follow in providing navigation of integrated care can also inform public practice as it aims to similarly achieve multidisciplinary coordinated care across different providers at various levels of care provision.

References

[1] UNDP. Human Development Report 2013. The rise of the south: human progress in a diverse world. New York: United Nations Development Programme; 2013 (http://hdr.undp.org/sites/default/files/reports/14/hdr2013_en_complete.pdf, accessed 8 March 2021).

[2] National Quickstat – January 2020. Manila: Philippine Statistics Authority; 2020 (https://psa.gov.ph/content/national-quickstat-january-2020, accessed 8 March 2021).

[3] Philippine national health accounts 2014–2019. Manila: Philippine Statistics Authority; 2020 (https://psa.gov.ph/technical-notes/pnha-2014-2019, accessed 8 March 2021).

[4] Obermann K, Jowett M, Kwon S. The role of national health insurance for achieving UHC in the Philippines: A mixed methods analysis. Glob Health Action. 2018;11(1):1483638. doi: 10.1080/16549716.2018.1483638.

[5] KPMG International. Service delivery networks: a prototype for Sorsogon. Manila, Philippines: R.G. Manabat & Co; 2018.

[6] Department of Health. Implementing rules and regulations of the Universal Health Care Act (Republic Act No 11223). Manila: Philippine Statistics Authority; 2019 (https://www.philhealth.gov.ph/about_us/UHC-IRR_Signed.pdf, accessed 8 March 2021).

[7] Reducing health system fragmentation through improved leadership and governance: annual sustainability report 2017. Paranaque: Zuellig Family Foundation; 2017 (https://zuelligfoundation.org/wp-content/uploads/2018/05/ZFF-Annual-and-Sustainability-Report-2017.pdf, accessed 8 March 2021).

[8] Wong JQ, Jhanna Uy, Haw NJ, Valdes JX, Bayani DBS, Bautista CAP et al. Priority setting for health service coverage decisions supported by public spending: experience from the Philippines. HS&R. 2018;4:19–29. doi: 10.1080/23288604.2017.1368432.

[9] Goodwin N. Change management, Chapter 16. In: Amelung V, Stein V, Goodwin N, Balicer R, Nolte E, Suter E, editors. Handbook of integrated care. Springer International Publishing; 2017:253–76.

[10] Lam HY, Zarsuelo MM, Capeding TPJZ, Silva MEC, Mendoza MAF and Padilla CD. Policy analysis on province level integration of healthcare system in light of the Universal Health Care Act. Acta Medica Philippina. 2020; 54(6):650-658.

[11] Department of Health. Health referral system manual. Manila: Philippine Statistics Authority; 2002 (https://www.scribd.com/doc/297169823/Health-Referral-System-Manual-health-Referral-Manual, accessed 8 March 2021).

[12] Epimetrics. Case 2: Developing a service delivery network [mimeograph]. Paranaque: Philippines; 2018 (https://epimetrics.com.ph/assets/projects/big-data/EpiMetrics_C2SDN_ExecSumm.pdf, accessed 21 May 2021).

[13] Jhpiego. Guide in establishing a functional service delivery network (SDN) for MNHCN-FP services. Manila: Jhpiego Philippines; 2016 (https://doh.gov.ph/sites/default/files/basic-page/Updated_SDNGuide_final.pdf, accessed on 2 August 2021)

[14] Strengthening the referral mechanism in a service delivery network: experiences from USAID's LuzonHealth Project. Washington, DC: United States Agency for International Development; 2018 (https://doh.gov.ph/sites/default/files/basic-page/Strengthening%20the%20Referral%20Mechanism%20in%20a%20Service%20Delivery%20Network.pdf, accessed 8 March 2021).

[15] SWS. Survey on healthcare services and financing. Manila: Social Weather Stations; 2010 (https://www.sws.org.ph/swsmain/artcldisppage/?artcsyscode=ART-20151211144005, accessed 8 March 2021).

Chapter 7: Integrated care in Singapore

Bach Xuan Tran, Giang Thu Vu

Key points of integrated care in Singapore

- Singapore has been exploring the integrated care concept since the 1970s. Realizing the challenges and need for an entire health system transformation towards an integrated model, Singapore is taking a continuous improvement approach and constantly making positive improvements to care integration.
- The design of integrated care in Singapore covers coordination across a wide range of health-care providers, including population health, primary care, specialty outpatient services, hospital care, community health and social services. While there is a lot of focus on integrating primary care with hospital services, many initiatives are targeting coordination and transitional care between acute care in the hospital and post-acute services, and intermediate and long-term care services.
- Systematic and organizational integration plays a critical role in the integration process in Singapore through the establishment and evolution of regional health-care systems, launching the Agency of Integrated Care (AIC) and numerous other initiatives. Currently, there are three regional health systems in Singapore.
- The design and implementation of the integrated care model in Singapore is a combination of top-down and bottom-up approaches. While the systematic and organizational changes happen at the country level, the regional health systems maintain a certain level of autonomy in testing innovative care models and transforming organizations.

Basic information on Singapore

Geographical, demographic, economic and political context

Singapore is an island city-state located in Southeast Asia, with a population of around 6 million. The population aged 65 years and over accounted for 9.21% of the entire population in Singapore in 2020 [1]. Population structure in Singapore is near-stationary due to the low death rate, low birth rate and long life expectancy [2].

Singapore is classified by the World Bank as a high-income country with a gross national income of US$ 52 600 per capita in 2017. The overall growth

of the Singaporean economy was 3.2% in 2018. Value-added manufacturing, particularly in the electronics and precision engineering sectors, remain key drivers of growth, as is the services sector, particularly the information and communications industries. In the most recent World Bank Human Capital Index, Singapore ranks as the best country in the world in human capital development [3].

Singapore has set up universal suffrage and general elections. All the political parties are allowed to run in the election and political posts are filled according to the election outcome. Although Singapore is a multiparty nation, the centre-right People's Action Party (PAP) is the main political party and opposition parties are considered to have no real chance of gaining power [4].

Health-care system in Singapore

Health-care providers

Singapore offers UHC to citizens and affordable health care for all. The primary care providers in Singapore are almost all private, with some larger public clinics for the lower-income population [5]. Primary care is administered through 1700 private GP clinics and 20 public polyclinics [6]. Private providers deliver 80% of volume of primary care services. Polyclinics provide subsidized outpatient care, medical follow ups after discharge from hospital, etc. Polyclinics generally serve the lower-income population who cannot afford the consultation fees of private GPs. The Singaporean health-care system is strengthening its ties with private GP networks. The Community Health Assist Scheme 2012 provides portable subsidies to Singaporeans from lower- to middle-income households. The scheme subsidizes visits to participating private clinics for acute conditions, specified chronic illnesses, specified dental procedures and recommended health screening. The role of primary care in Singapore does not include gatekeeping. However, the public health-care system requires referrals to provide services at subsidized prices [5].

The majority of hospitals in Singapore are mainly public, while 20–30% are private owned [5]. General care is delivered at regional hospitals. In 2016, there were 13 public hospitals with a total of 11 201 beds. In the

same period, there were 10 private hospitals with 1453 beds and five not-for-profit hospitals with 1277 beds [6]. All-day surgery and inpatient services provided in public hospitals are funded using the case-mix system, while outpatient services, rehabilitation services and other programme-based services are excluded from the system [7]. Wards in Singapore's public hospitals are tiered into four main classes according to the level of amenities. Patients receive means-tested subsidies that vary according to their choice of ward.

Primary care payment is generally a fee-for-service model [5]. Private GPs are usually paid on a fee-for-service basis, whereas public primary care doctors are salaried. The MoH is piloting a few pay-for-performance projects, such as a bundled payment programme for hip fractures launched in November 2016. However, no such incentives have been formally implemented nationwide [8]. Public hospitals have a combination of global budgets and case-based payments [5].

Health-care financing and coverage

The government's involvement in payment and coverage are in the following areas: the government subsidizes costs at public health-care institutions and of some providers. Medisave, as a mandatory medical savings programme, pays for routine expenses; MediShield works as catastrophic health insurance; Medifund is a government endowment fund to subsidize health care for low-income persons and those with large bills; the Singaporean government also enacts regulations for private insurance, central planning and financing of infrastructure, and some direct provision through public hospitals and clinics. As Singapore is a very small nation-state, the national government takes on full responsibility for the health system.

Public system financing comes mostly from general tax revenue [5]. In Singapore, total health expenditure represented 4.46% of GDP in 2018 [3]. Public health insurance contributed to no more than 10% of total health-care spending [9].

Overview of integrated care in Singapore

Triggers, rationale and catalysts of integrated care for chronic diseases

Population ageing and the aggressive rise in chronic diseases were the main drivers of integrated care in Singapore. With the highest life expectancy and lowest fertility rate, Singapore has the world's fastest ageing population. The ageing population is not only an economic concern but also leads to a rapidly increasing burden of chronic diseases. The national health survey that studies the prevalence of chronic diseases and the national disease registries show that chronic diseases such as cancer, pneumonia and heart diseases are the leading causes of death in Singapore [10,11].

There was a referral system from primary care to specialist care in the public health-care system. However, before the recent reforms, most hospitals operated independently and the primary care system was distributed with many private GPs and polyclinics. "There was no clear agreement between primary care and specialist care in hospitals on how to share the care of patients. Patients preferred to choose hospitals because they thought specialist care in hospitals was more reliable and safer," stated a health practitioner from the primary care system. Besides, once a patient was admitted to the hospital for some serious condition, it was difficult for him to find adequate and convenient follow-up care in the community. While most of the hospitals in Singapore are run by the government, the long-term care sector such as nursing homes, home care and day centres are run by charities. This has created additional care fragmentation for patients with chronic diseases who need long-term care. Many such patients started to go back for frequent visits to the general hospitals, which created a serious bed crunch situation in the public general hospitals. The mounting costs of crowded public hospitals and the opportunities for providing better care experiences and outcomes became the triggers for integrated care initiatives in Singapore.

Leaders in the Singaporean health-care systems believe that the notion of integration of care means that care is integrated across different sectors and the whole continuum of services, and that it should not end when a patient is discharged from hospital or has attended the polyclinic or GP

appointment. Care provided to people has to be continuous throughout a patient's life so long as the illness is incurable, such as cancer, heart disease, stroke, etc. Therefore, Singapore started to explore different models of integrated care, with the hope that it would result in better care experiences, improved care outcomes and more cost-effective service delivery. Programmes were piloted for connecting care to improve the linkage between primary care and specialist care in hospitals as well as the linkage between acute care in hospitals and discharged care in the community.

History of health system reform in integrated care

Integrated care has a long history (since the 1970s) in Singapore. However, stronger political will, financial support and resources have backed integrated care in recent decades through the establishment and evolution of regional health-care systems, launching of the AIC and numerous other initiatives.

Regional health systems

In the year 2000, to enable better integration of public health-care institutions in Singapore such as polyclinics and acute hospitals, two clusters (Singapore Health Services [SingHealth] and the National Healthcare Group [NHG]) were created to reorganize the delivery of public health-care services [12]. However, the reorganization was limited to public health-care providers. In order to integrate health-care services at a broader level, six regional health systems were created through geographical-based networks in 2009, including more stakeholders such as GPs and non-profit organizations [13]. In early 2018, the six regional health systems were merged into three clusters: NHG, SingHealth and National University Health System (NUHS). With this reorganization, primary care, which is offered by polyclinics and GPs, will play an increasingly critical role in providing patient-centred care to the community. With all three of the new clusters having primary care capabilities, this means that integration of care in instances like patient referrals will be streamlined.

Agency for Integrated Care

In the year 2009, AIC was established as an independent corporate entity under the Ministry of Health Holdings[3], and assumed the role of the national care integrator. It began in 1992 as the Care Liaison Services (CLS) under MoH. Its sole purpose was to coordinate and facilitate the placement of sick seniors to nursing homes and sick units for chronic illnesses. In 2001, as part of MoH's restructuring exercise, CLS spun off to be jointly operated by the NHG and SingHealth. Subsequently, CLS was renamed Integrated Care Services (ICS) and expanded to take on a greater role that included discharge planning and facilitating the transition of patients from hospitals to the community. Since 2009 the Agency assumed the role of national care integrator to promote and facilitate patients to receive the right care at the right place at the right time across the health-care continuum and to realize the vision of a more integrated health-care system in Singapore. In 2018, AIC was designated as the single agency for coordinating the delivery of aged care services, and for enhancing service development and capability-building across both the health and social domains. The Pioneer Generation Office was renamed the Silver Generation Office and joined AIC that same year.

Healthcare 2020 Masterplan and following initiatives

In 2012, MoH launched the Healthcare 2020 Masterplan, aiming to improve the access, affordability and quality of health-care services for people. To support the Healthcare 2020 Masterplan, MoH was committed to building up the capacity and capability of the community. The development of aged care services in the community, exploration of care coordination and referrals from various health-care institutions were key efforts by the Ministry to shift health care to the community and to delay institutionalization. Over the years, MoH has implemented various initiatives to support the right siting and integration of care. AICare Links (piloted since 2014) was designed to signpost information on care options and referrals as well as financial assistance and schemes for patients and their caregivers. To enable ease of access to residents, a few

[3] MoH Holdings is the holding company of Singapore's public healthcare clusters – NHG, SingHealth and NUHS. Its role is to enhance public healthcare sector performance by unlocking synergies and economies of scale.

AICare Links sites would be colocated with offices of other social services. The Community Care Coordination Programme, piloted since 2014, has provided care coordinators to conduct care assessments for referrals and cases referred from the community, and coordinate healthcare to facilitate the appropriate delivery of care services for seniors under this service. The Community Networks for Seniors Programme (piloted since 2016) brought together different stakeholders in the community – social service agencies, grass-roots organizations of people's associations, regional health systems and government agencies – to jointly engage and support seniors in Singapore. Primary Care Network (piloted since 2017) was launched to encourage private GP clinics to organize themselves into networks that support more holistic and team-based care. Under the Primary Care Network, patients would receive care through a multidisciplinary team (including doctors, nurses and primary care coordinators) for more effective management of their chronic conditions and more seamless patient experience. The Primary Care Network is part of the MoH's strategic shift to move care beyond the hospital to the community, so that patients can receive effective care closer to home. With an ageing population, chronic disease prevalence and complex care needs will be on the rise. A strong primary care sector will serve as the bedrock of Singapore's health-care system, and help Singaporeans keep healthy and manage their chronic conditions holistically within the community.

The design of integrated care

With a clear goal to establish an integrated care model to provide better care experiences to the public, improve care outcomes and deliver cost-effective care services, the design of integrated care in Singapore features certain characteristics.

- First, coordinating across different health-care providers, including community medical care, GPs, polyclinics, acute hospitals, rehabilitation centres and day-care centres. Establishing an integrated health-care service provider system, so that patients will be referred to the appropriate medical services according to their health status.
- Second, connecting medical care services with social services. Many initiatives are designed to encourage cooperation between health-care

providers and other institutions, such as nearby supermarkets, schools and providers of long-term care services. For instance, in 2015, AIC set up Aged Care Transition (ACTION) teams of care coordinators who are stationed at public hospitals to arrange appropriate community care services for patients and caregivers prior to discharge. This helps the patients to transition smoothly from a hospital to a home setting. These transitional care services also help to minimize the occurrence of what is called "frequent fliers" or patients who are unnecessarily readmitted to hospitals multiple times.

- Third, integrating different physical health services with mental health services. Mental wellness is an emerging area of need, given a fast-ageing population in Singapore. Coupled with the growing number of seniors and a shrinking old-age support ratio, there will be a growing number of seniors and their caregivers who will require support to enable the seniors to age in place. The health-care system collaborates closely with its community care partners to help create an integrated network to support those with mental health needs in the community. Mental health includes those with a mental disorder such as depression and schizophrenia and those with cognitive impairment such as those with dementia. Singapore is also piloting and promoting three-dimensional communities. In the three-dimensional community, residents can better enjoy life with the improved environment, space for public activity and social places, which are necessary for daily life.
- Fourth, integrating the concept of health into every aspect of policy. In the past, treatment was usually considered the core of the health-care system. However, as the burden of chronic diseases increases, prevention of diseases is gradually playing an increasingly important role. Therefore, Singapore is trying to incorporate health-related concepts into policies such as tobacco control, sugar tax, and urban planning and actions such as setting up more trails to allow citizens to walk from subway stations to their offices.

Beneficiaries and opponents of integrated care

Beneficiaries

Patients, the general public and community health-care providers benefit from care integration. For patients, integrated care means that they do not have to cram into the hospitals for treatment and post-acute recovery. Patients with complex health conditions and social needs can get appropriate post-discharge support from the multidisciplinary care team in the community or at home. Besides, integrated care also helps the public to prevent diseases through health care and lifestyle management. With the promotion of integrated care, health-care providers, especially the health workers in the community, can receive more training from nurses and clinicians and have more opportunities to develop professional skills in the new care models. Also, the doctors and nurses in the hospital can focus on treating acute and complex cases.

Objectors

"According to the original design, there should be no objector to integrated care. However, there is still controversy on how to implement it, because of the divisions between who will benefit and who will lose," stated an academic leader of the Singapore health system. The current dominant payment mechanism of the health-care system in Singapore is primarily fee for service. In the past, hospitals benefited from simple cases because these cases require fewer resources to manage effectively. The implementation of integrated care will reduce the number of simple cases in hospitals. "The controversy can be solved by optimizing the payment mechanism and financial incentives. What we are trying to do next is to design an integrated-care system where none of the stakeholders feel like they are the losing party," explained an officer from the AIC.

Case study: The SingHealth regional health system

Introduction

Six regional health systems were created in 2009 by geographical definition to bring together providers from different care settings within the region, facilitate greater coordination across service providers along the care

continuum and provide more holistic support to patients as they transition across different care settings. Being responsible for integrating care for a specific geographical region, each cluster has its own polyclinics, specialty centres and general hospitals.

The Singapore Health Services (SingHealth) Regional Health System was officially launched in 2014 as the largest cluster in Singapore. SingHealth consists of primary to tertiary care institutions that account for the care of nearly a million residents in Singapore. In 2018, SingHealth merged with the Eastern Health Alliance, bringing Changi General Hospital back into the SingHealth cluster. In the SingHealth Regional Health System, institutions across the health and social care sectors collaborate to identify population health needs, promote behavioural changes and develop sustainable programmes to improve the quality of life. As an academic regional health system, it also leverages health services research to understand health-care utilization patterns to facilitate appropriate interventions across the care continuum.

Integrative processes

Systemic integration

With the objective of extending care to patients from hospitals to the community, local champions of SingHealth started to test innovative care programmes even before MoH launched the national plan for integrated care. After the official introduction of regional health systems, MoH issued six priorities to guide the development of the regional health systems, with most priorities being relevant to integrated care transformation. The SingHealth Regional Health System was tasked with developing and implementing programmes in these priority areas. Funding and governance support are provided by MoH, while the Regional Health System holds accountability for implementation.

Although the development of the SingHealth Regional Health System seems to be a top-down approach, in practice the design and operation of the SingHealth Regional Health System reflects its self-organization. The SingHealth Regional Health System was encouraged to initiate innovative integrated care programmes and to tailor the plan based on

the unique needs, demographics and strengths of community partners within the region.

At the start of the design for integrated care, the leadership of SingHealth spent much time considering what should be the key domains to develop care integration. Three key domains identified by the leadership were: health promotion, primary care and continuous community care.

Considering that early detection and intervention were critical for managing population health and avoiding costly hospitalization, programmes such as health screening and lifestyle changes were set up. Concurrently, to keep people healthy in the community, not only medical services but also social services focusing on the social determinants of health were provided. For example, Neighbors for Active Living, a programme that connects health care with social expertise and resources to deliver care for the sick elderly in their own neighborhood, was jointly established by the District Council and Changi General Hospital.

Primary care was the second key domain coming to the leadership at SingHealth. One senior manager of SingHealth Regional Health System said, "As the number of patients and medical demands increased, hospitals did not have enough human and other resources to meet patients' needs. So, it occurred to us that if primary health-care institutions were able to receive more patients with stable chronic conditions, it would greatly relieve the pressure on the hospitals. Thus, we began to think about how to bring together the scattered polyclinics and GPs to be a part of the integrated-care system, and how to support the primary health-care providers. What we are planning is to go to see patients in communities and do some consultations at street level." "GPFirst" and "Delivering on Target" were two programmes launched by SingHealth to encourage patients to get the first visit from primary health-care institutions, and to transfer patients from specialist centres to GPs. SingHealth also piloted a novel project with a digital platform to gather GPs together.

The last key domain was continuous community care. To reduce repeated readmissions in hospitals, which are unnecessary, expensive and inefficient, the SingHealth management team started to design approaches to

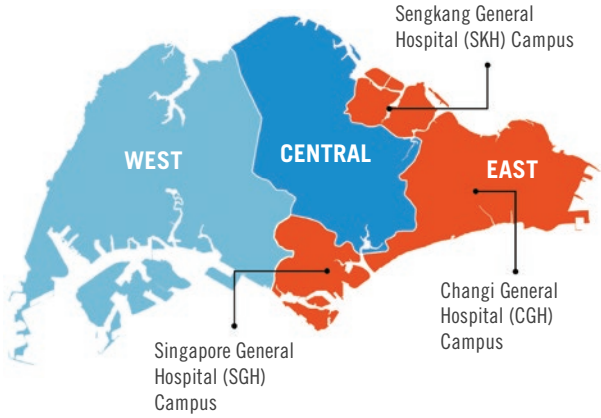
appropriately separate treatment and recovery and provide better post-acute care for patients. Thus, many initiatives such as "Delivery on Target and "Hospital to Home" were started to connect hospitals with nursing homes, community hospitals and home-care providers, which can help patients to get care services outside the hospitals.

Organizational integration

At the time the Regional Health System was introduced, MoH divided the whole nation into six regions and established six regional health systems, including the NHG, Alexandra Health System, SingHealth Regional Health System, Eastern Health Alliance, National University Health System and Jurong Health Services. Each regional health system was in charge of the health-care services in a specific region. In 2017, MoH further reorganized this into three integrated clusters to better optimize resources and capabilities, and provide more comprehensive and patient-centred care to meet Singaporeans' evolving health-care needs. SingHealth and Eastern Health Alliance were merged into the SingHealth Regional Health System.

With the reorganization, each regional health system has a strategic planning office to support the development of new care models and financing mechanisms with public funding. Rather than exert control over the collaborators, the planning office guides programme implementation through joint development with relevant stakeholders on standards and rules, including selection criteria, workflows and care protocols. Each integrated cluster has a fuller range of facilities, capabilities, services and networks across different care settings to support the necessary shifts within the Singaporean health-care system. Fig. 7.1 shows the institutions within the SingHealth Regional Health System, including acute hospitals (Changi General Hospital, Singapore General Hospital and Sengkang General Hospital), community hospitals and primary care. As the core of the integrated cluster, general hospitals are responsible for bringing together the capabilities of their polyclinics and partner GPs as well as community service providers to drive primary care transformation and anchor care in the community.

Fig. 7.1 Organizations in the SingHealth Regional Health System



Community Hospitals:
- Bright Vision Community Hospital
- Outram Community Hospital
- Sengkang Community Hospital

Primary Care:
- Bedok Polyclinic
- Bukit Merah Polyclinic
- Marine Parade Polyclinic
- Outram Polyclinic
- Pasir Ris Polyclinic
- Sengkang Polyclinic
- Tampines Polyclinic
- Eunos Polyclinic
- Punggol Polyclinic

Source: Adapted from SingHealth

The leadership structure of the SingHealth Regional Health System has also undergone regrouping. The management structure design recognized that the roles and responsibilities of hospital managers and regional health system managers were different and should be separated. The leadership team of the regional health system needs to focus on a larger scope of health care within the region from a system level, while the main responsibility of a hospital manager is to deal with the issues related directly to the hospital, such as ensuring its smooth daily operation and keeping it from overflowing. Therefore, a separate leadership system was created for the development of the SingHealth Regional Health System (Fig. 7.1). All general hospital CEOs play an important role in the leadership of the SingHealth Regional Health System, while other senior leaders in general hospitals and other SingHealth institutions are also assigned roles in the regional health systems' management team. This design is meant to facilitate the collaboration between the health systems level and individual health institutions and avoid the gap in the design and implementation of innovative integrated-care programmes.

The executive management team of the SingHealth Regional Health System covers leadership roles in domains such as community care, community partnership, financing, informatics, strategic planning and development,

research and evaluation (Fig. 7.2). The executive management team is accountable for the joint planning of an integrated care programme in the SingHealth Regional Health System. On behalf of their domains, team members need to get together frequently. This also promotes interaction and exchange of ideas among leaders in different health-care institutions within the regional health-care system.

Fig. 7.2 Leadership and management team of SingHealth Regional Health System

SingHealth Regional Health System Leadership						
Group Chief Executive Officer						
Deputy CEO (Medical & Clinical Service)	Deputy CEO (Organizational Transformation & Informatics) CEO (Singapore General Hospital)	Deputy CEO (Regional Health System) CEO (Changi General Hospital)	Deputy CEO (Research and Education) Medical Director (Singapore National Eye Centre)			
SingHealth Regional Health System Management Team						
Deputy Group CEO (Regional Health System)	Deputy Group CFO (Regional Health System & Strategic Finance)	Group Director (Regional Health System)	CEO (SingHealth Po)	Director (SGH Campus)	Director (Primary Care)	Director (Health Promotion & Disease Prevention)
Director (Continuing Commnunity Care)	Director (Community Nursing)	Director (Community Partnership)	Director (Health Services Research & Evaluation)	Director (Strategic Planning & Develop-ment)	Director (Strategic Finance)	Deputy Director (Health Informatics)

Source: Adapted from SingHealth Regional Health System

Service and professional integration

In 2010, MoH initiated the first phase of integration through implementing a series of regional health system pilots. These pilots were primarily focused on either one of the two main thrusts that the Ministry had identified, i.e. either new preventive health and care integration initiatives,

or building community-based capabilities to cater to the needs of their regional population profile. In 2014, MoH initiated the second phase of integration through streamlining the programmes in the Regional Health System to support common priority areas and the right siting of care within the community. MoH approved a set of six priorities to guide the development of the Regional Health System for the next three to five years. These priorities encompass addressing urgent utilization/capacity issues, upstream preventive care, as well as capacity-building of partner care providers to do more in the medium- to long term. Existing MoH-funded pilot programmes were reviewed and consolidated into six corresponding programme types that addressed the priorities.

The referral pathway in the SingHealth Regional Health System is carefully designed. First, the patients go to polyclinics or GPs for their first visit, and then get a referral to hospitals or specialist centres if necessary. After treatment at hospitals or specialist centres, patients go back to the community or home for discharged care. In order to facilitate the implementation of the referral pattern, a couple of initiatives were designed and implemented through a bottom-up approach. The effectiveness of these pilots was reviewed by MoH for scaling to other clusters.

A. Programmes linking primary care to hospital care/specialist care

GPFirst is a programme launched by Changi General Hospital in 2014. Patients of chronic and mild diseases are encouraged to go to polyclinics or GPs for prescription or treatment. In this programme, patients can receive a subsidized attendance fee at Changi General Hospital if they have seen a GP first. The SingHealth Regional Health System also adopts ways to bring care closer to the community such as establishing primary care networks and providing GPs a network to offer ancillary and support services to patients with chronic conditions. GPs and other primary care providers are supported by the leading hospitals with medical education and training as well as a team of dedicated nursing, allied health and administrative staff, and a chronic disease registry. Patients in primary care networks are able to get medical counselling and care by nurse counsellors, reminders to maintain regular follow up with the GP, comprehensive care with coordinated access to services such as diabetes foot screening and expedited access to hospital services when deemed necessary by the GP.

B. Programmes linking hospital care to post-acute care

The SingHealth Regional Health System initiated many programmes to provide well-coordinated transitional care for frequent admitters and potential long-stayers for timely discharge from acute care hospitals, to be taken care of in the community. One example of a transitional care programme is the SingHealth Delivering on Target Programme. In this Programme, patients receive home visits and transitional care teams seek to address any unmet needs, including medical, social, behavioural and environmental issues, in a bid to help stabilize the patients' condition and care at home, to reduce readmissions to hospital and reattendance at emergency departments within a short span post-discharge from an acute episode. The home visits are typically made by nurses or other trained health-care staff, supported by a team of doctors, pharmacists and allied health professionals such as physiotherapists, dietitians and occupational therapists.

Through programme evaluation and periodic review, improvements have been continuously made to existing care models for better care integration and transition across settings. Particularly in 2016, different transitional care programmes were streamlined into a single new care model called the Hospital to Home Programme. Under this Programme, a multidisciplinary team consisting of doctors, nurses, therapists and medical social workers conducts the assessment of inpatients on their post-discharge needs and makes a personalized care plan. Depending on individual needs, the multidisciplinary team works in the community to provide care and services such as rehabilitation and nursing for patients in their own homes after discharge. If long-term care is required, arrangements would be made with community providers and training is also provided for caregivers to support the patient at home.

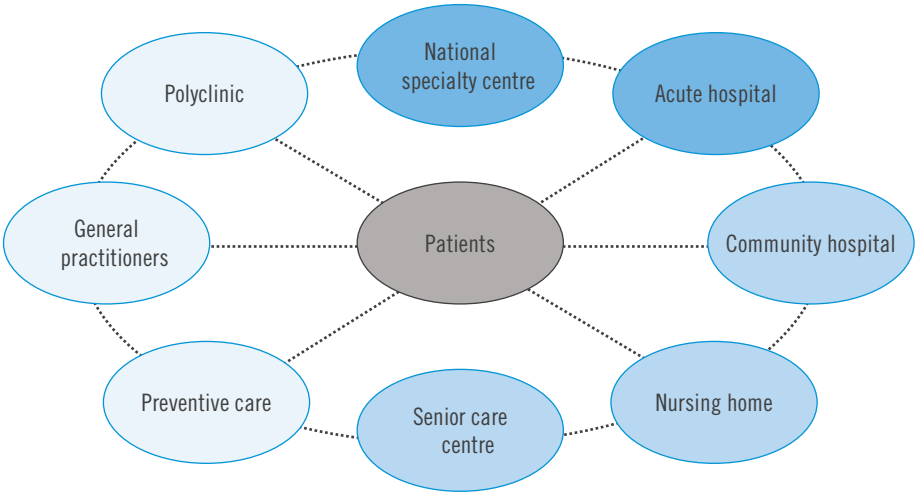
C. Programmes linking health care to social care

Neighbours for Active Living is a programme launched in 2014, which combines health care and social resources to provide care for the sick elderly in their own neighborhood. Run by community care teams consisting of full-time community care assistants and trained volunteers, the programme is designed to build bridges between care users and medical service providers. With abundant experience in health care and social work, community care

assistants conduct training for volunteers, match volunteers with care users, accompany volunteers on their initial home visits and regularly review clients' cases. The community care team members are sited within the community, spending most of their time walking around the neighborhood doing home visits, building enduring relationships with the residents, identifying red flags and assessing if vulnerable populations need medical attention. "We not only focus on patients, but also provide emotional support, resources and information on nursing workers and education to inform caregivers and family members", said a community care manager from the Neighbors for Active Living Programme.

In 2017, MoH also funded the implementation of community nursing at the SingHealth Regional Health System to promote health and equip residents with the skills to keep healthy. The community nursing teams are envisaged to respond to the care gaps in the community for a portfolio of clients. These include: (i) early interventions for pre-frail seniors identified from the community; (ii) chronic disease management for patients with poor disease control; (iii) care for frail patients in their immediate post-discharge period; and (iv) palliative care for end-of-life patients to support them to die in place rather than in hospitals. The SingHealth network of care partners is given in Fig. 7.3.

Fig. 7.3 The SingHealth network of care partners



Source: Adapted from MoH

Functional integration

The SingHealth Regional Health System has introduced telecare services to provide care coordination, health coaching and medication reminders. Formed in 2011, the Health Management Unit (HMU) at Changi General Hospital aims to empower patients with the knowledge and skills needed to manage their chronic conditions confidently at home. Patients who are referred for the telecare service receive regular phone support from trained nurses (telecarers). Parameters such as blood glucose, pulse rate, blood pressure and weight of patients are captured and monitored by telecarers. Additionally, patients are educated on how to recognize and manage symptoms related to their condition. Telecarers also work with GPs, community nurses, social workers and other health-care providers to coordinate patients' care. Telecarers also use a patient relations management IT system, which alerts them whenever patients visit the emergency care department, are admitted to the hospital, miss their follow-up appointments, or have any abnormal laboratory results related to their chronic condition. This enables early intervention and follow-up care.

In addition to telecare, MoH embarked on the development of the National Electronic Health Record (NEHR) system to enable shared access to relevant and key medical records of patients by different clinicians across settings. As of December 2019, more than 1300 health-care providers (including community hospitals, nursing homes, GPs and home care providers) have gained access to NEHR to facilitate one electronic medical record for each patient.

Information technology in the form of predictive modelling has also helped to provide early interventions. For the Hospital to Home Programme, Integrated Health Information Systems (IHiS) developed a predictive model that used a combination of clinical theory and machine learning to automatically identify patients at high risk of being readmitted. A care team is then triggered to review the patient and care plans are developed to ensure that the patient is adequately supported post-discharge from the hospital and stays well in the community for as long as possible.

Normative integration

Each cluster of a regional health system has its own vision and mission. The SingHealth Regional Health System is committed to promoting health in partnership with the community, as reflected in its vision and mission statements: Vision: transforming care, improving health. Mission: partnering communities to keep well, get well and age well.

During the interviews with health providers in the SingHealth Regional Health System, the manager of community nursing said "The vision of the SingHealth Regional Health System is conveyed from top downwards, with incentives for health-care providers to promote patient-centred integrated care. For us, the incentive is to see our patients get their expectations from our services, and then, we will try our best to deliver more high-quality health services." The community care manager from the Neighbors of Active Living Programme said, "There are lots of volunteers in our team from various backgrounds such as retirees and students. They may not have enough experience in caring, but all of them have a strong willingness to devote their time and energy to care for people who need help."

Performance evaluation of the case

In SingHealth, the performance data on most new initiatives are systematically collected, both in the electronic health record systems as well as programme-specific databases. The regional health-care system has also established strong health services and an evaluation division, which designs data collection and programme evaluation standards, and supports different project teams. Generally, the integrated care programmes in SingHealth are evaluated with the process/outcomes indicators as well as cost–effectiveness and many evaluation studies are based on experimental or quasi-experimental design.

Many initiatives are running as a continuous improvement process, with both qualitative and quantitative data being collected. "Sometimes we cannot see the obvious benefits from quantitative analysis, so qualitative studies are conducted for the final evaluation of the programme. Both quantitative and qualitative data are essential for understanding the impact of a programme," stated a director of the SingHealth Regional Health

System. He added, "Integration is about people working together. The model can be right, but sometimes stakeholders are not yet aligned in terms of the goal. We need to come together with the stakeholders and talk about why we potentially did not do so well in a particular quarter. It is about constantly evaluating a programme and seeing how we can do better, not just performing an evaluation after 3 or 5 years. It is important to have a common goal for all the stakeholders and constantly work together to improve and achieve this goal."

During the site visit, the research team collected some available data on the structure, processes and outcome indicators. The performance of selected indicators of care integration is summarized in Table 7.1.

Table 7.1 Selected structure, process and outcome indicators on integrated care programmes in the SingHealth Regional Health System

Indicator		Results
Structure	Facilities	SingHealth Regional Health System applied the electronic medical records, allowing different health-care providers to quickly and easily review the patient's diagnosis and care plan, grasp the patient's health status and provide feedback to the patients' discharged follow-up records.
Process	Access to care	Of the patients participating in the Hospital to Home Programme, 72.6% received at least two home visits.
	Care transition	All the three patients with chronic diseases participating in the interviews said they would go to GPs or polyclinics for initial diagnosis when they are unwell. They were treated locally or referred to specialist centres or hospitals based on the assessment given by the GPs or primary care doctors.
Outcome	Resource utilization	For the Hospital to Home Programme: • the number of hospitalizations of patients enrolled in the Programme decreased by 52.8%; • the number of specialist outpatient clinic visits increased while the number of admissions, emergency department attendances and length of stay reduced; • patients participating in the Programme required shorter hospital stays; • the 30-day readmissions and emergency department visit reduced significantly.

Source: Author's summary

Facilitators and barriers to successful implementation of the case

Facilitators

Some key successful factors for the SingHealth Regional Health System are as follows.

- Strong willingness to provide the best care to patients among care professionals. The SingHealth Regional Health System trained and maintained a group of care professionals who want to do their best for their patients. There are many talented and passionate clinicians and staff members devoted to the design, testing and perfecting new models of care. A wide range of health-care providers, including in the areas of population health, primary care, specialty outpatient services, hospital care, community health and social services participated in developing more people-centred and integrated care models.
- Good coordination among the management team of the SingHealth Regional Health System. The management team consists of key opinion leaders at different levels of health care and social care institutions in the system. The management team members get together to share their ideas, reflect on failures and scale-up successes of integrated care programmes.
- High-level adaptation of information technology. An integrated electronic medical record system allows health-care providers in different settings to coordinate and customize care planning for patients. Real-time data collection and performance evaluation also support the continuous improvement of the design of the care models.

Barriers

With the vision of providing better health care to patients through transforming care, the Regional Health System in Singapore is well designed. However, during the pilot and implementation of the Regional Health System, it was seen that there are still some barriers that need to be solved.

- First, patients need more support to navigate the different medical services provided in the health system. Although a multidisciplinary

team has been established in the Regional Health System and each role and division of labour within the team has been clearly defined, patients still lack information about these. As the streamlining is strengthened among all the pilots and initiatives, patients are likely to receive a clearer and holistic service package.

- Second, more incentives are needed for primary care and grass-roots service providers. At present, the care staff, especially grass-roots service providers (including community nurses and social workers) receive moderate payment incentives compared to their heavy workload. At the same time, many primary doctors, especially private GPs, have still not been fully integrated into regional health work.
- Third, the payment incentives to individuals (doctors) and organizations (clinics) can be better aligned to promote integrated care. A capitation payment model, which is still in the testing phase, can probably provide better-aligned incentives than the current fee-for-service model.

In addition, performance evaluation of the various initiatives of the Regional Health System is still insufficient. In spite of the fact that MoH has established evaluation criteria, performance evaluation for each initiative is not comprehensive enough to generate the evidence health-care authorities need to further refine or scale up the initiatives.

Discussion and policy implications for integrated care in Singapore

Singapore's integrated care has been under development for a few decades and the organization-level design is relatively advanced and comprehensive. In recent years, as a result of various reforms and implementation of innovative programmes, Singapore has made significant progress towards a more people-centred and integrated care system. After a series of reorganizations, three regional health systems were established in Singapore, with each cluster carrying out both vertical and horizontal service integration. Different innovative care models were designed and tested and many programmes such as Primary Care Networks were scaled up nationwide. In addition to the development of integrated care service models, Singapore has also achieved stronger partnerships among different

service providers as well as a better-integrated health information system. With the value of delivering higher quality health services that are patient centric, accessible, seamless, comprehensive, appropriate and cost effective, Singapore's health system is continuously evolving and improving. Some target areas for improvement in the near future include community medical service capabilities, financial incentive mechanisms, evaluation frameworks and mindset shifts.

From health screening to post-acute transitional care, community health-care services have a very important role to play in integrated health care in Singapore. Although the government has successively carried out community medical service-related training programmes in recent years, human resources of Singapore's community medical service are still in short supply. In addition, the uncertainty of the incentive mechanism may not ensure the increment of community health-care personnel. Based on the establishment of service standards and assessment, the Singapore government may improve the training and incentive mechanisms for community health-care providers in order to increase their enthusiasm as well as increase the number of community health-care and social care workers.

There are published studies analysing the effectiveness of various integrated care models in Singapore. However, currently many different evaluation tools and standards have been used in different community health-care institutions, polyclinics and hospitals. A systematic evaluation system is still lacking. Thus, it is difficult to compare the effectiveness of various integrated care models and to conduct comprehensive performance assessments. The Singapore government could encourage relevant academic institutions and agencies to establish a centralized evaluation framework in order to generate more evidence for future system strengthening.

While most of the personnel in hospital and community health-care institutions in Singapore now have a better understanding of what is meant by "health-centred" and "patient-centred" and have already started developing their work around these two visions, many patients and GPs are nevertheless still unfamiliar with the concept of "integrated care". The Singapore government may strengthen public education and targeted

training to promote the concept of integrated medical care and health-centred care. Through improved awareness among primary care doctors and patients, the development of integrated care in Singapore can be further accelerated.

As a more developed economy and health system in the region, Singapore has a long journey of exploring the integrated care concept since the 1970s. Its experiences can draw many valuable implications for the other countries in the region.

First, transformation to integrated care requires both top-down commitment and consideration of local flexibility. In the case of Singapore, while the systematic and organizational changes happen at the country level, the regional health systems maintain a certain level of autonomy in testing innovative care models and transforming organizations. Second, it is important to design the integrated care programs that cover a wide range of health-care providers, including primary care, population health, as well as post-acute services, and intermediate and long-term care services. Third, launching the Agency of Integrated Care (AIC) and numerous other systematic initiatives and organizational integration plays a critical role in the integration process. Fourth, even in Singapore, human resources for provision of community health services and primary care are still in short supply. Countries need to consider providing subsidies for primary health-care institutions, as well as offering more professional training and promotion opportunities.

References

[1] Ministry of Foreign Affairs Singapore. Honorary Consulate-General of the Republic of Singapore in Beirut. Singapore Government Agency website; 2020 (https://www.mfa.gov.sg/content/mfa/overseasmission/beirut/about_singapore/overview.html, accessed 12 March 2021).

[2] Department of Statistics Singapore. 2020. Population and population structure. Statistics on Singapore's population are compiled by the Singapore Department of Statistics. Singapore Government Agency website; 2020 (https://www.singstat.gov.sg/find-data/search-by-theme/population/population-and-population-structure/latest-data, accessed 12 March 2021).

[3] World Bank. Overview: Singapore [website]. World Bank Group; 2020 (https://www.worldbank.org/en/country/singapore/overview, accessed 12 March 2021).

[4] Bertelsmann Stiftung. BTI 2018 country report – Singapore. Gütersloh: Bertelsmann Stiftung; 2018 (https://www.ecoi.net/en/file/local/2015259/BTI_2018_Singapore.pdf, accessed 12 March 2021).

[5] The Commonwealth Fund. Singapore: international health care system profiles [website]; 2020 (https://international.commonwealthfund.org/countries/singapore/, accessed 12 March 2021).

[6] Department of Statistics Singapore. Yearbook of statistics Singapore, 2017. Department of Statistics, Ministry of Trade and Industry, Republic of Singapore; 2017 (https://www.singstat.gov.sg/-/media/files/publications/reference/yearbook_2017/yos2017.pdf, accessed 12 March 2021).

[7] Asia Pacific Observatory on Health Systems and Policies, OECD. Case-based payment systems for hospital funding in Asia: an investigation of current status and future directions. Manila: WHO Regional Office for the Western Pacific; 2015 (https://apps.

who.int/iris/bitstream/handle/10665/208246/9789290617327_eng.pdf?sequence=1&isAllowed=y, accessed 12 March 2021).

[8] Norton EC. Long-term care and pay-for-performance programs. Rev Dev Econ. 2018;22:1005–21. DOI: 10.1111/rode.12359.

[9] Fong JMN, Tambyah PA. Singapore's health-care financing. Lancet. 2013;382:1779–80.

[10] Epidemiology & Disease Control Division, Ministry of Health, Singapore; Institute for Health Metrics and Evaluation. The burden of disease in Singapore, 1990–2017: n overview of the Global Burden of Disease Study 2017 results. Seattle, WA: IHME; 2019 (http://www.healthdata.org/sites/default/files/files/policy_report/2019/GBD_2017_Singapore_Report.pdf, accessed 12 March 2021).

[11] Picco L, Achilla E, Abdin E, Chong SA, Vaingankar JA, McCrone P et al. Economic burden of multimorbidity among older adults: impact on healthcare and societal costs. BMC Health Serv Res. 2016;16:173. doi: 10.1186/s12913-016-1421-7.

[12] Shum E, Lee CE. Population-based healthcare: the experience of a regional health system. Ann Acad Med Singap. 2014;43:564–5.

[13] Legido-Quigley H, Asgari-Jirhandeh N, editors. Resilient and people-centred health systems: progress, challenges and future directions in Asia. Comparative country studies. New Delhi: World Health Organization, Regional Office for South-East Asia; 2018 (https://apps.who.int/iris/bitstream/handle/10665/276045/9789290226932-eng.PDF?sequence=5&isAllowed=, accessed 12 March 2021).

Chapter 8: Integrated care of chronic diseases in Viet Nam

Hanwen Zhang, Chang Liu

Key points of integrated care in Viet Nam

- The need for comprehensive and continuous care in Viet Nam is high as NCDs are becoming dominant in a rapidly ageing population coupled with constrained resources of the health system. However, the integrated care model has not been officially and comprehensively implemented for the management of NCDs or care of the elderly. Current NCD prevention and control programmes display partial "linkage integration".
- Barriers to implementation of integrated care include limited understanding of the definition of integrated care, shortage of human resources, lack of a legal framework and related guidelines, and challenges in creating and maintaining an effective multidisciplinary team.
- The early and thorough involvement of the government is essential for successful implementation of the integrated care model. Collaboration with and support from stakeholders such as the pharmaceutical industry, NGOs and patient groups are also highly recommended.

Basic information on Viet Nam

Geographical, demographic, economic and political context

Viet Nam is located on the eastern Indochinese peninsula, covering an area of approximately 331 212 sq km [1]. The population of Viet Nam was about 97 million in 2018 and is estimated to reach 120 million in 2050. About 70% of the population is currently below the age of 35 years; however, the population is ageing rapidly. The life expectancy of Vietnamese people is estimated to be 76 years, the highest among countries in the region at similar income levels [2]. The urbanization movement in Viet Nam is mainly between the rural areas and the country's southeast region. Ho Chi Minh City has received a large number of migrants due mainly to better weather and economic opportunities [3]. In terms of GDP growth, real GDP growth in 2019 decreased slightly to 7.02% compared to 7.07% in 2018. In 2020, impact of COVID-19 brought the GDP annual growth to 2.91%. Meanwhile, exploitation of natural assets such as sand, fisheries and timber has been unsustainable, potentially harmful for future and long-term growth prospects as well as the life of Vietnamese people, especially

due to the fact that 55% of the Vietnamese population can be classified as highly vulnerable to the impacts of climate change. Viet Nam is a unitary Marxist–Leninist one-party socialist republic, with the ruling Communist Party of Viet Nam (CPV) asserting their role in all branches of the country's politics and society.

Health-care system in Viet Nam

Health providers

Health-care facilities in Viet Nam are divided into four levels by administrative structure: central, provincial, district and communal [4,5]. From 2018, public hospitals, mostly at the provincial and central levels, have been dependent on self-financing, without the previous subsidy from the government for their operating costs [6].

Commune health centres – the grass-roots health facilities – have become reasonably well established in recent years. They are staffed with professional health workers and are able to provide a range of essential health services. Nevertheless, at the communal level, most of the outpatients tend to prefer the private health sector and self-treatment to public health facilities [7]. Privately owned health facilities offer a wide range of services, covering almost everything offered by their public counterparts [8,9,10,11]. The proportion of health-care facilities that are privately owned is still small and was only at 6% in 2014, but has seen an increasing trend in recent years [12].

Health financing and coverage

Viet Nam's total health expenditure per capita was Vietnamese dong (VND) 2.8 million or US$ 129 in 2016 [13]. Health spending as % of GDP has continued to increase from just over 5% in the early 2000s to almost 7% in 2013. From 2000 to 2016, public spending on health increased from VND 7.8 trillion to VND 125.6 trillion [13]. The increase in public spending on health has come from two main sources: domestic government spending on health and social health insurance (SHI) expenditure.

Despite the expansion of health insurance coverage from 13% to 87% between 2000 and 2017 and the increase in public spending on health, OOP

spending by households continues to account for the largest proportion of health spending in Viet Nam, displaying an increasing trend from just under 40% in 2000 to 45% in 2016 [13,14]. Nonetheless, catastrophic health expenditure has been decreasing. The incidence of impoverishment due to OOP health spending has also shown a substantial decline and is at a low of 1.3% [15]. Viet Nam's score on UHC service coverage index is 73 out of 100, higher than the average of 59 for Southeast Asia and the global average of 64 and just slightly lower than the average for East Asia at 77 [15].

Overview of integrated care in Viet Nam

Trigger, rationale and catalyst of integrated care for chronic diseases

In Viet Nam, as NCDs become dominant in terms of fatality and morbidity in a rapidly ageing population, the number of patients with multiple chronic conditions is increasing, urging the need for comprehensive and continuous care. In addition, constrained resources, including infrastructure, human and financial capability prompt Viet Nam and its external funders to find a way to optimize these [16,17].

Given the situation, integrated management of NCDs appears to be the appropriate and effective choice for Viet Nam. A number of studies elsewhere have proved that treating patients with NCDs within an integrated care framework is sensible, as the majority of such patients suffer from more than one chronic condition that is likely to exert similar demands on the health system. Chronic disease should not be treated in isolation but as a part of the total health condition of an individual [18,19,20,21]. In addition, the establishment and implementation of integrated care have been found to promise not only quality improvement but also cost reduction, in most cases by enhancing the role of primary and community-based care over specialized and hospital-based models. This would be of great help for the tight health-care funding of the Vietnamese government [22]. Moreover, initiating expansion of primary care and community-delivered care in more disadvantaged settings has been suggested as a way to increase health-care access for the less advantaged population, while maintaining a sufficient quality of health

services provided at a reasonable cost for the rest of the population [23,24]. Further initiatives with integrated care perspectives such as attempting to address care pathways, increasing patient participation and enhancing provider communication have also been indicated as having resulted in a higher level of responsiveness and user satisfaction, promising improved cost–effectiveness [25].

The design of integrated care

The Government of Viet Nam has long considered NCDs and their management significant issues that need to be addressed appropriately and effectively. In Viet Nam, the first National Programme on NCD Prevention and Control was launched in 2002, and implemented from 2002 to 2010 [5]. This was the earliest such attempt among Southeast Asian nations. That first programme was followed by the 2012–2015 programme, and then by the current 2015–2025 one. Within the current programme, the Viet Nam MoH establishes subprojects called national target programmes (NTPs) to address the five most major NCDs of cancer, cardiovascular diseases, diabetes, chronic obstructive pulmonary disease and asthma.

Specific objectives of the Programme including raising the awareness of citizens at all levels on the prevention and control of these NCDs, minimizing related risk factors (including smoking, alcohol misuse, salt consumption and physical inactivity), reducing the prevalence of risk factors associated with NCD morbidity and premature death due to these NCDs and enhancing the capacity and effectiveness of the systems for prevention, surveillance, detection, treatment and management of these NCDs. The Programme document specifies coordination between the MoH and related ministries, including the Ministry of Culture, Sports and Tourism, Ministry of Finance, Ministry of Transportation, Ministry of Construction, other agencies, organizations and people's committees at provincial and city levels, which can be seen as an attempt to incorporate integration both within and among sectors in providing care for patients with NCDs.

However, assessment reports of the two previous national NCD programmes have stated a lack of integration in the organization of NCD prevention, as prevention projects (minimizing risk factors, increasing awareness, etc.)

were implemented without integration, either centrally or locally, between preventive medicine facilities and medical care facilities (which are distinct at central- and provincial-level facilities). It has also been reported that each national target programme (NTP) for one of five NCDs has been implemented vertically and individually for that disease under the focal point of the central hospital in charge, e.g. National Heart Institute of Bach Mai Hospital (hypertension), National Hospital of Endocrinology (diabetes) or Hospital K (cancer). With the absence of a more recent assessment report, little is known, at least officially and at the national level, about the level of integration of NCD management under the current NCD programme. A recent paper reviewing existing literature on access to hypertension care and services at the primary care level in Viet Nam found "fragmentation and lack of consistency in prescribing medication" between facilities at different levels and called for more scaling up of interventions that facilitate integrated care.

An existing structure within the Vietnamese health system, although not specific to NCD management per se, which displays some level of integration is patients' referral among health facilities. Such a referral system allows for the transfer of patients between health facilities of different levels (central, provincial, district and communal) with the responsibilities of involved parties defined. This ensures the most appropriate treatment and care for the patient, and thus can be considered a form of "linkage integration". The referral system is a part of the broader Direction of Healthcare Activities (DOHA) initiated and managed by the MoH. The focus of DOHA is on building a strong collaboration network and support system among health facilities of different levels and addressing the problem of overcrowding at health facilities of higher levels by improving the quality of health-care services provided at the lower levels through training and transferring of technical expertise.

Beneficiaries, advocates and opponents of integrated care

The benefits of integrated care are still not widely understood in Viet Nam, which creates challenges to implementation. Rather than having objections to integrated care, the challenges to implementation of such a model in Viet Nam, according to experts in health care, would be from the limited understanding among health professionals of what exactly the integrated

care model is, as well as the lack of a common vision and dialogue among different sectors regarding health care. Limited understanding of the definition of integrated care among health professionals would make it difficult to communicate the significance of and need for integrated care for NCDs to the higher level management and the government. Meanwhile, lack of a common vision and dialogue leads to hesitation in stepping into the territories of other parties or the desire to just focus on doing their job, which would adversely affect the willingness and ability of a multi-industry team to work together, making the initiation of integrated care even more difficult.

The shortage of human resources has also been cited as one of the reasons for the current absence of integrated care in chronic disease management in Viet Nam. Although successful implementation of the integrated care model promises to boost the productivity of the health system and each health facility, initial steps in the process require extra effort and commitment from the current health workforce, which has already been overloaded with work in crowded hospitals and clinics. Too many programmes being carried out at the same time will also put constraints on the ability of the health staff to focus.

Case study: Viet Nam National Heart Institute, Bach Mai Hospital

Introduction

The National Programme for Hypertension Prevention and Control was first established in 2010 as a subproject of the National Programme for Prevention and Control of NCDs, and continues to operate under the current NCD management programme. The Viet Nam National Heart Institute at Bach Mai Hospital is the focal point responsible for implementation of the Programme, under the direction of the MoH. The main aims of the Programme are to raise public awareness and knowledge of hypertension and its risk factors, enhance the capacity of grassroots-level health facilities and staff, i.e. community health centres, in managing hypertension according to the guidelines and focus on the early detection of hypertension, patient referral and patient management.

The incidence of cardiovascular disease continues to increase and risk factors for hypertension are not being sufficiently managed. In addition, because of the choice of a majority of patients to bypass health facilities at the lower level, higher-level hospitals have been experiencing significant overcrowding. This situation creates the need for detecting cases, offering basic treatment and managing patients with hypertension at commune-level health facilities. Non-serious cases should also be transferred lower down the line. Though focusing more on prevention of hypertension/cardiovascular disease than management of care, this represents a partial "linkage integration".

Integrative processes

The Viet Nam National Heart Institute at Bach Mai Hospital is in charge of project implementation, with its experts forming the National Project Management Committee. Management subcommittees have been established in 63 provinces and cities at the provincial level; however, these are assigned to different units and vary by province: Department of Health, Centres for Social Disease Control, Centre of Preventive Medicine, Centre for Endocrinology and the Provincial General Hospital. These subcommittees oversee the preventive units located at provincial preventive medicine centres, provincial health information, education and communication (IEC) centres, and diagnosis and treatment units located at provincial hospitals. A similar structure of separate preventive units and diagnosis and treatment units is implemented at the district level. At the commune level, the commune health station is responsible for prevention (IEC on healthy lifestyle), diagnosis (screening and classification of cardiac risk) and treatment (non-drug treatments and simple hypertension-lowering drug treatments, monitoring and transferring patients with complications or drug resistance to higher-level health facilities).

Under this Programme, the commune health station is the unit in charge of monitoring and managing patients with or at risk for hypertension. Patients coming to a commune health centre (not for an emergency relating to hypertension) would have their blood pressure measured and their lifestyle and other risk factors for hypertension examined. Based on the results, health professionals at the centre would counsel the patient on a healthy

lifestyle to reduce the risk of hypertension or give them drugs to reduce hypertension with an appointment for reassessment at a later date or as needed. Those who need emergency treatment for hypertension would be given treatment and transferred to higher-level hospitals for further treatment. Records of all patients would be created, kept and managed at the commune health station in case the patient needed to be transferred to a higher-level hospital due to the severity of the condition. Their progress would be monitored by staff at the commune health centre so that when they get better they can be transferred back to the commune level.

Performance evaluation of the case

The hypertension programme aims to increase the number of people who are being supervised, or improve the awareness of people in the community. Therefore, the effectiveness of such a programme might be reflected in an increase in the number of people receiving drugs, the number of people with controlled blood pressure, or improved knowledge and awareness. All of these require cross-sectional surveys to assess whether these criteria are met or not.

The cost of treatment may also be evaluated. By analysing the structure of the cost that people have to pay when they go for a chronic medical examination at the provincial- or district-level hospital, it was found that the cost of drugs and travel expenses are the two major components. When transforming the model from the higher level to the grass-roots, the cost of travelling may be cut down and residents would be provided with better access to health services. The costs and prices of drugs are largely dependent on the policy for insurance. The model has favourable conditions only if insurance offers the same limit of liability and list of medications at all health-care levels. Currently, the health insurance policy is decentralized; each level has a different drug list, and this can create problems in some specific cases. For example, at the provincial hospital, the patient uses a particular drug, but in the commune health station the drug is not available in the drug list of the health insurance company and he/she has to use another drug. It can be therefore seen that the policies have a significant effect on the attitude and operation of the model.

Financial incentives and payment reform are critical factors to be considered. An investigation has been conducted into the reasons why people are attached to the model and it has been reported that patients stick with the model only if it is effective. For the hypertension programme, people are attached to the programme when their blood pressure declines. In order to effectively lower blood pressure or control blood sugar, good medicine, which is expensive, is required. Otherwise, part of the cost of medications must be covered by insurance. Therefore, policies that support partial, multipart or copayments or health insurance would be the fundamental policies that determine the success of a model, especially when deploying at the grass-roots level.

Barriers and facilitators to successful implementation of the case

Health workers have been struggling to adapt the existing medical system to the requirements of the programme. Things such as setting up a system of employees and providing payment methods may require an entire re-arrangement. Current policies and practices are also not appropriate for the model. For example, there is currently no budget for data entry to build a database of medical records. There is also questionable professional capacity at the grass-roots level. When faced with a difficult professional situation, for instance, will the staff at the grass-roots level be able to meet the professional requirements to solve the problem, or will the treatment regimen proposed by the lower level be appropriate, feasible and rigorous? Would monitoring at the lower level be reliable enough? Rigorous and continuous staff training, treatment recommendations and guidelines from the MoH and the Medical Services Administration have partly helped with this. It would be difficult if a patient needs personalized treatment because in that case, the standardized model could not be utilized. Extending and clarifying the policy down to the lower levels is essential, such as more support for medical care at the grass-roots level or expanding the list of drugs paid by health insurance at the local health stations. There exist many aspects and factors that make policy planning no longer simple.

With chronic diseases, the burden is not only on patients but also on their families and communities. If a model that works well for each patient is implemented, then the community has already been benefited. Therefore, if

the community or families are engaged, the results will be even better. The model of care management being developed for hypertension also follows that path and, in fact, the entire community has been engaged; in other words, advocating for the whole community, promoting healthy people to prevent the disease and changing the lifestyle of patients.

Discussion on and policy implications for integrated care in Viet Nam

Integrated care has taken somewhat different forms and approaches in high- versus low-/middle-income health-care systems. However, the experience of high-income countries could be very valuable in building a suitable integrated model in low- and middle-income countries (LMICs). This can be explained by the increase in NCDs together with traditional communicable infectious diseases [22]. The interest of the Viet Nam government in integrated care has been increasing in the past few years since it could be a good solution to the problem of chronic diseases, multimorbidity, ageing of the population and the constraints in use of resources [26]. We recommend some implications that Viet Nam might apply to develop an integrated health-care system.

First, the Viet Nam government should build a framework, which provides full information for organizations and communities about the application of integrated forms of care provision. The aims of this framework should focus on improving population health, improving the experience of care and progressing towards UHC. Policy-makers should act as integrators by making the right investments and creating a cogent set of high-level measures to monitor progress [26]. The government should also assign responsibilities to specific government agencies in coordination with other departments for consulting and establishing an integrated care health system for patients with chronic disease.

Second, due to the encouragement of the Viet Nam government on the socialization of health activities and the private health sector, the development of the two above-mentioned cases contributes to meeting the people's urgent medical needs, enables people to not have to travel long distances to seek health care, saves time and saves the State budget. Therefore, when developing a vision of integrated care, policy-makers

should make sure that health managers in those two cases understand the context for change and the core principles that underpin integrated care. The integrated care principles mean dissolving "the classic divide between primary care and secondary care, between physical and mental health, between health and social care, between prevention and treatment and between private and public institutions" [27].

Third, the government should take the patient's perspective into consideration. This will help to actively engage them as participants in the management of their health and facilitate discussions with doctors across different specialties [28].

Additionally, policy-makers should build an online information platform endorsed and recommended by doctors. The platform could provide free and reliable health information to patients. It is especially important in Viet Nam, where the population has difficulty in accessing a reliable source of information on health-care problems and treatment. In rural and mountainous areas, where infrastructure is limited, simplified patient education materials are required. Other resources can be utilized, e.g. social workers or teachers could be assigned to give lectures on basic health-related topics to ensure better patient outcomes [28].

Furthermore, persons with chronic conditions have complex needs across multiple disciplines and can benefit from coordination across a multidisciplinary team. The credentials and qualifications of the care team will vary with the needs of the individual served. The relationships among providers on the care team can also vary. Due to limited resources, the integrated model will require collaboration across many organizations, which may require contractual linkages. At the other end of the spectrum, members of the care team might have only an informal relationship with each other, cooperating as caregivers to the same individual. Further, a care manager in integrated care has a supervisory role in coordinating care in an ongoing relationship with the patient or client. The credentials of a care manager can vary across the different models of integrated care management. Depending on the model, a care manager might be housed within a single primary care practice or work with multiple physician practices. Physicians are often identified as accountable for care

management, which is usually considered an integral component of the care a physician provides [29]. Next, integrated care models vary when it comes to the frequency and nature of contact with the individual receiving care. However, when any model is applied by the Viet Nam government, the importance of routine contact (e.g. by phone, in-person or electronically) between patients and health care giver should be highlighted. There is evidence that frequent contact, longer contact time and face-to-face visits produce better outcomes for persons with a higher level of service needs. Finally, patients with chronic diseases have complex physical and mental health-care needs, hence, the scope of managed and coordinated services has to depend on the support of the government from nutritional programmes, subsidized housing or other social support. Lack of social support can often be a barrier to successful implementation of a care plan. In Viet Nam, there is a gap between urban, rural and mountainous areas. Rural and mountainous areas have a higher rate of poverty, lack of transportation and proper nutrition, which can undermine a care plan. Thus, together with the design of integrated care, there is a need to reduce the urban–rural gap by improving governance performance [30].

To conclude, the Viet Nam government should collaborate with and ask for support from stakeholders that have direct or indirect roles in driving more efficient health care, such as the pharmaceutical industry, NGOs and patient groups. This is especially useful in Viet Nam, where human resources and health facilities are limited. Policy-makers should give patients and the wider community opportunities to develop initiatives that enable a more supportive environment. Policy-makers should also encourage the formation of support groups among patients with different conditions and their families. These activities could give patients a chance to actively participate in improving their own health, support other patients and increase public awareness of their conditions.

References

[1] Nasuchon N. Coastal management and community management in Malaysia, Viet Nam, Cambodia and Thailand, with a case study of Thai fisheries management. United Nations-Nippon Foundation Fellow Research Presentation; 2009 (https://www.un.org/depts/los/nippon/unnff_programme_home/fellows_pages/fellows_papers/nasuchon_0809_thailand.pdf, accessed 9 March 2021).

[2] The World Bank in Viet Nam: overview [website]. The World Bank; 2019 (https://www.worldbank.org/en/country/ Viet Nam/overview#1., accessed 15 March 2021).

[3] General Statistics Office Of Viet Nam. Migration and urbanization in Viet Nam: patterns, trends and differentials. Viet Nam Population and Housing Census 2009. Hanoi, Viet Nam; Ministry of Planning and Investment; 20191(https:// Viet Nam.unfpa.org/sites/default/files/pub-pdf/7_Monograph-Migration-Urbanization.pdf, accessed 9 March 2021).

[4] Le D-C, Kubo T, Fujino Y, Pham T-M, Matsuda S. Health care system in Viet Nam: current situation and challenges. Asian Pac J Dis Manag. 2010;4:23–30 (https://www.researchgate.net/publication/269748204_Health_Care_System_in_ Viet Nam_Current_Situation_and_Challenges, accessed 9 March 2021).

[5] Ministerial Decision No. 77/2002/QĐ-TTg – National Program for Prevention and Control of Non-communicable Diseases. Hanoi: Government of Viet Nam; 2002 (http://vbpl.vn/TW/Pages/vbpqen-toanvan.aspx?ItemID=10111&Keyword=77/2002/Q%C4%90-TTg, accessed 16 March 2021).

[6] Health financing in Viet Nam. Geneva: WHO; 2016 (https://www.who.int/ Viet Nam/health-topics/health-financing, accessed 9 March 2021).

[7] Thuan NT, Lofgren C, Lindholm L, Chuc NT. Choice of healthcare provider following reform in Viet Nam. BMC Health Serv Res. 2008;8:162.

[8] Ha NT, Berman P, Larsen U. Household utilization and expenditure on private and public health services in Viet Nam. Health Policy Plan. 2002;17:61–70.

[9] Cuong DV, Oanh TTM, Luong DH, Tuan KA, Thang NT. An assessment of healthcare for the elderly in Viet Nam. Hanoi: Health Strategy and Policy Institute; 2009 (http://en.hspi.org.vn/vclen/An-assessment-of-healthcare-for-the-elderly-in- Viet Nam-t15971-1051.html, accessed 15 March 2021).

[10] Ngo AD, Hill PS. The use of reproductive healthcare at commune health stations in a changing health system in Viet Nam. BMC Health Serv Res. 2011;11:237.

[11] Tran TK, Nguyen CT, Nguyen HD, Eriksson B, Bondjers G, Gottvall K et al. (2011). Urban–rural disparities in antenatal care utilization: a study of two cohorts of pregnant women in Viet Nam. BMC Health Serv Res. 2011;11:120.

[12] Health statistical yearbook 2014, Viet Nam. Hanoi: Ministry of Health (MoH), Viet Nam; 2015 (http://ghdx.healthdata.org/record/ Viet Nam-health-statistics-yearbook-2014, accessed 9 March 2021).

[13] Global Health Expenditure Database [online database]. In: World Health Organization, 2018 (http://apps.who.int/nha/database/ViewData/Indicators/en, accessed 9 March 2021).

[14] Teo HS, Bales S, Bredenkamp C, Cain JS. The future of health financing in Viet Nam: ensuring sufficiency, efficiency, and sustainability. Washington D.C.: World Bank Group; 2019 (http://documents.worldbank.org/curated/en/222831563548465796/The-Future-of-Health-Financing-in- Viet Nam-Ensuring-Sufficiency-Efficiency-and-Sustainability, accessed 9 March 2021).

[15] World Health Organization and World Bank. Tracking universal health coverage: 2017 global monitoring report. World Health Organization and International Bank for Reconstruction and Development/World Bank; 2017 (https://apps.who.int/iris/bitstream/handle/10665/259817/9789241513555-eng.pdf;jsessionid=C554911C2A0880B48E25BDBBD06BDFF9?sequence=1, accessed 9 March 2021).

[16] Institute for Health Metrics and Evaluation (IHME). (2010). GBD profile: Viet Nam. Seattle: GBD; 2010 (http://www.healthdata.org/sites/default/files/files/country_profiles/GBD/ihme_gbd_country_report_Viet Nam.pdf, accessed 9 March 2021).

[17] Paris Declaration and Accra Agenda for Action. In: Organisation for Economic Co-Operation and Development [website]. 2008 (http://www.oecd.org/dac/effectiveness/parisdeclarationandaccraagendaforaction.htm, accessed 9 March 2021).

[18] Huber M, Knottnerus JA, Green L, Van Der Horst H, Jadad AR, Kromhout D et al. How should we define health? BMJ. 2011;343:d4163. doi: 10.1136/bmj.d4163.

[19] Armitage G, Suter E, Oelke N, Adair C. (2009). Health systems integration: state of the evidence. Int J Integr Care. 2009;9(2):e82. doi: 10.5334/ijic.316.

[20] Suter E, Oelke ND, Adair CE, Armitage GD. (2009). Ten key principles for successful health systems integration. Healthc Q. 2009;13(Spec No):16–23. doi: 10.12927/hcq.2009.21092.

[21] Innovative care for chronic conditions: organizing and delivering high quality care for chronic noncommunicable diseases in the Americas. Washington, DC: Pan American Health Organization; 2013 (https://www.paho.org/hq/dmdocuments/2013/PAHO-Innovate-Care-2013-Eng.pdf, accessed 9 March 2021).

[22] Mounier-Jack S, Mayhew SH, Mays N. Integrated care: learning between high-income, and low- and middle-income country health systems. Health Policy Plan. 2017;32 (suppl 4):iv6–iv12. doi: 10.1093/heapol/czx039.

[23] NQF-endorsed measures for care coordination: phase 3. Washington, DC: National Quality Forum; 2014 (https://www.qualityforum.org/Publications/2014/12/NQF-Endorsed_Measures_for_Care_Coordination__Phase_3.aspx, accessed 10 March 2021).

[24] Global reference list of 100 core health indicators. Geneva: WHO; 2014 (https://www.who.int/healthinfo/country_monitoring_evaluation/GlobalRefListCoreIndicators_V5_17Nov2014_WithoutAnnexes.pdf, accessed 10 March 2021).

[25] Strandberg-Larsen M Krasnik A. (2009). Measurement of integrated healthcare delivery: a systematic review of methods and future research directions. Int J Integr Care. 2009;9: e01. doi: 10.5334/ijic.305.

[26] Borgermans L, Devroey D. A policy guide on integrated care (PGIC): lessons learned from EU Project INTEGRATE and beyond. Int J Integr Care. 2017;17:8. doi: 10.5334/ijic.3295.

[27] Rigby M, Kock S, Keeling D, Hill P. Developing a new understanding of enabling health and wellbeing in Europe. Science Position Paper of the European Science Foundation; 2016 (https://ec.europa.eu/eip/ageing/file/567/download_en%3Ftoken=RQFS9Srw, accessed 10 March 2021).

[28] Tham TY, Tran TL, Prueksaritanond S, Isidro JS, Setia S, Welluppillai V. Integrated health care systems in Asia: an urgent necessity. Clinical Interv Aging. 2018;13:2527–38. doi: 10.2147/CIA.S185048.

[29] Griffin J, Andrew F. Integrated care management in rural communities. (Working Paper #54). Portland, ME: University of Southern Maine, Muskie School of Public Service, Maine Rural Health Research Center; 2014 (https://digitalcommons.usm.maine.edu/cgi/viewcontent.cgi?article=1006&context=behavioral_health, accessed 10 March 2021).

[30] Jairo A-A, Nguyen C, Tran A, Phung T. The urban–rural gap in governance: evidence from Viet Nam. MPRA Paper 64705. University Library of Munich, Germany; 2014 (https://mpra.ub.uni-muenchen.de/64705/1/MPRA_paper_64705.pdf, accessed 11 March 2021).

Part III

Reflections and Conclusion

Chapter 9: Reflections on integrated care for people with chronic diseases in Asia-Pacific countries

Chang Liu, Hanwen Zhang

Overview of development of integrated care in six countries

Globally, most hospital-based health-care models target acute conditions and are less effective in addressing long-term care of chronic conditions. Integrated care seeks to improve health-care delivery systems to ensure that patients receive appropriate, equitable and affordable health-care services. Integrated care models for chronic diseases have been widely developed and implemented in Europe and North America to meet such challenges and, to a much lesser extent, in Asia. However, this study showed that health-care integration is increasingly used to respond to the challenges of delivering long-term health-care services in six selected Asia-Pacific countries.

Among the six countries, Singapore has the longest history of integrated care. In the city-state, development has rapidly accelerated in recent decades, backed by stronger political will, financial support and resources. Some key developments include the establishment of regional health-care systems (2000), launching the AIC (2009), and the Healthcare 2020 Masterplan (2012). In China, the integrated care movement started since the "hierarchical medical system" was put in place in 2009. This then later evolved to the "regional medical consortium" model (identified by the Chinese National Health Commission as the focus of health systems reform in 2013), and the "people-centred integrated care" model (recommended jointly by the World Bank Group, WHO, Ministry of Finance, National Health Commission, and Ministry of Human Resources and Social Security in 2016).

In Fiji, reforms such as the Clinical Service Planning Framework were initiated in the 1990s to focus efforts into promoting people-centred primary care and advocating for health as a shared responsibility, requiring intersectoral collaboration among important stakeholders and the general population. More recently, some models of integrated care are either being formally introduced, such as the NCD Care Plan or being specifically targeted for strengthening, such as the MCH Programme, which includes IMCI to achieve better health outcomes. In Philippines, the plan to integrate started in the 1990s, with the initiative of the ILHZ. In the 2010s, the

SDNs and the HCPN) emerged from the ILHZ for chronic illnesses across different public health facilities at the primary, secondary and tertiary levels. The 2019 Universal Health Care Act designates these plans as a national priority.

Compared with the other four countries, India and Viet Nam have a shorter history of integrated care. Significant initiatives in India include the introduction of the NRHM (2005), the National Health Policy (2017), and the latest Ayushman Bharat programme (2018). Experts from Viet Nam pointed out that although the need for comprehensive and continuous care is high, the integrated care model has not been officially and comprehensively implemented for the management of NCDs or care for the aged in that country. Although the definition and form of integrated care vary, the increasing trend towards integrated care has been recognized in the Asia-Pacific region.

In this study, we selected eight specific integrated care programmes, which vary in the level of integration. They range from linkages to fully developed integrated care programmes as cases for more detailed analysis. These cases are the Karuna Trust (India), National Cardiology Institute in Bach Mai Hospital (Viet Nam), Maternal Child Health Services (Fiji), Patient-Centred Integrated Care at the Medical City and The Memory Center at St Luke's Medical Center (Philippines), Xiamen Hierarchical Diagnosis and Treatment System and Tianchang County Medical Alliances (China) and SingHealth Regional Health-care System (Singapore).

Drivers, triggers and key features of integrated care models

Integrated care is one strategy for achieving and sustaining UHC in the face of the growing need for long-term and complex care. A careful analysis of the positions of different stakeholders will help in understanding the drivers and triggers of integrated care models, as well as in designing and implementing more integrated care. Understanding the mechanisms and elements of integrated care programmes in the context of these diverse countries is important to draw lessons for the future.

Drivers and triggers

Key drivers and triggers of integrated care in the six Asia-Pacific countries are summarized in Table 9.1. Population ageing and the rising burden of chronic diseases have been identified as key drivers for almost all the six countries. For example, in 2019, around 11% of the population in China were people aged over 65 years. The trends of population ageing in all the six countries are rising rapidly [1]. According to the data in 2017 [2], NCDs were major causes of mortality, accounting for 89.48%, 84.01% and 80.44% of deaths in China, Fiji and Singapore, respectively. Over 60% of all deaths were attributable to NCDs in the other three countries (63.47% in India, 69.33% in Philippines and 78.99% in Viet Nam). Experts from Philippines also pointed out the rapid depletion in social health insurance benefits resulting from the fragmented service delivery, another key driver of integrated care; while for Fiji, the health system is dealing with a triple burden of increasing NCDs, persisting infectious disease and climate change. In terms of the triggers of integrated care, the overwhelming demand for hospital care and "bed crunches" have been common in most countries. The rising health systems costs and imbalanced resources between acute care and primary care/wellness is another important trigger for care integration.

Table 9.1 Similarities and differences between key drivers and triggers of integrated care between countries

Elements		Singapore	China	India	Philippines	Fiji	Viet Nam
Key drivers	Population ageing	✔	✔		✔		✔
	Increasing burden of multiple chronic diseases	✔	✔	✔	✔	✔	✔
	Rapid depletion of health insurance				✔		
Triggers	Insufficient service delivery capacity	✔	✔		✔		
	Public demand for improved health services				✔		
	Imbalanced health-care resources		✔			✔	

Source: Author's summary from in-depth interviews

Key features of integrated care design

Key features of the design of integrated care in the six Asia-Pacific countries are summarized in Table 9.2.

Table 9.2 Features and highlights of the design of integrated care in each country

Country	Features and highlights of integrated care design
Singapore	• Different health-care settings, including community medical care, GPs, polyclinics, acute care hospitals, rehabilitation centres and day-care centres are coordinated with each other. • Medical care services are connected with social services. • Different physical health services are integrated with mental health services. • The concept of health is integrated into every aspect of policy.

Table 9.2 Features and highlights of the design of integrated care in each country (contd)

Country	Features and highlights of integrated care design
China	• Vertical integration is designed for connection among different levels of health-care institutions. • There are four methods of vertical integration: medical groups in cities, medical alliances at the county level, specialty alliance in poorly developed and weak specialist areas and telemedicine collaboration network through information technology. • PPP is designed to diversify the pattern of integrated care.
India	• The form of vertical integration among primary, secondary and tertiary levels of care in India is described as a degree of "linkage". • There are referrals and follow-up processes for the public health system. • There is a clear understanding of who pays for what treatment, but there is no overall case management. • There is no coordination between public and private providers. • The National Health Mission has put the focus of primary care in India on communicable diseases, reproductive and child health services. NHM's focus areas also include NCDs and chronic conditions.
Philippines	• Vertical integrated care is designed with primary care providing the entry point to the national health system. • Instead of full integration, the Philippine situation may better be described as one of "coordination".
Fiji	• The degree of vertical integration is great with well-established clinical, transitional and administrative pathways from generalist to specialist care. • Horizontal integration exists at the primary care levels with preventive and curative services.
Viet Nam	• There is a lack of design on integration and organization of NCD prevention services. • A "linkage integration" exists, such as the referral system that allows for the transfer of patients between health facilities at the central, provincial, district and community levels. • A collaboration network and support system among health facilities of different levels is recommended to address the overcrowding problem at health facilities of higher levels.

Source: Author's summary from in-depth interviews

In Singapore, the design of integrated care covers coordination across a wide range of health-care providers, including community medical care,

GPs, polyclinics, acute care hospitals, rehabilitation centres and day-care centres, and extends to social care and mental care services. While there is a strong focus on coordination between primary care and hospital care, many initiatives in Singapore are targeting transitional care between hospital care and post-acute services.

In China, the design of integrated care models is mainly vertical. Vertical interactions across primary, secondary and tertiary health-care institutions are established through medical groups, community medical alliances, specialty alliances and telemedicine collaboration networks. PPP is another key feature of integrated care in China. Partnerships are initiated to increase the capacity of integrated care to meet the demands of patients. In India, integrated care among the primary, secondary and tertiary levels of care is limited to the degree of "linkage". Although overall case management and coordination are lacking between public and private providers, India has established a clear understanding of the disburser for each treatment and developed referral and follow-up processes. Currently, the National Health Mission of India focuses on primary care for communicable diseases and reproductive and child health services instead of NCDs although introduction of health and wellness centres will rebalance this. Philippines formulated vertical integrated care with primary care providing the entry point into the national health system. Instead of full integration, the Philippine situation of integrated care could better be characterized as one of "coordination". Fiji has a well-established clinical, transitional and administrative pathway from generalist to specialist care in its vertical integration. Horizontal integration in Fiji exists at the primary care levels with preventive and curative services. Viet Nam lacks a comprehensive integrated care system to fully address the increase in NCDs. However, Viet Nam has established a "linkage integration" such as the patient referral system between health facilities at central, provincial, district and community levels. There is also strong policy motivation for establishing a collaboration network and support system among different levels of health facilities to address the overcrowding problem at health facilities of higher levels. This is done by improving the quality of health-care services provided at lower levels through training and transfer of technical expertise.

Beneficiaries, advocators and objectors

Table 9.3 summarizes the beneficiaries, advocators and objectors of integrated care in the six countries.

Table 9.3 Beneficiaries, advocators and objectors of integrated care

Country	Beneficiaries	Advocators	Objectors
Singapore	• Patients • General public • Primary health-care institutions	• MoH	• Health-care institutions with loss of interest due to the current incomplete payment mechanism
China	• Health-care users • Primary health-care institutions	• The government	• Medical insurance departments • Compensation departments in the Ministry of Human Resource and Social Security • Pharmaceutical companies
India	• General public • Financially weaker and disadvantaged communities	• Non-profit organizations • Pharmaceutical companies • Health technology suppliers	• N/A
Philippines	• General public	• Department of Health • Lawmakers • Civil society advocates	• Health professionals accustomed to the traditional, non-integrated care system
Fiji	• General public • Health-care providers with declining resource demands and a healthier population	• Health-care providers in conjunction with government initiatives • Specialist clinical groups	• Certain civil- or faith-based groups
Viet Nam	• General public • Patients with chronic diseases • Health professionals • Health authorities and the government	• N/A	• Health professionals with limited understanding of integrated care

Source: Author's summary from in-depth interviews

While the beneficiaries are consistently identified as the general population, financially disadvantaged patients and primary care workers, the advocators and objectors vary by country. In Singapore, China and Philippines, the advocators are involved with the government or governmental departments. In India and Philippines, non-profit organizations, lawmakers or civil society facilitate integrated care reforms. Other advocators include health-related industries such as pharmaceutical companies and health technology suppliers in India and health-care providers in conjunction with government initiatives and specialist clinical groups in Fiji. Objectors in the six countries are usually health-related departments, institutions, companies or individuals whose own interests are affected by care integration, such as medical insurance companies, human resources and social security departments and pharmaceutical companies. In Fiji, the objectors are certain civil- or faith-based groups who object to particular reforms, especially if the ideas are perceived as divergent from strongly held beliefs.

Levels of integration and performance of integrated care cases

Based on the eight case studies, we analysed the integrated processes and levels of integration, and conducted high-level performance evaluation of the integrated care models in the six Asia-Pacific countries.

Integrative processes and levels of integration

Given the multifaceted nature of integrated care, the study focused on the integration of hospital care and primary and post-acute care. It adopted the Valentijn, Schepman, Opheij and Bruijnzeels' framework of care integration, as introduced earlier, bringing together a number of different concepts related to integrated care to guide analyses of integrative processes and levels of integration [3]. As illustrated in Table 9.4, in line with a people-centred approach, Valentijn et al.'s framework identified different levels and types of integration. Functional and normative integration ensures connectivity across macro (systemic), meso (organizational and professional) and micro (clinical/service) levels.

Some key learning of the integrative process from each country is summarized below.

In Singapore, the design and implementation of the integrated care model is a combination of top-down and bottom-up approaches. Systematic and organizational changes, such as the establishment of regional health-care systems and the launch of the AIC, are directed by the Ministry at the national level and have played a critical role in the integration process in Singapore. However, the regional health systems maintain a certain level of autonomy in testing innovative care models and transforming the organizations. Similarly in China, with strong administrative enforcement at the Central Government level to promote the concept of integrated care, local health systems have been pushing different pilot models of integrated care, with the design varying from region to region based on local characteristics. For functional integration, China has not yet set up unified standards and interoperability principles for the medical information system. In the meantime, there are large differences in the quality of medical data in different regions.

Although integrated care has not been an explicit objective or policy, the health system in Fiji has already been developed in a way that supports integrated care and organizational and clinical integration has been well established within care delivery. Health services are delivered through a primary care model and there is a great degree of vertical integration between the lower and higher levels of the health system and, to a lesser extent, some horizontal integration at the primary care level. Chronic diseases still require attention and no model is in place yet, specific to these conditions.

In India, the health system has been more fragmented than other countries of this study. Novel integrated care initiatives and insurance schemes have been launched by the government in order to facilitate a comprehensive and integrated health system to address emerging NCDs and mental health challenges. PPP models also exist, which integrate primary care with higher levels of care and include traditional medicine.

The Government of Philippines has made it a priority to vertically integrate care for chronic diseases. Several major vertical integration initiatives have subsequently emerged, the most recent being the health-care provider network, which coordinates primary to tertiary care providers and is intended to become the organizational basis for delivering universal health care. Additional earmarked funding for universal health care is also expected to encourage the vertical integration effort.

In Viet Nam, integrated care has not yet been officially or comprehensively implemented, although the need has been acknowledged. Currently, a framework and guidance are lacking, as well as financial and human resources. There is limited understanding of integrated care. These impede the implementation of integrated care at any level. However, strong interest and support from the government and future collaboration with and support from various stakeholders such as NGOs and the pharmaceutical industry can assist in successfully planning and initiating integrated care.

Performance of integrated care

Specific indicators to measure the performance of integrated hospital care with primary and post-acute care for people with chronic diseases are lacking and severely restricted. WHO issued a list of examples of potential measures of people-centred and integrated health services based on the Donabedian Quality Assurance Model, i.e. structure–process–outcome framework [4]. Based on semi-structured interviews with stakeholders (policy-makers, hospital managers, primary care physicians and post-acute care providers), as well as qualitative interviews with the patients, we gathered some high-level performance indicators of the integrated care programmes in the studied cases.

In the SingHealth Regional Health System (Singapore), performance data on most new initiatives are systematically collected, and the health services and evaluation division support performance evaluations of the initiatives. Many programmes are running as a continuous improvement process, and early results show positive performances. For instance, in the "Hospital to Home" programme, the 30-day readmission rate and emergency department visits were significantly reduced in the study group. In Tianchang County Medical Alliance (China) and Hierarchical

Diagnosis and Treatment System (Xiamen, China), data were collected from the local government, publications and patients' interviews to evaluate the performance of integrated care. The research team found some small improvements in the capability of primary health-care institutions and an increase in the public understanding of the referral system. Based on qualitative data collected from expert interviews, the MCH services programme in Fiji has been showing some positive outcomes in terms of providing access and care coordination, with almost all mothers attending around four antenatal visits and delivering in hospitals. Some structure and outcome measures still have room for improvement, as the number of specialists is low, medical records are not yet available in electronic form and detailed statistics on health resource utilization are lacking. In India, the Karuna Trust has a strong electronic system, which facilitates collection of data to evaluate and improve performance. Access to care has improved and health indicators have also improved; for example, the infant mortality rate and maternal mortality rate have decreased in areas where the Karuna Trust has been active.

Patient-centred integrated care at the Medical City in Philippines does not have a strong mechanism for monitoring or evaluation as yet. However, interview respondents for this study have reported that since implementation of vertical integration, there has been an improvement in care transition due to nurses acting as care coordinators. Patients have also reported improved self-management capabilities. There is a lack of performance evaluation of integrated care in Viet Nam, which needs to be developed going forward.

Barriers to and facilitators of integrated care in six Asia-Pacific countries

Some key barriers to and facilitators of successful implementation of integrated care in the study countries are summarized in Table 9.4.

Table 9.4 Barriers to and facilitators of successful implementation of integrated care in study countries

Country	Barriers	Facilitators
Singapore	• Insufficient support for patients to navigate the different medical services • Lack of payment incentives for primary care providers • Insufficient performance evaluation of the various initiatives • Lack of human resources for primary care • Lack of understanding of "health-centred" and "patient-centred"	• Strong willingness among care professionals to provide the best care for patients • Good coordination among the management team • High-level adaptation of information technology
China	• Insufficient understanding of integrated care by the public • Lack of primary health-care service providers • Insufficient trust of the public in primary health-care institutions • Restricted coverage of the information system • Increasing responsibilities of health-care providers in large hospitals • Lack of an effective payment mechanism	• Strong administrative facilitation • Collaboration between different government departments • Multidisciplinary team for delivery of care
India	• Some NCDs are often treated only by higher centres of care • Some specialized services (eye care, dental care) are offered only at higher centres of care • Health centre staff are severely demotivated due to delays in payment	• Empowering marginalized people to be self-reliant • Combining health care with other social issues • Integrating traditional remedies into regular treatment

Country	Barriers	Facilitators
Philippines	• Some doctors are unwilling to participate in team-centred care due to uncertain benefits • Lack of specialists	• Culture-centred change among doctors who want to see improved patient outcomes • Hospital leadership embracing patient-centred care • Increased funding for public health services
Fiji	• Administration and delivery complicated by duplications, red tape and bureaucracy • Resource constraints, including infrastructure, limited consumables, out-of-stock drugs and equipment • Lack of financial support • Lack of a comprehensive system of feedback and reflection to provide insight into performance • Suboptimal customer service and interpersonal skills • Limited awareness of policies and guidelines • Bureaucracy and time-consuming administrative processes	• Adaptability of the programme and the ability of the initiatives to be implemented within the existing infrastructure • Sense of ownership and motivation gained from the programme by service providers • Altruistic nature of many driving clinicians and support staff who go above and beyond their duty • Open and easy communication channels and forums • Outreach services by specialists to primary care centres that promote collegiality, mentoring, education and better networking • Partnership among stakeholders involved
Viet Nam	• No specific department or person who is in charge of the development of integrated care • Health workers' struggle to adapt to the requirements of integrated care • Lack of policy to support the development of integrated care • Insufficient capacity to establish a medical database • Low professional capacity at the grass-roots level	• N/A

Source: Author's summary

Barriers to integrated care

Barriers were found on multiple fronts; for users, providers and associated with the broader environment or communities where integration was taking place. Some system barriers identified included a lack of supporting policies or contradictions between policies at different levels and lack of commitment in the government and/or local administration. Limited public awareness and social stigma in the community and instability such as regular displacement of patients or conflicts in the region also undermine the success of care integration. Financial barriers and/or a lack of financial incentives affect the participation of both users and providers in integration programmes. Additional barriers relating to providers also include a shortage of professionals and a lack of training, expertise and/or mentorship. A significant barrier for patients is a lack of engagement within the programmes. These barriers threaten not just the implementation but also the sustainability of a newly implemented care integration programme.

Facilitators of integrated care

Financial incentives were discussed in most countries. Payment systems that incorporate financial incentives are key for encouraging providers to participate in and implement integrated care programmes on chronic diseases. Non-financial incentives for patients included rewards for desired behavioural change and vouchers for services performed within a specific integrated care programme on chronic diseases. Non-financial incentives for care providers were also identified, such as awards and memberships in an integrated care network as a reward for physicians and health-care workers participating in integrated care.

Facilitators of integration consist of rules and policies that enable an environment promoting the integration of care and making integration possible. Strong leadership and political commitment as well as community engagement also act as powerful facilitators of programmes. Many cases function under national guidelines and frameworks of care integration, which facilitate the engagement of care professionals as well as leadership and credibility of the programme. Other facilitators such as information technology are also discussed.

Discussion and policy implications

To date, integrated care has been more commonly discussed and implemented in western countries; however, the concept has been gaining popularity and is being piloted in Asia. Due to factors such as rapid population ageing, increasing burden of chronic diseases, economic growth and strong commitment to UHC, all six countries in our study set integrated care as a direction for their health systems transformation.

As the settings in Asia vary vastly from highly developed urban Singapore to less developed rural India, we can understand how elements of integration are adapted to a variety of settings. Singapore's integrated care has been developed over a few decades and, as a result of various reforms and the implementation of innovative programmes, the city-state has made significant progress towards a more people-centred and integrated care system in recent decades. Three regional health-care systems are continuously evolving with different innovative care models that have been designed and tested, while programmes such as primary care networks have been scaled up nationwide.

China has been refining its integrated care model since it launched the Hierarchical Medical System in 2009. The country has been promoting "patient-centred integrated care" at the highest political level, and has already started a comprehensive trial with positive results in some regions. The traditionally people-centred Fijian health system has fortunately evolved over the years towards care integration. Development of integrated models of people-centred care presents a natural way forward for the Fijian government to meet the health-care needs locally.

While the Philippines public health system is not currently much advanced in its integrative processes for the treatment of chronic illnesses, there is hope that the 2019 passage of the Universal Health Care Act can finally provide a compelling reason for health-care facilities – both public and private – to help improve care coordination at different levels. The interest of the Viet Nam and Indian governments in integrated care has also been increasing.

Although there is no single approach or model that best supports integrated care, there are several factors that contribute to the success of integrated care programmes. Facilitators and barriers may be categorized according to external context (laws, regulations, already existing health system in place, strategic direction), system organization (financing, organizational leadership, structure of existing services, culture), intervention organization (intervention size and complexity, resources, credibility), providers and research staff (shared values, engagement, communication). The particular factors influencing the success of a programme vary according to the context. In our review, the enabling factors varied by specific context and study country. Facilitators of integration consist of rules and policies that enable an environment promoting the integration of care and making integration possible. Strong leadership and political commitment as well as community engagement also acted as powerful facilitators of programmes. Additional barriers for Asian countries arise from health system instability, a lack of information management stemming from inadequate IT infrastructure and low resources.

The following are some policy implications for the development, evaluation and successful implementation of integrating hospital care with primary care and post-acute care based on our study across six Asia-Pacific countries.

1. Transformation to integrated care requires both top-down commitment and consideration of local flexibility. In Singapore, China and Philippines, strong government involvement and leadership were frequently cited as important facilitators. The development of "patient-centred integrated care" requires cooperation between various departments, such as the MoH, Ministry of Finance Medical Insurance Department and Human Resources Department. Clearly, strong leadership and a supportive setting are essential and can influence the success of integrated care programmes. On the other hand, the success of many programmes identified in this study rested on adapting the integrated care concept to the local context to ensure acceptability with the local staff and patients. It is important to customize service packages based on the needs and epidemiological profile of the local

community. For instance, the focus of Karuna Trust of India is different in the urban and the village models. Hence, both setting the direction of the national-level policy as well as adaptation and adjustment to local needs are necessary to push the integrated care agenda.

2. For countries interested in integrated care transformation, it is important to align both financial and non-financial incentives to enable behaviour changes among administrators, clinicians and patients. Payment systems that incorporate financial incentives are the key for encouraging providers to participate in and implement integrated care programmes for chronic diseases. Performance-based incentives provide additional payments to participating providers such as pay-for-performance schemes. Innovative payment models such as bundled payment schemes or risk-sharing models also encourage care providers to achieve improved value for money. Financial incentives to encourage service users or patients to enrol in integrated care programmes should also be analysed and implemented. Some examples are reduced or waived copayments or a personal health budget either by providing patients with cash or vouchers to purchase home-based care services. Non-financial incentives for patients include rewards for the desired behavioural change and vouchers for services performed within a specific integrated care programme on chronic diseases. Non-financial incentives for care providers were also identified, such as awards and memberships in an integrated care network as a reward for physicians and health-care workers participating in integrated care.
3. Capacity development for primary care workers, community care workers and care coordinators is the cornerstone of integrated care in Asia. Care integration aims to reduce overlap between services and improve coordination of care between professionals, thus improving cost–effectiveness; however, integration does not solve the problem of a lack of resources. An important difference between integrated care programmes in western countries and Asia is the care coordinator. A review of seven integrated care programmes in western countries described care coordinators

as the distinguishing feature contributing to the success of all the programmes. In comparison, our study found that care coordinators were not present in many programmes in Asia. Even in high-resource countries like Singapore and China, human resources for provision of community health services and primary care are still in short supply. Countries need to consider providing subsidies for primary health-care institutions, as well as offering more professional training and promotion opportunities.

4. The role of technology and sophisticated IT systems is also important in integrating health care. Health IT literacy is inconsistent across Asia and electronic medical records are not a norm in all health-care settings in the region. For instance, although various regions are actively exploring the development of medical information systems, China has not yet set up unified standards and interoperability principles for a medical information system. Accurate health information has the ability to transform health services by providing sound data to guide decision-making. Increased health-related research is required to define the burden of illnesses, assess patterns of resource utilization in health and evaluate the impact and performance of care programmes. These would help to identify priority areas and resources available to address these and ascertain what actually works. Central to the collection of accurate basic health data would be a comprehensive electronic health information system. There is an urgent need to upgrade the current health information system and increase its functions, availability and accessibility.
5. Governments may strengthen public education and targeted training to promote the concept and culture of "integrated medical care" and "health-centred care". At present, in many Asian countries, people's understanding of health-care services is still "disease-centred" as opposed to "health-centred". While most of the personnel in health-care institutions in Singapore have a better understanding of "health-centred" and "patient-centred", many patients and health practitioners are still unfamiliar with the concept of "integrated care". The India and China cases suggested that developing a culture of patient-centredness and

using a population-based approach are crucial. Through improved awareness among doctors and patients, the development of integrated care in Asia can be further accelerated.

6. Last but not least, it is important to set clear goals for transformation to integrated care programmes, install monitoring mechanisms within the reform/integration process and conduct performance evaluation to measure the degree to which these goals are met.

The key objectives of integration as defined by WHO are to enhance the quality of care and life, increase patient satisfaction and system efficiency. Some additional goals could be stronger partnerships among different service providers, as well as a better-integrated health information system. A monitoring and evaluation mechanism to provide feedback is also important to identify potential issues and inform programme leaders and policy-makers; however, most cases in our study do not have a rigorous performance evaluation on emerging pilot integrated care programmes. To better understand the value of integrated care and develop strategies for implementation, more systematic performance assessment of integrated care programmes is essential.

References

[1] The World Bank in China: Overview. Washington, DC: World Bank; 2018 (http://www.worldbank.org/en/country/china/overview, accessed 31 January 2020).

[2] Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017. Washington, DC: Global Burden of Disease Study (GBD); 2017 (http://www.healthdata.org/research-article/global-regional-and-national-age-sex-specific-mortality-282-causes-death-195, accessed 21 May 2021).

[3] Valentijn P, Schepman M, Opheij W, Bruijnzeels A. Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. Int J Integr Care. 2013;3(1). doi: http://doi.org/10.5334/ijic.886.

[4] Donabedian A. Evaluating the quality of medical care. 1966. Milbank Q. 2005;83(4):691-729.

Conclusion

Integrated care is one of the important strategies for achieving UHC in meeting the challenge of the growing need for long-term and complex care. Our study showed that health-care integration is increasingly emerging to address the challenges that require delivery of long-term health-care services in selected Asia-Pacific countries. Due to factors such as rapid population ageing, increasing chronic disease burden, economic growth and strong commitment to UHC, all six countries in our study set integrated care as a direction for their health systems transformation. As the settings in Asia vary vastly from highly developed urban Singapore to less developed rural India, the models from different countries vary in the levels of integration from linkage to coordination to full integration.

The particular factors influencing the success of a programme may vary according to the context. Facilitators of integration consist of rules and policies that enable an environment promoting the integration of care and making integration possible. Strong leadership and a supportive setting are essential and can influence the success of integrated care programmes. Both financial and non-financial incentives need to be aligned to enable behavioural changes for administrators, clinicians and patients. It is also important to customize the services packages based on the needs and epidemiological profile of the local community. One of the key barriers to integrated care in Asia is the short supply of human resources for community health service and primary care workers. Countries need to consider providing subsidies for primary health-care institutions, as well as offering opportunities for more professional training and promotion. Additional barriers for Asian countries arise from health system instability, a lack of information management stemming from inadequate IT infrastructure and low resources. There is an urgent need to upgrade the current health information system and its accessibility.

Monitoring and evaluation of the integrated health-care programme is critically important. However, most programmes in our study did not have a rigorous performance evaluation component embedded into programme implementation. It is imperative to set clear goals for these integrated care transformation programmes right at the beginning and to conduct appropriate evaluation to measure the performance. A well-designed monitoring and evaluation mechanism can provide timely feedback to help improve implementation to generate expected outcomes of the integrated care programmes.

Appendix

Appendix A: Detailed method of scoping review

To identify innovative cases of care integration in selected countries, the research team conducted a scoping review and compiled a list of candidate innovative cases for selection by experts in study countries.

Search strategy

The research team searched electronic databases including PubMed, Cochrane Library, Web of Science, EMBASE and Medline for publications between January 1, 2010 to June 30, 2018. Key search terms included 'integrat* care', 'integrat* healthcare', 'integrat* health care', 'integrat* health service', and 'integrat* health delivery'. For all the databases, Boolean terms AND and OR were used to extract relevant studies.

Search process

The process of the literature search is summarized in Figure X. The search yielded 6,090 potentially relevant publications. Duplicates were removed, and the remaining 2,505 publications were screened on the basis of title and abstract. During this stage, 2,230 articles were excluded and the remaining further 275 articles were selected for in-depth full text screening. In this phase, articles were excluded because they did not include a model description, were not chronic disease focused, were editorials, conference abstracts or systematic reviews or a full text was not available. This in-depth screening process resulted in 87 unique publications for inclusion in data extraction.

Study selection

There were three stages in the study selection process. Firstly, all duplicates were removed. The second stage involved the screening of titles and abstracts to identify papers for full-text screening. In the third stage, the selected papers were reviewed in full in accordance with inclusion and exclusion criteria. The second and third stage were performed by six reviewers. For each study country, two reviewers independently screened titles and abstracts, and examined full-text articles for eligibility. Disagreements between reviewers were resolved by a third independent reviewer.

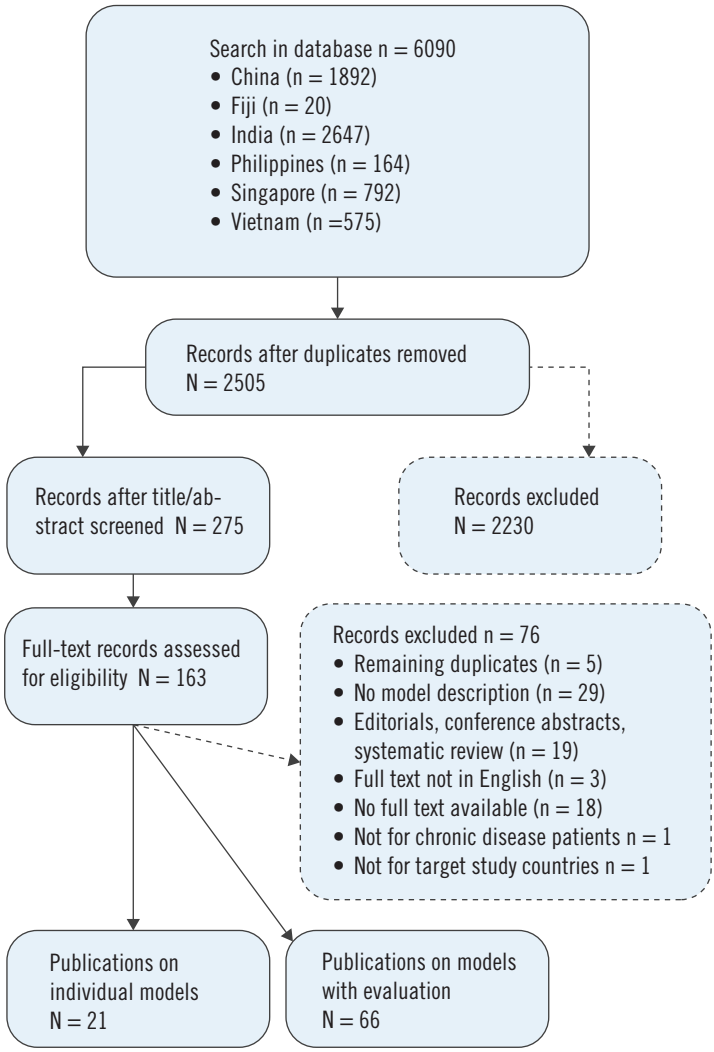
Papers were included if:

- Any of the elements of integrated care (including multidisciplinary team, care coordinator/case manager, information sharing system, risk stratification, referral system, defined eligibility criteria, single point of patient referral, single assessment, formulation of health plan, use of telehealth, engaging users, self-management support and support of informal carers) were described in the text;
- Target population of the case was patients with chronic conditions (according to the definition of the U.S. National Center for Health Statistics, chronic conditions refers to conditions that last 3 months or more, and require ongoing medical attention) requiring more than a single care episode;
- The location of the case described were on any of the six Asia-Pacific countries: Singapore, China, India, Viet Nam, Philippines and Fiji.

Papers were excluded if:

- They were literature reviews of integrated healthcare models;
- No full text was available;
- The paper was not written in English.

Flow chart of scoping review process



Data extraction

Data was also independently extracted by two reviewers for each study country focused on the following:

- Literature Characteristics: title of the paper, year of publication, study type (ie. Randomized Control Trial, observational study etc.);
- Description of integrated care case: name of case, description, objective, context, element of integration and facilitators and barriers;
- Indicators of the case: user and professional experience, care outcomes, utilization of services and cost-effectiveness.

Data analysis

The research team conducted a structured synthesis and categorized the selected cases based on their characteristics and elements. The research team listed and described the differences in study and case characteristics, elements of integrated care delivery, financial and non-financial incentives and performance of cases by study country. In this review, the elements of care integration include elements specifically related to service delivery reflecting the key elements adapted from the Chronic Care Model (CCM) proposed by Wagner et al (1996) which has been a popular guideline for integrated healthcare on chronic disease. In previous studies, many integrated care cases are structured according to the CCM. The CCM identifies six key elements of comprehensive integrated care cases including self-management support, delivery system design, decision support, clinical information systems, the healthcare system, community resources and policies. Due to the limited availability of data from the literatures included, the research team have categorized the elements of integration relevant to the cases, by delivery system design, self-management support and clinical information systems.

Indicators related to performance of integrated care were grouped according to Donabedian's framework for healthcare quality, consisting of structure, process and outcome. "Structure" is defined as the setting, qualifications of healthcare providers and administration system for delivering healthcare. "Process" is the components of the healthcare delivered and "outcome" is the recovery, restoration and survival of the patient population. Barriers, both financial and non-financial, were identified and discussed to inform future integrated care cases.

Appendix B: List of interviewees for in-depth interviews and deep-dive case studies

Country	In-depth interviews	Deep-dive case studies
China	• An officer from National Health Commission • A director from Health development research Institution of National Health Commission • An academic leader from Peking University • An academic leader from a think tank	• Four officers from Health Commission in Tianchang and Xiamen (two for each) • Two directors from high-level hospitals in Tianchang and Xiamen (one for each) • Two doctors from high-level hospitals in Tianchang and Xiamen (one for each) • Three directors from primary healthcare institutions high-level hospitals in Tianchang and Xiamen (two for Tianchang, one for Xiamen) • Twenty patients with chronic diseases in Tianchang and Xiamen (ten for each)
Fiji	• A professor in Obstetrics and Gynecology • A former administrator in Obstetrics and Gynecology • An academic leader in public health formerly with the Fiji National University	• Two health administrators at the Divisional Health office of the Ministry of Health (MOH). • Two specialist doctors involved in delivery of services at the Colonial War Memorial (CWM) Hospital • A senior nursing sister in child health at the Colonial War Memorial (CWM) Hospital • Five inpatients in the obstetric department of the CWM hospital
India	• The Executive Director of a national public health think tank • Two senior faculty of leading academic institutions of India.	• Senior leadership including the Founder and Secretary, two members of the Board, and two program managers at the Head Office were interviewed. • The staff at the clinic including the general physician, obstetrician and gynecologist, optometrist, nurse, administrative officer, nurse. • Two patients at the clinic
Philippines	• One public sector administrator • Four private sector facilitators	• Staff at the Medical City and St. Luke's Medical Center • Five patients with experiences of vertical care for chronic conditions • Five without such experiences

Country	In-depth interviews	Deep-dive case studies
Singapore	• A chief officer from the Agency of Integrated Care • An academic leader from the Saw Swee Hock School of Public Health • A health practitioner from primary care.	• A senior manager from community care • A director from community hospital • A manager from community nursing • Three directors from the executive management team of SingHealth Regional Health System • Three patients with chronic diseases
Viet Nam	• A senior officer from National Geriatric Hospital • A senior officer from National Cardiology Institute, Bach Mai Hospital • An academic leader from Hanoi Medical University • A health practitioner from hospital	• Two directors of each hospital • A health staff of each hospital • Two patients with chronic diseases

Appendix C: List of candidate innovative cases and indicators

List of candidate innovative cases identified for potential deep dives

Country	Program name	Target condition
China	eCROPS	Diabetes
	eCROPS-CA	Cancer
	IMPACT	HIV
	The Chinese Older Adult Collaborations in Health (COACH)	Comorbid depression and hypertension
	LEAN	Schizophrenia
	Programme on glycemic control and behavioral outcomes for type 2 diabetics	Type 2 diabetes
	Taiyuan Central Hospital medical consortium	Cancer
	Integrated TB service model	Tuberculosis
	Integrated PHSHT services	HIV
	Integrated TB control model	Tuberculosis
	PCP-Cardiologist Telemedicine Model (PCTM)	Hypertension
	Patient-centered cognitive behavioral therapy	Cardio-metabolic syndrome
	Nurse-led telephone support model	End-stage renal failure
	Intergrative strategy of health service delivery for rural hypertension patients	Hypertension
	A comprehensive intervention project in Qianjiang District	Hypertension and/or type 2 diabetes
	Home-based physiological information acquisition system	General NCDs
	The medical-nursing combined care	General NCDs
	A community based integrated intervention for early prevention and management of COPD	COPD
	The public CHC model	General NCDs
	The gate-keeper CHC model	General NCDs
	The hospital owned CHC model	General NCDs

Country	Program name	Target condition
	GPs taskforce and contract-based care delivery	General NCDs
	Vertical integration of NCDs care	General NCDs
	'1+1+1' model	General NCDs
	Domiciliary Integrated pulmonary rehabilitation (PR) Program	COPD
	Community-based intervention packages	Other
	An initiative to promote an elder-friendly Hong Kong	General NCDs
	Integrated hospital- community diabetes management program	Diabetes
	Joint Asia Diabetes Evaluation (JADE) program	Diabetes
	City-driven prevention of mother-to-child transmission (PMTCT) program	HIV
	Integrated care and discharge support for elderly patients (ICDS)	General NCDs
	Integrated care pilot	General NCDs
	Integrated medical rehabilitation delivery	General NCDs
	Integrated intervention for prevention and management of COPD	COPD
	The model of vertical integrated care between the three-levels of healthcare institutions	Type 2 diabetes
	Integrated care model for patients with kidney diseases	Kidney diseases
	Care System integration in rural China	General NCDs
	hypertension management trial in rural China	hypertension
	Integrated approach for tuberculosis	Tuberculosis
	Integrated health management model	General NCDs
	Integrated PMTCT Service	HIV
	Family Integrated Care (FIC)	other
	Integrating Depression Care in ACS patients in Low Resource Hospitals	CVD
	'686 Programme' model	Mental disorder

Country	Program name	Target condition
India	Opportunistic screening of NCD	General NCDs
	INDEPENDENT model	Diabetics, depression
	Psychosocial Intervention in Cancer Care	Cancer
	Provider-initiated HIV testing & counselling in incident tuberculosis cases	Tuberculosis and HIV
	Clinic-based multi-component CVD risk reduction intervention	CVD and diabetes
	Community-based intervention programmes	General NCDs
	Programmatic management issue solving in Diabetes mellitus and tuberculosis	Diabetes and tuberculosis
	Integrated management of Adult Liness	HIV
	Integration of mental health in primary care	Mental health
	Lifestyle Intervention in Families for Cardiovascular risk reduction (PROLIFIC Study)	Coronary heart disease (CHD)
	Integrated approach in improving QOL in lung cancer.	Cancer
	Private Partnership in coordinating TB and HIV.	Tuberculosis and HIV
Fiji	Not given - however Fiji NCD plan mentioned later in the texts	NCDs
Viet Nam	integrative and decentralized service delivery models	HIV
	palliative care incorporated into existing HIV and cancer services	HIV
	Trained and mentored provincial coaching team (PCT)	HIV
	MMT/ HIV integration	HIV
	Viet Nam Multicomponent Collaborative Care for Depression Program	Depression

Country	Program name	Target condition
The Philippines	No program name specified. Intervention was implemented by Medecins Sans Frontieres (MSF)	Mental health disorders
	First Line Diabetes Care Project (FILDCARE)	Type 2 diabetes
	Context-adapted chronic disease-care model (CACCM)	Type 2 diabetes
	The initiation of ambulatory management of drug resistant TB at the MMC	TB
Singapore	ValuedCare program	Hip fractures
	Transitional care programme	General population
	Delivering on Target (DOT) Programme - Diabetes	Diabetes
	integrated model of care for hip fractures	Geriatric hip fracture
	The Aged Care Transition (ACTION) Program	General elderly population with complex care needs
	Primary Care Dementia Clinic (PCDC)	Dementia
	Integrated practice units (IPU)	General population
	The Integrated Community of Care (ICoC)	General population
	Integrated care pathway (ICP) programme	COPD
	Integrated care pathway (ICP) programme	COPD
	Integrated care pathway (ICP) programme	Fragility hip fractures
	iCommunity@East	Risk of dementia and mental disease
	The Singapore Programme for Integrated Care for the Elderly (SPICE)	General elderly population
	The Singapore Programme for Integrated Care for the Elderly (SPICE)	General elderly population
	The National Health Group (NHG) and the Alexandra Health System (AHS)	General NCDs
	Right siting	Rheumatology
	Osteoporosis Patient Targeted and Integrated Management for Active Living (OPTIMAL)	Osteoporosis
	The Health Management Unit (HMU)	Diabetes

Country	Program name	Target condition
	The Singapore General Hospital Diabetes Centre (DBC)	Diabetes
	The Singapore Regional Health System was introduced in the article	General population
	This program does not have a name. It is referred to as a pallative program in Singapore in the article	Population requiring palliative care

List of indicators

Indicator		Indicator description
Structure	Medical staff	Proportion of specialists to other doctors
	Facilities	Whether hospitals share electronic medical records with other care providers
Process	Access to care	Improved access to primary care services/GPs; access to health care (incl. % in general practice, screening, time to access GP or community services, timely initiation of care, waiting times for urgent treatment esp. cancer, severe mental health access, waiting time for elective treatment)
	Care transitions	Delayed transfers of care from hospital, transition record with specified element received (hospital to home or other site of care), timelines of transition (hospital to home or other site of care)
	Care planning	Holistic needs assessment; personalized care plans; advanced care plan
	Care coordination	Primary health care organizations currently coordinating patient care with other health care organizations using protocols; quality of care processes based on best practice guidelines (incl. integration of care across settings as assessed through chart reviews, medical records); quality of clinical integration or coordination in multi-professional teams as assessed by surveys; administrative communication (incl. % patients transferred to other health care facility whose medical documentation indicated communication of administrative information prior to transfer); presence of coordination activities (e.g. clarity of responsibilities, facilitate transfers across settings, assess needs and goals, proactive care plans, support for self-management, monitor & follow-up, home care support, multidisciplinary teams in primary and community care, case management, disease management, ICT enabled communication)

Indicator		Indicator description
Outcome	Resource utilization	Hospital utilization (e.g. bed days for selected patient types); residential and long-term care utilization (e.g. # receiving social care as % of (# receiving emergency hospital care + # receiving long-term social care); primary care utilization (e.g. Enrolment in general practice/primary care practice); health care costs (per capita health care costs); balance of care (relative spend on primary, community, secondary and tertiary care)
	Self-management	% people feeling supported to manage their (long-term) condition; people aged >65 with >8 long-term conditions; management of risk factors in chronic disease (e.g. blood glucose and cholesterol in people with diabetes; blood pressure control in people with stroke, TIA, heart disease, chronic kidney disease, hypertension; diet, nutrition and weight management in under/overweight) [QOF]
	User and carer experience	Improved people's experiences of care; patient-reported satisfaction with coordination/integrated care; % service users who said that services received made them feel safe and secure
	Care delivery and transitions	Patients' reports of unnecessary care (e.g. tests, procedures, emergency room visits, hospitalizations); patient-reported gaps in scheduled care (e.g. missed consultations, medical test or prescribed medications); clear plan when moving from one service to another; transitions undertaken without delays; advance knowledge of care transitions and next steps in care; new service providers knowing details of person and their preferences and circumstances; protection of entitlements to care when moving from one jurisdiction to another

Appendix D: Questionnaire used for in-depth interviews and deep-dive case studies

In-depth interview questionnaire

Part I: general questions

1. In the scoping review, we have found some integrated care models/programs in your country targeting people with chronic diseases, please take a look. Are there any more initiatives you would like to add? (If yes, please describe the models)? Are there any newly emerging integrated care models/programs of integrating primary healthcare into hospital care?
2. What triggered the initiation of the integrated care models/programs?
3. What was the rationale and catalyst for the people-centred integrated care approach?
4. According to your knowledge, what are the facilitators and barriers of the integrated care models/programs within the current health policies in your country?
5. From these integrated care models (including the models listed in the table and added in the first question), would you please choose two/three models which are the most inspirational, innovative and scalable in your country? Are these models with the highest level of integration in your country?

Part II: The following questions will be discussed based on the integrated care models you have just chosen

1. What is the model name and the objective of the model?
2. Who would benefit from the integrated care initiative? Who are the key advocators?
3. Who are the objectors? Why do they object to the integrated care model? Is it possible to persuade them to be supporters?
4. Do you think financial incentives and payment reform are the key factors for the success of integrated care models/programs? Are there any non-financial incentives which you think are also key factors for the success of integrated care models/programs?

5. How does the integrated care model fit within other health policies addressing the needs of people with chronic, non-communicable diseases?
6. Has the model/program coverage been measured in terms of population size and geographic area?

Additional question 1. What are the evaluation and monitoring mechanisms implemented to assess the effects of such initiatives?

Additional question 2. What are the (intermediate) impacts to patients with chronic diseases, providers, health delivery system and costs? What information exists on these impacts?

Deep-dive case study questionnaire

Part 1. Integrative Processes

1. What were the initial conditions of the country/local context for introducing or piloting a people-centered integrated care model? How were these taken into account in model design?
2. What is the starting point of the model: a top-down policy or a bottom-up 'micro-level' intervention initiated by a small number of providers? How has the model been developed and evolved?
3. If the model is developed from a top-down intervention, to what extent do you think the national policy priorities reflect the priorities felt by those working on the ground in health and care service locally?
4. How does the model fit within broad health policies addressing patients with multi-morbidities? To what extent is the initiative part of health financing schemes and/or local/national health reforms?
5. Who are the funders of the program? How is the program funded?
6. What was the breadth and degree of care integration (linkage, coordination or full integration)? What was the sequencing of integrating hospital care with primary care and post-acute care?
7. Who took the leadership role during the integrative process? How important and effective has leadership been in the planning and implementation of the care integration initiative?

8. Did the reforms include any re-organization or re-structuring of service delivery? Is there an attempt to merge organizations? What are the benefits and drawbacks of having a unified organization with a common structure (e.g. single budgets and clear lines of accountability)?
9. Was there a legal framework created to support the new organization or a contractual relationship for new partnership built across various levels of providers?
10. What roles did hospital care, primary care, and post-acute care play in care integrative processes?
11. Does the care integration approach focus on care management (direct to service users through multidisciplinary team) or care coordination (indirectly, across networks of care providers to facilitate access and care coordination)?
12. What is the composition of a multidisciplinary team? Within teams, are professionals' roles well-defined?
13. Is there a named care coordinator or case manager? If yes, what is the role of a care coordinator or case manager? What is the professional background of a care coordinator or case manager - clinician or non-clinician?
14. What are the referral patterns and relationships between hospital and primary care and post-acute care providers (e.g. a single point of referral, self-referral)?
15. Is there any eligibility criteria for receiving care, in terms of age, condition, or other factors?
16. Do providers from hospitals and primary care and post-acute care settings use shared guidelines and protocols for case management or care coordination?
17. Is there a single point of entry in the delivery of services?
18. Is there a telehealth intervention or telecare technique developed and applied for care integration? What is the major objective of introducing the technique and how does it function?
19. What are the roles of service users and their informal caregivers or family members in care planning and case management? Is there any support

provided to empower informal caregivers or service users for self-management?

20. What are the roles of primary care physician and post-acute care professional in care coordination?
21. What information and communications technology is applied to promote integration across hospital, primary care, and post-acute care settings? Is electronic medical record shared and accessible by all professionals involved in patient care?
22. Have needs/functional assessment tools been integrated? Do service providers from hospitals, primary care, and post-acute care apply unified tools?
23. Is risk stratification used?
24. Has any payment arrangement been employed to promote coordination, to better account for multi-morbidity, and/or to enhance quality? What is the nature of the payment mechanism?
25. Who is the payment made to (physicians and other health professionals or hospitals and other provider institutions)?
26. What is the rationale and key underlying assumptions of the payment arrangement? Who bears the financial risk (payer or provider)?
27. If the payment arrangement is designed to improve quality, how is a rewarding target set? i.e. clinical improvement or achieving benchmarks rewarded; fixed targets (e.g. X percent improvement on mammogram rate) or relative targets (e.g. mammogram rate in top X rate)
28. For bundled payment or pay for performance (if introduced), is there any risk adjustment mechanism applied in terms of patient characteristics and/or severity of cases? If yes, how is the mechanism designed? What are the challenges in developing such mechanisms?
29. What role do data management systems play in the design, implementation and review of the payment mechanism?
30. To what extent do the financial incentives work or not work in practice? Are there any unintended consequences caused?
31. Is there a shared mission, vision, value and/or culture across hospitals, primary care providers and post-acute care settings? If yes, is it clear?

Does it reflect the needs of the target population? Who plays a central role in propagating the mutually shared goals and/or cultures?

Part 2. Performance Evaluation

1. Please describe the performance of the care integration model in terms of the ten indicators given.

Asia Pacific Observatory on Health Systems and Policies (APO) publications to date

Health System in Transition (HiT) review (20 countries)

- The Fiji Islands (2011)
- The Philippines (2011; 2018)
- Mongolia (2013)
- Malaysia (2013)
- New Zealand (2014)
- Lao People's Democratic Republic (2014)
- The Republic of the Union of Myanmar (2014)
- Solomon Islands (2015)
- The Kingdom of Cambodia (2015)
- Bangladesh (2015)
- Republic of Korea (2015)
- The Kingdom of Thailand (2015)
- The Kingdom of Tonga (2015)
- People's Republic of China (2015)
- The Republic of Indonesia (2017)
- The Kingdom of Bhutan (2017)
- Japan (2018)
- The Philippines (2018)
- Independent State of Papua New Guinea (2019)
- Sri Lanka (2021)

Policy brief (13 series)

- Direct household payments for health services in Asia and the Pacific (2012)
- Dual practice by health workers in South and East Asia (2013)
- Purchasing arrangements with the private sector to provide primary health care in underserved areas (2014)
- Strengthening vital statistics systems (2014)
- Quality of care (2015)
- The challenge of extending universal coverage to non-poor informal workers in low- and middle-income countries in Asia (2015)
- Factors conducive to the development of health technology assessment in Asia (2015)
- Attraction and retention of rural primary health-care workers in the Asia-Pacific region (2018)
- Use of community health workers to manage and prevent noncommunicable diseases (2019)
- Strategies to strengthen referral from primary care to secondary care in low- and middle-income countries (2019)
- ASEAN mutual recognition arrangements for doctors, dentists and nurses (2019)
- Strengthening primary health care for the prevention and management of cardiometabolic disease in LMICs (2019)
- Overseas medical referral: the health system challenges for Pacific Island Countries (2020)

HiT policy notes (four countries)

- The Republic of the Union of Myanmar (2015)
  - #1 What are the challenges facing Myanmar in progressing towards universal health coverage?
  - #2 How can health equity be improved in Myanmar?
  - #3 How can the township health system be strengthened in Myanmar?
  - #4 How can financial risk protection be expanded in Myanmar?
- The Kingdom of Cambodia (2016)
  Increasing equity in health service access and financing: health strategy, policy achievements and new challenges
- The Kingdom of Thailand (2016)
  Health system review: achievements and challenges
- Bangladesh (2017)
  Improving the quality of care in the public health system in Bangladesh: building on new evidence and current policy levers

Comparative country studies (six series)

- Public hospital governance in Asia and the Pacific (2015)
- Case-based payment systems for hospital funding in Asia: an investigation of current status and future directions (2015)
- Strategic purchasing in China, Indonesia and the Philippines (2016)
- Health system responses to population ageing and noncommunicable diseases in Asia (2016)
- Resilient and people-centred health systems: progress, challenges and future directions in Asia (2018)
- Moving towards culturally competent, migrant-inclusive health systems: a comparative study of Malaysia and Thailand (2021)

The APO publications are available at
www.healthobservatory.asia

The Asia Pacific Observatory on Health Systems and Policies (the APO) is a collaborative partnership of interested governments, international agencies, foundations, and researchers that promotes evidence-informed health system policy regionally and in all countries in the Asia Pacific region. The APO collaboratively identifies priority health system issues across the Asia Pacific region; develops and synthesizes relevant research to support and inform countries' evidence-based policy development; and builds country and regional health systems research and evidence-informed policy capacity.

ISBN-13 978 92 9022 891 2

Australian Aid

ADB

Ministry of Health and Welfare
Republic of Korea

MINISTRY OF HEALTH
SINGAPORE

WORLD BANK GROUP

World Health Organization