

KEY FINDINGS

- The People's Republic of China (PRC), with its fast-aging population, is seeing an increase in the number of frail elderly with multiple chronic diseases, functional limitations, and cognitive impairments.
- During transitions between home and health and long-term care (LTC) facilities, frail elderly people are likely to experience poor quality of care and care coordination problems.
- Hospitals in the PRC have an important coordinating role to play among health and LTC providers in the absence of a third-party coordinator, but most hospitals are not well prepared to provide adequate care for frail elderly patients and facilitate the coordination of health and LTC provision.
- Policy interventions should focus on (i) strengthening geriatric care education and training for doctors and nurses; (ii) expanding geriatric departments in hospitals with skilled staff in geriatric care; (iii) establishing modern and geriatric-focused rehabilitation services; (iv) establishing patient discharge practices for better coordination of health and LTC providers; (v) identifying a case management model to support family caregivers; (vi) building linkage between health and LTC providers; and (vii) identifying new sources of LTC financing.

Hospitals' Role in Improving Health and Long-Term Care Coordination in the People's Republic of China

Claude Bodart
Health, Social Protection and
Elderly Care Specialist.
International Advisor,
Beijing Normal University

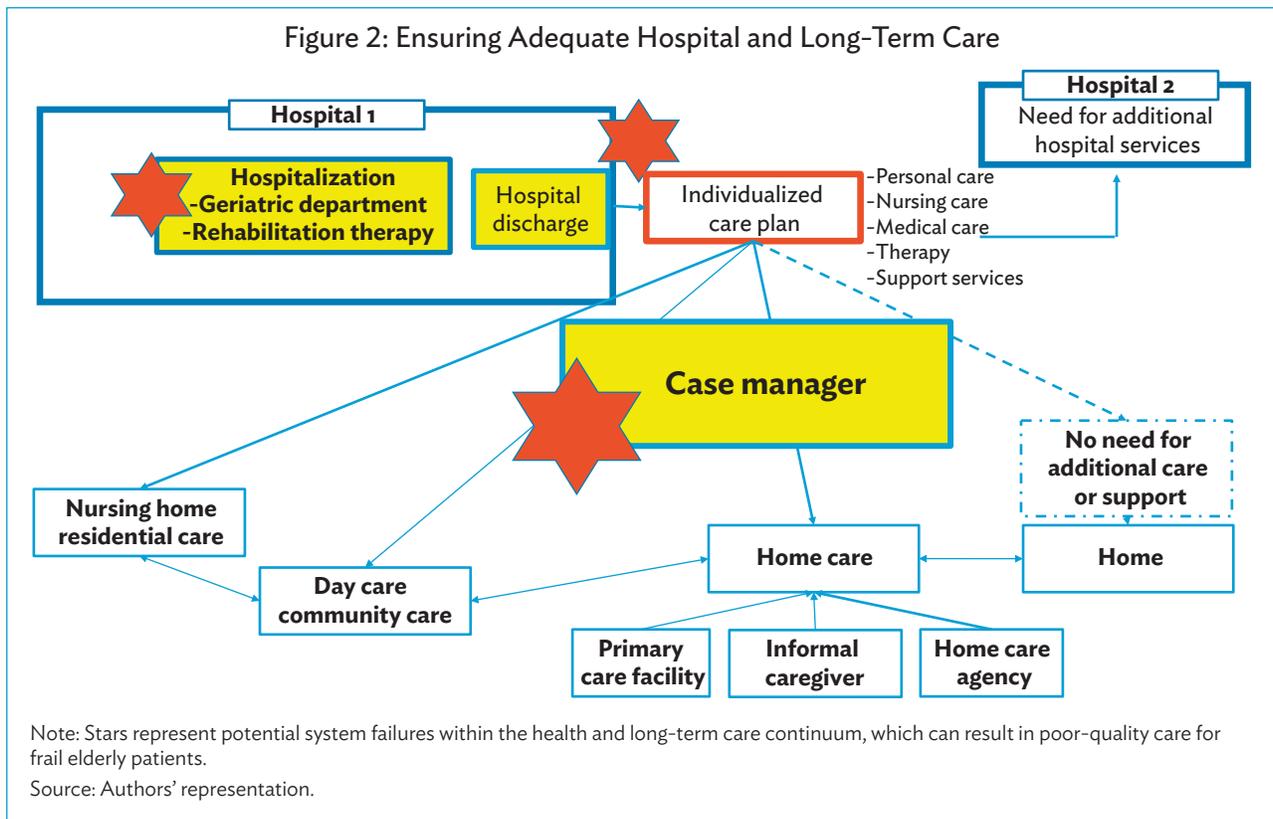
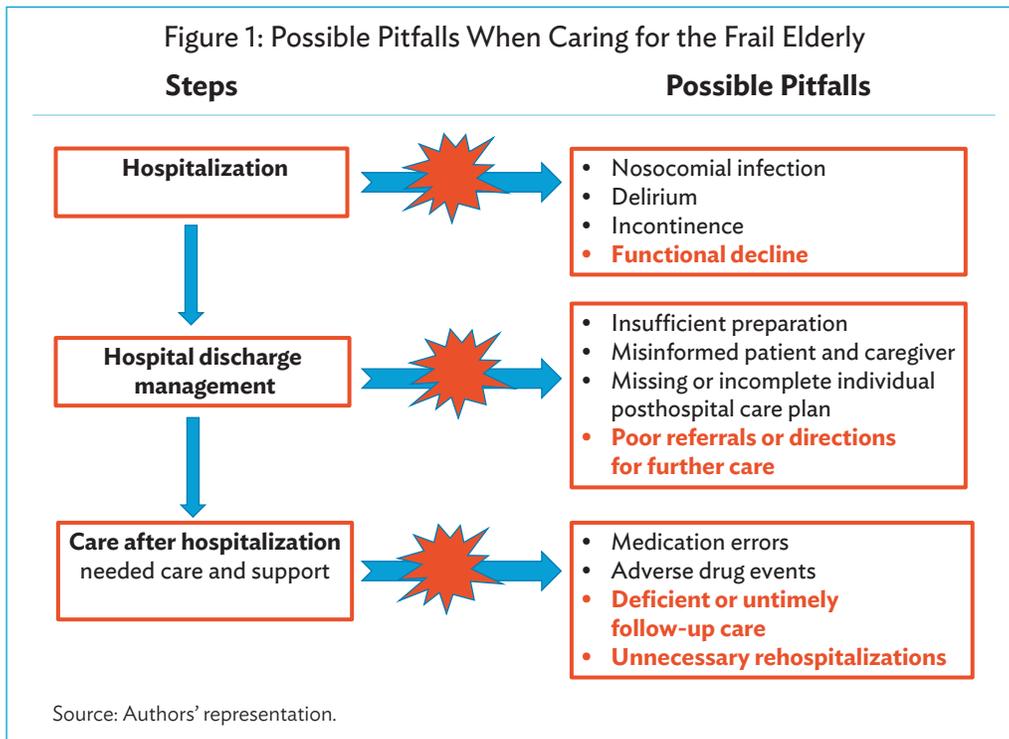
Hiroko Uchimura
Senior Social Sector Specialist
South Asia Department
Asian Development Bank

INTRODUCTION

The People's Republic of China (PRC) is graying at a faster rate than the average for the Organisation for Economic Co-operation and Development (OECD), which includes many aging countries. In 2015, 10.5% of the PRC population was aged 65 and over, and the proportion is projected to more than double to 26.1% (366 million) by 2050 (UN 2019). This important demographic change will increase the number of frail elderly people with multiple chronic diseases and important functional limitations, including cognitive impairment.

As the population ages, the elderly account for higher percentages of hospitalization and total days of care (CDC, US, 2015). At the same time, a hospital stay for elderly patients often results in further functional decline, especially among the discharged elderly who are functionally frail (Creditor 1993). During transitions between home and health and long-term care (LTC) facilities, this population is likely to experience poor-quality and fragmented care (Coleman 2003). The patients and their family caregivers are often unprepared for the challenges of care provision after the hospital stay, as reported in this policy brief (Figure 1).

In this context, the role of hospitals in identifying and caring effectively for frail elderly patients and planning for effective posthospital care in coordination with health and LTC providers is of paramount importance in improving the quality of life of discharged patients and avoiding early readmission (Hesselink et al. 2014). Improved discharge practices will be a key contribution of hospitals to addressing the current lack of coordination among health and LTC providers in the PRC. Lack of coordination of care among health and LTC providers is a concern not only in the PRC, as most countries around the world, including many high-income countries, are far from providing integrated care (WHO 2018; de Bruin et al. 2020).



Three aspects are particularly important in ensuring adequate care for the frail elderly: (i) hospitals with sufficient geriatric care capacity, (ii) effective hospital discharge management practices, and (iii) availability of a case manager to make sure that the patient receives timely and appropriate follow-up care after discharge (Figure 2).¹ This policy brief (i) reports on an assessment of the capacity of hospitals in the Guangxi Zhuang Autonomous Region of the PRC to care for older patients and coordinate with LTC providers, and (ii) provides policy recommendations.

STUDY OBJECTIVES AND METHODOLOGY

In 2018–2019, the Asian Development Bank and the Guangxi provincial government did an exploratory study of five tertiary-level hospitals in the Guangxi Zhuang Autonomous Region of the PRC to (i) assess the geriatric care capacity of the hospitals, (ii) get to know their discharge management practices, and (iii) estimate the care needs of patients at the time of discharge. Data were collected through staff interviews; a review of hospital statistics; and an analysis of files of 302 of the most recent patients aged 73 years on average, who had been hospitalized for stroke, hip fracture, or chronic obstructive pulmonary disease (COPD).² The results of the exploratory study, which are reported below, were benchmarked against international practices in discharge management and care coordination among health and LTC providers to derive policy recommendations.³

KEY RESULTS OF THE STUDY

There are three overall findings: (i) the hospitals are not sufficiently prepared to care for geriatric patients, especially those who are frail; (ii) patients are not discharged from hospitals in a way that will facilitate their posthospital care; and (iii) broader systems and coordination issues adversely affect the quality of care of the frail elderly. These findings indicate that the surveyed hospitals do not contribute effectively to coordination among health and LTC providers.

The surveyed hospitals are not sufficiently prepared to care for geriatric patients, especially those who are frail

- (i) Dedicated geriatric beds in all five hospitals are too few to serve the needs of the large numbers of the discharged elderly (Table 1). This deficiency could affect the quality of care, as frail patients require geriatric care provided by specially trained personnel working in a dedicated geriatric department.⁴
- (ii) Geriatric skills are low in all five hospitals, as only one health worker among a total of 3,940 doctors, nurses, and therapists has undergone specialized geriatric training for at least 6 months.
- (iii) Higher nurse staffing levels are associated with better care for hospitalized patients (Needleman et al. 2002). Low nurse-to-bed (patient) ratios in the five hospitals, still in line with the PRC's staffing norms, indicate a possible adverse effect on the quality of care for frail elderly patients, who require a substantial amount of good-quality nursing care

Table 1: Number of Geriatric Beds in Relation to Number of Discharged Elderly Patients

Item	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E
Type of hospital	Class 3	Class 3 A	Class 3	Class 3 A	Class 3 A
Total number of beds	1,100	1,500	670	586	720
Total number of geriatric beds	5	26	9	0	59
Share of geriatric beds (%)	0.5	1.7	1.3	0	8.2
Total number of patients discharged	33,725	67,861	27,911	21,836	20,194
Total number of elderly discharged	12,523	33,203	7,009	8,019	6,956
Share of elderly discharged (%)	37.1	48.9	25.1	36.7	34.4

Sources: Hospital statistics, Guangxi provincial government; Asian Development Bank, 2018.

¹ In the literature, the terms “care management,” “case management,” and “care coordination” are used widely, and sometimes interchangeably.

² These pathologies were purposely selected as they result in important care needs after hospitalization and require a higher degree of coordination among health and LTC providers.

³ A second study, on patient and informal caregivers' experience with the care provision of hospitals and their discharge practices, and on how patient and informal caregivers cope after being discharged, is under way. This study will verify if the patients' and family caregivers' views match with the professionals' views and practices.

⁴ Hospitals in the PRC are organized according to a three-tiered system (primary, secondary, tertiary) and differentiated according to their ability to provide medical care and medical education, and conduct medical research. Tertiary hospitals have a bed capacity exceeding 500 and are located at the city, provincial, or national level. Some hospitals are further subdivided into three subsidiary levels—A, B, and C—based on technical capacity (with level A hospitals being the highest performing).

Table 2: Nurse-to-Doctor and Nurse-to-Bed Ratios

Item	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E
Number of doctors	371	480	210	245	278
Number of nurses	527	628	359	351	414
Nurse-to-doctor ratio	1.4	1.3	1.7	1.4	1.5
Actual number of beds	1,100	1,500	670	586	720
Nurse-to-bed ratio	0.48	0.42	0.53	0.6	0.58

Sources: Hospital statistics, Guangxi provincial government; Asian Development Bank, 2018.

Table 3: Doctor-to-Rehabilitation Therapist Ratios

Item	Hospital A	Hospital B	Hospital C	Hospital D	Hospital E
Total number of rehabilitation therapists	19	12	15	10	21
Total number of doctors	371	480	210	245	278
Doctor-to-rehabilitation therapist ratio	19.5	40	14	24.5	13.2

Sources: Hospital statistics, Guangxi provincial government; Asian Development Bank, 2018.

- while hospitalized (Table 2). In 2015, there were about three nurses per doctor on average across the OECD countries (OECD 2017). And nurse-to-bed ratios in those countries varied from low ratios (e.g., 0.56 for Germany, 0.58 for Japan) to high ratios (2.31 for the United States, 2.21 for Norway, 2.03 for Australia) (OECD, n.d.).
- (iv) Doctor-to-rehabilitation therapist ratios are low and vary widely among the five hospitals, and rehabilitation seems to have a low priority. This situation could compromise in-patient care rehabilitation, which is a key factor in the recovery of frail elderly patients or their maintenance of a certain health status (Table 3).
 - (v) There is limited use of rapid assessment tools in evaluating the functional capacity of geriatric patients at admission, during hospitalization, and at discharge. For instance, a rapid test to measure cognitive performance at discharge is not available.
 - (vi) A multidisciplinary team approach to care is vital in providing good-quality care to frail patients who suffer from a multitude of health problems and functional deficiencies. In the surveyed hospitals, the “multidisciplinary team” is limited to doctors and nurses. Other key professionals, such as social workers and rehabilitation therapists, are not part of the team.
- Patients are not discharged from hospitals in a way that will facilitate their posthospital care**
- (i) Personnel involved in discharging patients are mostly clinicians by nature, such as doctors and nurses. Other skilled groups, such as psychologists, rehabilitation therapists, and social workers, are missing.
 - (ii) Patients leave the hospitals without a clear individualized care plan that includes a description of care needs in both the health and LTC sectors. Guidance provided by doctors and nurses is insufficiently discussed with the patients and their family caregivers.
 - (iii) Discharge management starts only right before actual patient discharge. There is no concept of discharge planning from admission, consistent with international practice.
 - (iv) There is no attempt to determine who will serve as case manager for frail discharged patients, besides the family caregiver. No effort is currently made to involve primary health care (PHC) staff, community organization staff, or hospital staff in ensuring that an individualized care plan is properly prepared and implemented.
 - (v) Hospitals have not established formal relationships with LTC, PHC, and community care organizations, which the discharge team could contact to ensure continuity of care (e.g., transfer of patients and support arrangements at home) for the discharged frail elderly.
 - (vi) Despite the high rehabilitation care needs of patients at discharge, guidance on rehabilitation care is almost nonexistent, reflecting the limited development of rehabilitation capacity in and outside the hospitals.
 - (vii) Little use is made of patients’ rapid assessment tests. Some tests commonly used internationally, such as cognitive tests, instrumental activities of daily living assessments, polypharmacy risk assessments, and nutritional tests, are missing, despite the usefulness of such tests in measuring the status of frail patients at discharge. A comprehensive geriatric assessment by a multidisciplinary team, with proven benefits in reducing mortality and early hospital readmission rates, is not implemented.

Table 4: Care Needs of Patients after Hospital Discharge (%)

Type of Care Need	Care Needed?		Total
	No	Yes	
Activities of daily living	7.9	92.1	100
Nursing care ^a	9.3	90.7	100
Chronic disease management	16.6	83.4	100

^a **Nursing care needs** include pain management; tube management (feeding, tracheotomy); urinary catheter, stoma management; wound management; enema and suppository administration; suction of airways (tracheotomy); oxygen therapy; medication management; swallowing management; action to prevent falls; and on-call services.

Sources: Hospital statistics, Guangxi provincial government; Asian Development Bank, 2018.

Table 5: Rehabilitation Care Needs of Patients at Discharge (%)

Item	Need for Rehabilitation Therapy				Total
	None	Unspecified ^a	Modern	Traditional	
Number of discharged patients	109	111	13	41	274
Share of patients needing rehabilitation (%)	39.8	40.5	4.7	15	100

^a "Unspecified" needs refer to rehabilitation care needs that are not classified as modern or traditional.

Sources: Hospital statistics, Guangxi provincial government; Asian Development Bank, 2018.

Broader systems and coordination issues adversely affect the care of the frail elderly

- (i) Patients are discharged without further orientation to enable them to connect to LTC or support services, although more than 80% of such patients require assistance in activities of daily living, nursing care, and chronic disease management (Table 4), and 60% need rehabilitation care (Table 5).
- (ii) There are no institutional links between the hospitals and PHC facilities, although 83% of discharged patients need support in managing their chronic diseases and care would be most appropriately provided at the level of those facilities.
- (iii) Hospitals in the PRC provide traditional and modern (Western) rehabilitation therapy. Traditional Chinese rehabilitation is widely available, in high demand, and usually affordable but does not cover all the needs of frail elderly patients. Modern rehabilitation care, for which there is a lack of awareness, services, and skilled personnel, is not emphasized in any of the surveyed hospitals, reflecting shortcomings in the PRC despite government efforts (PWC Management Consulting [Shanghai] Limited 2016). As a result, rehabilitation care needs are not well identified at discharge, especially for modern therapy, even as patients are discharged for stroke, hip fracture, or COPD. These conditions would require modern rehabilitation, such as physical, occupational, or speech therapy, especially given the advanced age of patients. LTC facilities do not usually provide effective rehabilitation services to enable the elderly to retain their physical and cognitive functions (Table 5).
- (iv) The health and LTC sectors lack coordination and integration. For this reason, very few patients are referred to hospitals from other settings, and high numbers of patients go straight to the hospital and are admitted through the emergency department.
- (v) Data suggest a lack of public and private LTC facilities and beds within 10 kilometers of each of the five hospitals studied. Data also present a wide variation and high bed-to-caregiver ratios among LTC facilities, pointing to quality-of-care problems. Data for hospital E show a significant shortage of LTC beds when benchmarked against the PRC's planning targets (Table 6).⁵

⁵ In the PRC's national Twelfth Five-Year Plan, 2011–2015, the target number of LTC beds is set at 3% of the elderly population. Most local governments in the PRC continue to use this target as the basis for planning.

Table 6: Long-Term Care Services and Providers

Item	Hospital A	Hospitals B and D	Hospital C	Hospital E
Number of LTC facilities (10 km radius)	2	5	2	9
Number of LTC beds	110	838	110	1,122
Caregivers	20	214	20	157
Bed-to-caregiver	5.5	3.9	5.5	7.1
Population within 10 km (estimated)	(...)	(...)	(...)	500,000
Estimated number of elderly (60 years and above)	(...)	(...)	(...)	57,000
Beds required for elderly population (3% per national target)	(...)	(...)	(...)	1,710 Shortage: 588 (34.4%)

(...) = data not available, km = kilometer, LTC = long-term care.

Source: Asian Development Bank, 2018.

POLICY RECOMMENDATIONS

The following policy recommendations, based on the survey findings and international practices, are made to strengthen the role of hospitals in improving health and LTC coordination in the PRC. These recommendations pertain primarily to the five surveyed hospitals, but could have wider application, in view of the similarities between those five and most other hospitals in Guangxi and the PRC.

Develop the geriatric care skills of all hospital staff

Almost none of the surveyed hospital staff have undergone substantial geriatric training. Specialized training, especially for nurses and doctors, and generic training for all staff (e.g., in appropriate attitudes, behavior, and communication methods when dealing with elderly patients), must be made available to equip the medical staff with the specific skills required to provide frail elderly patients with good-quality care. Specific geriatric care education for doctors and nurses faces difficulties in the PRC. Geriatrics-related subjects are inadequately covered in the medical education curriculum, residency and fellowship programs are poorly designed, and geriatric principles are poorly integrated into clinical practice (Yu, Liu, and Wang 2018). Geriatric nurses' education is provided in most provinces, but the supply of geriatric nurses is still limited. The PRC must invest more in geriatric medicine training for doctors and nurses, including postgraduate training in geriatric medicine for those working in specialized geriatric departments, emergency medicine, and palliative care. Promising practices in geriatric medical education have been identified in Canada; Hong Kong, China; New Zealand; and the European Nordic states (Keller et al. 2002).

Strengthen the geriatric departments in hospitals and increase the number of geriatric beds

The number of geriatric beds is low in all surveyed hospitals. Given the aging population and the high proportion of discharged elderly patients, the geriatric departments in the hospitals must increase in size. Not all elderly patients would require specialized geriatric care. However, about one-third are likely to lose independent functioning and may have to be given more specialized care (Creditor 1993). Increasing the number of geriatric beds does not mean simply adding more physical beds. Geriatric departments need staff with geriatric skills, and a higher ratio of nurses, rehabilitation therapists, social workers, and caregivers. Care coordination in these departments must also become more effective (multidisciplinary teams) and care needs assessment tools must be put to better use. With the help of these tools, more reliable assessments can be made, providers can communicate more easily among themselves, and patients' health status can be monitored over time.

Insurance reimbursement rates for complex geriatric care in the PRC are low at present. These low rates discourage hospitals from expanding their acute geriatric care capacity. OECD countries (e.g., Germany and the US) began defining complex geriatric care reimbursement packages in the late 1990s in response to similar issues. Similar initiatives will have to be adopted in the PRC to sustain the development of acute geriatric care in hospitals.

Expand the provision of modern and geriatric-focused rehabilitation services

Rehabilitation during and after acute hospitalization is crucial in the patient's recovery process (especially in cases involving stroke, hip fracture, COPD, heart attack, or major surgery) (WHO 2017). There is evidence that rehabilitation improves functional status,

well-being, and satisfaction, and makes rehospitalization and falls less likely. In the surveyed hospitals, just 4.7% of patients need modern rehabilitation therapy at the time of discharge, and almost 40% of patients require no rehabilitation at all despite their disabling conditions. But the fact remains that in these hospitals, the ratio of rehabilitation therapists to doctors is low and geriatric rehabilitation care capacity is minimal. These data indicate that substandard rehabilitation services are provided in the surveyed hospitals, and that investments will have to be made in the development of human resources (doctors, nurses, therapists); in the improvement of infrastructure and equipment; and in efforts to raise awareness among health care workers, patients, and family members of the merits of rehabilitation procedures, such as physical, occupational, and speech therapies. Japan, with its better rehabilitation outcomes compared with the PRC's, is a good country practice example on account of that country's good medical insurance scheme and its comprehensive rehabilitation system, from the community level to highly specialized hospitals (Asakawa et al. 2017).

Establish discharge procedures that will promote coordination between health and long-term care providers

The survey findings show that discharge procedures in the surveyed hospitals lack the involvement of key human resources and technical aspects to better orient patients and family members to what is to follow. The responsibility of the hospital for its patients does not end once treatment is completed. At the time of discharge, the hospital must orient patients and family members to the follow-up care needed in the same hospital or in other settings (home care, day care, nursing home, or PHC facility), and agree with them on a suitable course of action. The hospital must also see to it that relevant information is forwarded to providers in the next setting. This follow-through is especially relevant for frail elderly patients, who often experience functional decline after a hospital stay, leading to a long period of recovery with a need for specific care and support services.

The discharge management system should ensure that, at a minimum: (i) care needs from the time of hospital admission until discharge are clearly identified and included in an individualized care plan; (ii) the patient, family members, and caregivers take part in determining and discussing the care needs; and (iii) hospital staff provide guidance on institutions providing posthospital care, to facilitate such provision in coordination with the patient, family members, and caregivers. In the United Kingdom, the National Institute for Health and Care Excellence supports discharge procedures that are evidence-based, and are regularly audited and evaluated (NGC, UK, 2017). The Australian transition care program, on the other hand, has strict requirements for discharging patients as a precondition for gaining access to funding for transition care (Department of Health, Australia, 2019).

Define a case management model to support family caregivers, and test its feasibility

Once a frail patient has left the hospital, the question arises as to who will take over the key role of case manager to ensure that the

discharged patient remains engaged, with necessary clinical and support services in the community. Informal caregivers (family members) take care of most frail discharged patients in the PRC, as there is no formal case management system to support elderly people and their families.

In Japan and the United Kingdom, gatekeepers or case managers are responsible for creating individualized care plans and monitoring conditions, from assessment, to referral, to end of care (NICE, UK, 2016). Singapore has a separate agency that assigns care managers in the hospital. In some instances, the hospital has taken over the responsibility of case management for an interim period (University of Pennsylvania School of Nursing, US, n.d.). Community organizations can also play a coordinating role. The Family Caregiver Alliance in the US reports on community organizations that can help provide support services and coordinate between providers (FCA, US, 2009).

In the PRC, staff of the hospital discharge unit could be the case managers for highly critical patients, or preferably, PHC facilities in urban areas could be made responsible for case management in the future, especially for patients suffering from chronic diseases. However, this option would require (i) improving the standing of urban community health service centers, which citizens tend to bypass; (ii) increasing the capacity of staff of PHC facilities through relevant training programs; and (iii) providing additional financial and human resources. Elderly care centers could also be case managers in the future. In larger cities, private home care companies are involved in case management to support families, but this is not an affordable arrangement for most households. Experimentation and pilot testing must be done to develop a sustainable system of case management that is in line with available resources. This process would also include the development of tools for measuring progress and outcome in implementing case management approaches.

Promote relationships and communication between health and long-term care providers, and strengthen other elements of integration

The study revealed a total absence of institutional links among the surveyed hospitals and LTC and PHC facilities. A clear understanding of roles, responsibilities, costs, and admission criteria is at the heart of a coordinated care system among multiple providers (hospitals, primary care services, LTC providers, and rehabilitation services). As a first step, joint meetings and workshops could be organized to improve understanding among these providers. A reward system could be implemented for good discharge and coordination practices. Other steps that could be taken farther down the road to promote coordination could consist of improving the transmission of patients' data between providers (preferably in electronic form), or developing common clinical guidelines for selected health problems. In the PRC, there is a movement toward "merging" hospitals and LTC facilities under one management, according to guidelines from the central government. As this development may result in conflict of interest, at the local level, local governments must make sure that hospitals and LTC

facilities are being placed under one management primarily to improve patient care, and not only to increase hospital revenues. Standardized care needs assessments shared between health and LTC sectors can also enhance coordination, and ultimately integration of care.⁶

Identify new sources of long-term care funding for the further development of the long-term care market

The study findings suggest a scarcity of LTC facilities and beds among the five surveyed hospitals. However, with an average of 44 beds in LTC facilities per 1,000 population aged 65 and above, the PRC compares well with OECD countries with similar demographics. Current demand for LTC beds, especially in the private sector, is limited because services lack quality, are limited in scope (e.g., rehabilitation, nursing, and basic medical services are lacking), and are not affordable to most of the population. In the near future, more LTC services will be required as fewer offspring will be available to act as family caregivers for older parents (because of the one-child policy). Given current PRC policies to promote aging at home, the focus will be on developing home and community support for elderly people, and institutional care where beds are lacking.

The PRC is implementing investment and operational incentives to attract private investment in the sector. The private sector responds quickly to signals set by introducing steady sources of funding. For instance, in 1989, Japan implemented an expensive Gold Plan to care for the frail elderly, and in 2000 it introduced an LTC insurance system. Both initiatives were followed by a rapid expansion of the LTC service market (MHLW, Japan, 2016). In the Republic of Korea, the introduction in 2008 of a mandatory LTC insurance system where barriers to entry were kept low triggered a rapid expansion of LTC providers (Jeon and Kwon, 2017). But in the PRC, LTC beds and services are still in short supply. What the country must do is increase its public LTC spending.⁷ Accelerating the development and implementation of a mandatory LTC insurance system, by drawing lessons from ongoing pilot projects in the PRC, would be appropriate. Such an insurance system would attract private sector investments if reimbursement levels to service providers were set in a way that made decent returns on investment possible. It would also improve financial access to LTC services if the insurance premiums remained affordable, and the premiums of the poor were to be adequately subsidized.

CONCLUSION AND NEXT STEPS

Adopting and implementing the foregoing recommendations will require policy guidance and additional funding from the PRC central government to advance integrated care. At the local level, leaders need to bring together actors representing different, and

sometimes competing, sectors (e.g., health commission, civil affairs, social security) to develop coordinated regulations that will facilitate the implementation of the recommendations. Lastly, competent technical staff must advise leaders at all levels on the benefits, requirements, and challenges involved in improving health and long-term care coordination. Operational research should accompany the pilot testing and implementation of the recommendations to adapt policies and systems and optimize results.

Besides the PRC, other middle-income Asian countries like Indonesia, Thailand, and Viet Nam are experiencing rapid aging, dwindling family support for older parents, and challenges in coordinating health and long-term care (including home care). Most Asian countries, except a few like Japan, the Republic of Korea, and Singapore, lack acute geriatric and rehabilitation care capacity, effective hospital discharge procedures, functioning case management, and financially secure long-term care. Recommendations included in this policy brief could apply to these and other countries in the Asian region, taking the local context into account.

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⁶ An interesting discussion of the health and LTC integration continuum, including many country examples, can be found in OECD and European Commission (2013).

⁷ Public spending on LTC is projected to reach between 0.5% and 0.6% of gross domestic product in 2030, up from 0.2% in 2012 (Lorenzoni et al. 2015).

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Asian Development Bank
6 ADB Avenue, Mandaluyong City
1550 Metro Manila, Philippines
Tel +63 2 8632 4444
Fax +63 2 8636 2444

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