

# The “Intermediate Care Hospital:” Facility Bed-Based Rehabilitation for Elderly Patients

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TECHNICAL  
NOTE N°  
IDB-TN-1247

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Inter-American Development Bank  
International Foundation for Integrated Care

February 2017



Cataloging-in-Publication data provided by the  
Inter-American Development Bank  
Felipe Herrera Library

Mac Arthur, Ian.

The "Intermediate Care Hospital:" Facility Bed-Based Rehabilitation for Elderly  
Patients / Ian Mac Arthur and Anne Hendry.

p. cm. — (IDB Technical Note ; 1247)

Includes bibliographic references.

1. Older people-Intermediate care-Brazil. 2. Chronic diseases-Brazil. 3. Health services  
administration-Brazil. 4. Medical policy-Brazil. I. Hendry, Anne. II. Inter-American  
Development Bank. Social Protection and Health Division. III. Title. IV. Series.  
IDB-TN-1247

<http://www.iadb.org>

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# **The “Intermediate Care Hospital:” Facility Bed-Based Rehabilitation for Elderly Patients**

## **Abstract**

Population aging and the growing burden of chronic disease are causing many countries to explore new options as they reorganize their health systems from acute care toward increased chronic care provision. There are several modalities to deliver recuperative intermediate care at a level between the hospital and primary care, but some patients will require a bed-based solution. For these individuals, inpatient non-acute facilities may provide superior outcomes at a lower cost than traditional care on a hospital ward. The international literature regarding this type of service reveals positive findings on provider and patient satisfaction, clinical outcomes, and cost-effectiveness. However, to achieve the best possible results, providers must establish and apply appropriate procedures for the identification of eligible patients, exercise rigorous protocols during their transfer, and ensure their comprehensive assessment and adherence to a therapeutic plan managed by a multidisciplinary team. For developing countries considering the formulation of policies to promote the implementation of intermediate care facilities, Brazil's recent experience may offer a point of reference and some guidance, especially in terms of reconditioning small community hospitals with excess capacity for this purpose.

**JEL Classification:** I10, I18, I19

**Keywords:** intermediate care, chronic disease, elderly patients, Brazil

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## Abbreviations

<b>ADL</b>	<b>Activities of Daily Living</b>
<b>DALY</b>	<b>Disability-Adjusted Life-Year</b>
<b>GBD</b>	<b>Global Burden of Disease</b>
<b>HHA</b>	<b>Home Health Agency</b>
<b>IADB</b>	<b>Inter-American Development Bank</b>
<b>ICH</b>	<b>Intermediate Care Hospital</b>
<b>IHME</b>	<b>Institute for Health Metrics and Evaluation</b>
<b>IRF</b>	<b>Inpatient Rehabilitation Facility</b>
<b>LAC</b>	<b>Latin America and the Caribbean</b>
<b>LTCH</b>	<b>Long-Term Care Hospital</b>
<b>NCD</b>	<b>Non-Communicable Disease</b>
<b>NHS</b>	<b>National Health Service</b>
<b>NLU</b>	<b>Nursing-Led Unit</b>
<b>OECD</b>	<b>Organization for Economic Cooperation and Development</b>
<b>PAC</b>	<b>Post-Acute Care</b>
<b>PAC-PRD</b>	<b>Post-Acute Care Payment Reform Demonstration</b>
<b>RCT</b>	<b>Random Controlled Trail</b>
<b>SNF</b>	<b>Skilled Nursing Facility</b>
<b>WHO</b>	<b>World Health Organization</b>

## **1. Introduction**

In the organization of their health systems, countries must search for efficiencies in the use of scarce resources, and inpatient non-acute facilities for the extended care and rehabilitation of chronic patients may provide superior outcomes at a lower cost, compared to the traditional model of care on an acute hospital ward. While there are a variety of options for providing care at an intermediate level between the acute care hospital and the home environment, there will always be patients and contexts for which the optimal transitional or chronic care solution is in a community bed-based institution. Following this rationale, a limited number of developed countries with older populations have invested significantly in this type of service provision and can provide evidence and practical lessons for other countries considering this model of care as they face a growing elderly population and an increase in the burden of chronic diseases. Furthermore, an illustrative case and point of reference to examine in the developing world is Brazil, which reveals some of the potential difficulties in implementing recently adopted policy promoting the development of prolonged care hospitals. This technical note reviews the international literature on inpatient intermediate care as well as the experience in Brazil and formulates some observations that could be relevant regarding health policy formulation and implementation on this issue.

The note is divided into seven sections, starting after this introduction with a description of the demographic and epidemiological transition faced by all countries that will eventually result in older populations and a greater burden of chronic disease. This in turn will necessitate transformations in health care systems built for the delivery of acute care toward the increased provision of chronic care, of which intermediate care is a critical component. Section three of the note presents the different services comprising intermediate care, as well as the related case-mix, conditions, and clinical pathways, and then it briefly characterizes the effort of some of the countries that have invested most intensively in bed-based modalities. In the fourth section, the note reviews the international literature on the subject regarding patient and provider experiences, patient outcomes, and cost-effectiveness. Then section five highlights some key issues derived from the literature relating to the proper implementation of intermediate care in inpatient facilities. The sixth section discusses the case of Brazil in formulating legislation in favor of prolonged care hospital services and putting it into practice. It extracts some observations that may be pertinent to other countries embarking on a similar course of action. Section seven highlights the principal conclusions of the note.

## 2. Aging populations and an alternative to the acute care model

The countries of Latin America and the Caribbean are undergoing a rapid demographic and epidemiological transition resulting in older populations and a shift in the burden of disease towards non-communicable, chronic conditions. Because of reduced fertility rates and increases in life expectancy, the proportion of the population aged 65 years and older in the region is expected to rise from almost 8% in 2015 to just under 19% by 2050, keeping pace with Asia and nearly closing the gap with Northern America (rise from 15.1% to 21.4% over the same period) (He et al., 2016). In 2013, non-communicable diseases (NCDs) – such as cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes<sup>1</sup> – accounted for a full 75% of all deaths in Latin America and the Caribbean, compared to 70% worldwide, with both rates having risen from 59.5% and 57%, respectively, in 1990 (IHME, 2015).

Although NCDs affect persons of all ages, 58% of global NCD deaths currently occur in the population aged 70 and older. Furthermore, 88% of all deaths in this age group are attributable to these conditions. Since age-specific mortality is decreasing in most countries and NCDs and injury are accounting for a larger share of all deaths, more people are living longer with these chronic conditions, generally characterized by long duration and slow progression, and their deleterious effects on health and wellbeing (GBD 2013 Mortality and Causes of Death Collaborators, 2015a). In fact, between 1990 and 2013, the portion of the global burden of disease (disability-adjusted life-years – DALYs) due to NCDs expanded from 42.5% to 58.5%. Multiple morbidities are also on the rise, given the strong relation between age and disease prevalence for most non-communicable diseases and injuries, and the number of individuals in the developed world with more than ten sequelae increased by 51.6% from 1990 to 2013 (GBD 2013 Mortality and Causes of Death Collaborators, 2015b). In countries of the developing world in 2013, in the population older than 80 years, 12.5% had one to four sequelae, 63.9% had five to nine sequelae, and 23.5% had ten or more sequelae. Both increased NCD prevalence and multi-morbidity are associated with lower socio-economic status (Sommer et al., 2015; Marengoni et al., 2011).

The elderly, in addition to the burden of NCDs, suffer the progressive impairment in body functions associated with the aging process. Declines in musculoskeletal, sensory, cognitive, immune and epidermal function related to aging result in greater vulnerability to disease and injury and underlie the development of geriatric syndromes including frailty, urinary

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<sup>1</sup> These four main types of NCDs are responsible for 82% of all NCD deaths.



incontinence, falls, delirium and pressure ulcers. The ultimate manifestation of these fundamental changes and consequent conditions is the loss of intrinsic capacity and functional ability, apparent, for example, in a decline in performance regarding activities of daily living (ADLs). The corollary of larger elderly populations with a greater burden of morbidity is an increase in the need for support and services. Although not all this need translates into effective demand and use of services, in general, health care utilization rises with age in populations with adequate access to appropriate services (WHO, 2015).

The increased health-care needs of the elderly are often met by systems that are inadequately designed and structured to meet them. Installed services in many countries have not kept pace with the demographic and epidemiological transition and are still predominantly oriented toward diagnosing and curing time-limited, acute health issues through a biomedical approach. In contrast, the elderly with reduced capacity, comorbidities and chronic diseases have complex, persistent health and social needs that span different areas of function and vary in intensity over time. More specifically, these patients require an approach to care that promotes integration, coordination and multi-disciplinarity, with relatively greater emphasis on geriatric syndromes as well as rehabilitation, therapy, chronic care and transition services, also known as “intermediate care.” A health care system with these characteristics could lead to improved patient clinical outcomes<sup>2</sup> and cost savings, due to a reduction in inappropriate use of resource-intensive acute hospital-based services.

### **3. Understanding intermediate care**

In order to address the shortcomings of the acute care model relating to the needs of elderly chronic patients, the development of intermediate care has generally intended to promote safe and early transitions out of acute hospitals (“early discharge” to avoid unnecessarily prolonged inpatient care), prevent inappropriate admissions to these facilities, and foster independence in community settings (“delay institutionalization” in long term residential care) (Department of Health, 2009). Meeting these objectives implies that intermediate care should employ comprehensive and collaborative multi-disciplinary patient assessment and time-limited care that involves active therapy, treatment, or opportunity for recovery, with single professional records and shared protocols (British Geriatrics Society, 2008).

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<sup>2</sup> In addition to the benefits of a well-designed rehabilitation plan, elderly patients who enter intermediate care will likely benefit from reduced hospital-acquired infection, which increases with extended stays in acute hospitals, especially among the elderly, and is an important factor leading to greater morbidity and mortality.

**Table 1. Intermediate Care Hospital on a Spectrum of Health Services**

<b>Service</b>	<b>Acute hospital</b>	<b>Intermediate care hospital</b>	<b>Hospital at home</b>	<b>Home health care</b>
Objectives	Diagnosis; acute assessment; and treatment	Comprehensive assessment; rehabilitation; palliative care	Comprehensive assessment; acute rehabilitation; palliative care	Chronic care; rehabilitation; and palliative care
Medical care	+++	++	++	+
Nursing	+++	+++	++	++
Rehabilitation	+	+++	+	++
Nutritional support	++	++	+	+
Pharmaceutical Care	+++	++	++	++
Social care	+	++	+	+++
Family caregivers	+	+	++	+++

Source: Authors' elaboration.

Note: Acuity / Complexity/ Intensity: + low ++ medium +++ high

Several governments worldwide have established policy and initiatives to increase the capacity of intermediate care provision, considering the potential advantages of the approach. Different interventions employed by health systems include supported discharge services (health or social services or joint), rapid response teams, stroke rehabilitation outreach, community assessment and rehabilitation schemes, hospital-at-home, nursing/residential home rehabilitation, nurse-led units, day hospitals, community (extended-term care) hospitals, and home health care (Wade, 2004). The provision of intermediate care services is highly variable with different referral routes, team structures, skill mix and cost-effectiveness (Ariss et al., 2015). On a spectrum with the acute hospital care at one extreme and home health care at the other, the intermediate care hospital is situated in a transitional position in terms of a number of service characteristics (Table 1).

**Table 2. Case Mix Profiles for Intermediate Care Patients**

<b>Patient Group</b>	<b>Description</b>	<b>Anticipated mean length of stay</b>	<b>Patient-level goal</b>	<b>System-level goal</b>
Post-acute medical or surgical patients ("step-down" care)	Individuals who, after stabilizing from the acute phase of illness, need to complete a period of inpatient care for medical treatment, proper nutrition and nursing care or rehabilitation	6 weeks	Clinical stabilization and functional improvement or stabilization, to resume living in the community, if possible	Reduce an unnecessary stay at the acute hospital

	before resuming their lives in the community			
Frail and progressively disabled (predominantly older) patients	Individuals with chronic progressively disabling conditions or with insufficient family and social support, who need nursing care and rehabilitation before resuming their lives in the community	6 weeks	Achieve functional improvement or stabilization and organize support that enables living in the community, if possible	Allow an adequate provision of community support services and avoid the use of acute hospitals or nursing homes
Chronic crisis or “flare-up” patients (“step-up” care)	Individuals with a well diagnosed chronic condition undergoing a health crisis or flare-up episode, who don’t need complex diagnostic testing or acute procedures but cannot be managed at home because monitoring or treatment exceed the capacity of home care services and/or the caregiver, and otherwise would be unnecessarily admitted to an acute hospital	2 weeks	Manage the flared-up chronic conditions and prevent/manage possible simultaneous geriatric syndromes, to preserve function and to resume living in the community, if possible	Avoid unnecessary admissions to acute hospitals
Advanced chronic disease and palliative care patients	Individuals with advanced chronic conditions with limited life expectancy, who need palliative and end of life care and who cannot be cared for at home	4 months	Promote comfort care and to maximize quality of life	Avoid unnecessary transitions and the inappropriate use of healthcare facilities and resources

Source: Authors’ elaboration.

Intermediate care services generally target a case mix with four main patient profiles (post-acute, frail and disabled, chronic crisis, and advanced chronic), each of which encompass physical, mental, functional, and social dimensions (Table 2). Also, several general inclusion criteria and clinical profiles are useful in identifying appropriate intermediate care patients. Normally, they are adults who are hemodynamically stable and do not demand complex diagnostic imaging, invasive monitoring, or organ support. They may need administration of intravenous fluids or antibiotics, oxygen therapy and will usually receive active rehabilitation to recover physical, cognitive, or social function, or will require access to high quality palliative and end of life care. Furthermore, from a “disease oriented” point of view, a common set of clinical

conditions and pathways are likely to generate the functional profiles, or patient groups, seen in Table 2, and they fall into six groups: vascular disease, medical problems, post-surgery and skin wounds, orthopedic conditions, advanced disease, and geriatric syndromes (Table 3).

**Table 3. Clinical Conditions and Pathways that Generate Intermediate Care Patients**

General group	Description
Vascular disease	<ul style="list-style-type: none"> <li>• Cerebrovascular diseases with disabling sequelae needing convalescence and rehabilitation (ischemic and hemorrhagic stroke)</li> <li>• Cardiovascular diseases with disabling sequelae needing convalescence and rehabilitation (post-myocardial infarction with heart failure or functional impact)</li> <li>• Peripheral vascular diseases, including diabetic foot, vascular ulcers, and amputations, needing nursing care, minor surgical care, and rehabilitation</li> </ul>
Medical problems	<ul style="list-style-type: none"> <li>• Non-contagious infectious processes (mainly respiratory infections or post-sepsis) resulting in impairment</li> <li>• Exacerbations of chronic conditions, such as heart failure or chronic obstructive pulmonary disease, or minor acute problems superimposed on complex functional impairment (for example, urine tract infections complicating dementia)</li> <li>• Chronic kidney disease requiring inpatient dialysis if patient has other associated health problems</li> </ul>
Post-surgery and skin wounds	<ul style="list-style-type: none"> <li>• Acute surgical procedures that generate the need for a period of inpatient rehabilitation and recovery due to the consequences of surgery and/or hospitalization</li> <li>• Skin wounds requiring more intensive treatment and monitoring that is not possible at home or in an ambulatory care setting</li> </ul>
Orthopedic conditions	<ul style="list-style-type: none"> <li>• Orthopedic surgery that, after the acute phase, requires rehabilitation services unable at home or as ambulatory care</li> <li>• Post-trauma (including head injury) with potential for rehabilitation and recovery</li> </ul>
Advanced disease	<ul style="list-style-type: none"> <li>• Advanced chronic conditions (cardiovascular, peripheral vascular, cancer, neurological disease, dementia), resulting in a reduced life expectancy (less than 12 months) or the need for palliative care and support that cannot be provided at home or as ambulatory care</li> </ul>
Geriatric syndromes	<ul style="list-style-type: none"> <li>• Dementia, delirium, and neuropsychiatric syndromes associated with other medical conditions (may have a slower and more uncertain rehabilitation progress)</li> </ul>

*Source:* Authors' elaboration.

Many countries have implemented small-scale interventions in intermediate care, but only a few have consolidated policy and practice in this area. In the United Kingdom, the Department of Health outlined policy on intermediate care in the National Health Service (NHS) Plan presented in 2000, and since then, the NHS implemented an extensive effort to expand intermediate care capacity. Still, a recent audit of four key NHS models of intermediate care revealed significant waiting times (crisis response, 3.7 hours; bed-based, 3.0 days; home-

based, 6.3 days; and re-ablement, 8.7 days), which has exacerbated the phenomenon of “bed-blocking” in expensive acute care hospitals and reduced opportunity to prevent potentially rapid deterioration through early initiation of rehabilitation (NHS, 2015). The report estimates that current installed capacity is about a half of that required to meet demand.

The United States, through the Medicare system for the elderly, has provided increasing public financing for post-acute care (PAC) in a variety of settings. Among Medicare fee-for-service beneficiaries admitted to acute care hospitals in 2013, 42 percent went on to use PAC: 20% were discharged to skilled-nursing facilities (SNFs); 17%, to home health agencies (HHAs); 4 %, to inpatient rehabilitation facilities (IRFs); and 1%, to long-term care hospitals (LTCHs) (MedPAC, 2015). Medicare annual spending to the more than 29,000 PAC providers in recent years has totaled nearly \$60 billion – \$29 billion in SNFs, \$18 billion in HHAs, \$7 billion in IRFs, and \$5 billion in LTCHs (MedPAC, 2016). Almost 15,000 SNFs, which provide the greatest portion of Medicare-covered PAC services, furnish care annually to 1.7 million beneficiaries during 2.4 million stays. Discharges to PAC facilities rose nearly 50% over the 15 years from 1996 to 2010 (Burke et al., 2015), and Medicare payments more than doubled since 2001.<sup>3</sup>

Other notable country experiences include Catalonia<sup>4</sup> (Spain) and Norway, which have been pioneers in developing and maintaining intermediate care hospitals.<sup>5</sup> These are community-based facilities that provide intermediate care with specialist expertise available to support the needs of older people and those with complex chronic conditions. They may also offer a ‘step-up’ facility to manage patients who may need specific care and support in hospital but do not require admission to an acute hospital setting due to the ‘low risk’ or ongoing nature of their chronic conditions. In many cases, these strategies have historically been linked to installing new and larger acute hospitals while redefining the roles and functions of the older hospitals, located centrally to where people live, as long-term care hospitals. Catalonia now has around 1.2 long-term care beds per 1,000 inhabitants (EESRI, 2015), and for Finland this indicator has reached a value of 1.68 (OECD, 2013).

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<sup>3</sup> Between 1994 and 2009 Medicare’s expenditures for acute care increased by 13.3%, 21.9%, and 12.6% for patients with heart attacks, congestive heart failure, and hip fractures, respectively, while corresponding spending on post-acute care climbed by 250.4%, 164.2%, and 99.9% (Chandra et al., 2013).

<sup>4</sup> See Inzitari et al., 2012.

<sup>5</sup> In addition, the Basque Country recently laid out policy regarding the development and implementation of a model of sub-acute intermediate hospitals for chronic patients, “which can treat the rehospitalization and the rehabilitation of chronic patients in a way which is more focused on the patients’ needs and more efficient for the System.” The policy document indicates that this type of hospital is “connected to the community and ... can act as a centre of coordination between hospitalization and the home and which can coordinate cases and integrate care levels (Bengoa, 2010).”

#### **4. Bed-based facilities for intermediate care**

In many countries approaches to intermediate care have focused on home-based modalities supported by multi-disciplinary health and social care teams. This model, however, relies on primary and community care provision and transfers some responsibilities and costs to family and social support systems. When these inputs are unavailable, there may be a need for hospital-led alternatives, and there will always be cases for which institutionally-based care is preferable (for example, greater clinical need). Some patients will be unable to return home after acute hospitalization and need further multidimensional geriatric based care to regain their functional capacity. Many people can benefit from bed-based intermediate care to provide critical time and the right environment to recover confidence and independence and avoid a premature move to long-term residential care and/or an unscheduled admission to hospital care. In designing interventions, health authorities should evaluate population and community characteristics and needs and system capability, but in most cases, bed-based facility intermediate care will be necessary for some patients.

In principle, increasing capacity of bed-based intermediate care could be beneficial both to patients and in economic terms, especially if it substitutes more expensive acute hospital care. However, generating consensus on policy to promote post-acute care, in any of its different modalities, may be challenging in many countries unless strong arguments, constructed on a solid evidence base, support this effort. Investigators have documented the characteristics of extended-term care hospitals and patient and provider perceptions regarding them, using qualitative research. In addition, there is a significant literature that compares the distinct types of intermediate care on patient outcomes, and a limited number of studies examine the economic aspects of the forms of intermediate care. The studies derive mainly from the United States of America and a small group of European countries, while only a few experiences from Asia figure in the literature. Publications from Latin America and the Caribbean are notably absent from this body of knowledge.

##### **4.1 *Qualitative studies on provider experience and patient satisfaction***

Considering the objective of intermediate care related to fostering smooth transitions among levels of care, researchers in Norway studied different experiences using qualitative and mixed methods and revealed challenges in building relationships among the providers but consistent acceptability on the part of patients. One study examined health care professionals' opinions regarding hospital discharge of elderly patients to primary health care in settings with and without an intermediate care hospital (Dahl et al., 2014). It found that the professionals

positively valued the hospital as an extension of the general hospital and as a buffer to primary care where patients could be better prepared for discharge to their homes. In the professionals' view, the intermediate care hospital reduced the coordination challenges in the care transition as well as the pressure on the general hospital and primary health care services. However, the intermediate care hospital did not seem to resolve all the communication challenges that originated at the primary level of care. A similar study showed that, despite positive feedback from patients, the healthcare providers in the hospital, the intermediate unit, and the municipalities (primary care) had difficulties reaching consensus on suitable patients for the unit (Johannessen et al., 2013). This resulted in time-consuming negotiations and the perception of a significant additional workload to achieve patient admission. Finally, Orvik et al. (2016) detected more problems in establishing collaborative and integrated relationships between the staff at the intermediate care site and hospital (as opposed to primary level), and agreeing on appropriate patients for the intermediate facility was once again a point of contention.

Case studies from England and the Netherlands encountered similar issues in the introduction of bed-based intermediate care facilities and proposed measures to address them. Staff in the acute hospitals, community hospitals and primary healthcare services may work in a compartmentalized manner and have few opportunities to construct relationships and an understanding of service provision and roles in parts of the system outside their specific context (Baillie et al., 2014). Personnel rotation between settings and the establishment of forums for interchange could assist staff to work in a more integrated way. A national evaluation of intermediate care with five case study sites involving residential services in England signaled concerns relating to the role and involvement of acute clinicians; the safety, quality, and appropriateness of services; access and eligibility; lack of understanding and awareness of services; and the risk of cooptation by acute pressures (Glasby et al., 2008; Regen et al., 2008). In response, participants cited the need for greater geriatrician involvement to provide reassurance about the safety and quality of services; joint work to review patient eligibility criteria; and the creation of rotational posts with practitioners working in both intermediate care and acute settings. Proper staffing of facilities, especially with an adequate professional nursing contingent, is crucial to quality in residential intermediate care (Plochg et al., 2005).

Patient perceptions regarding bed-based facility intermediate care appear to be generally positive and more favorable than those about acute hospital care. A systematic literature review of older people's satisfaction with intermediate care, principally early discharge to hospital-at-home but also some institutional bed-based care schemes, indicated higher patient satisfaction with intermediate care than with inpatient care (Wilson et al., 2008). In

England, a comparison of elderly patient and caregiver experiences in general and community hospital settings showed similarities with reference to care provision, but the participants evaluated the community hospital more positively for its location, atmosphere, accommodation, greater sense of freedom, quality of food and staff attitudes (Green et al., 2008). Another similar study emphasized the patient and caregiver preference for the homelike environment of community hospitals (Small et al., 2009). In an earlier study when intermediate care was being extended in England, Wiles et al. (2003) concluded that patients and carers considered the nurse-led independent care unit as acceptable but also that considerable variation in perceptions indicated the need to standardize the quality of care.

#### **4.2 Quantitative research on patient outcomes**

A Cochrane systematic review of literature through 2005 on the effectiveness of intermediate care in nursing-led inpatient units included 10 random controlled trials (RCTs) and one controlled before and after trial from the United Kingdom and the United States comparing this form of care with traditional inpatient acute hospital care (Griffiths et al., 2007). It concluded that the patients from the nursing-led units (NLUs) had greater functional status and psychological wellbeing after the termination of care. In addition, the evidence indicated that the NLUs discharged more patients home as opposed to an institutional setting after about 3 months (but not after 6 months), and they had a lower rate of early readmissions to hospital.

More recently, a pair of retrospective cohort studies on community hospital models produced mainly favorable indications. Dahl et al. (2015) analyzed health care utilization among elderly patients in a Norwegian municipality with an intermediate care hospital (ICH) and another one without this facility and encountered reduced length of general hospital stay in the ICH municipality with no differences in readmissions or admissions. Similarly, in Singapore a cohort of elderly patients presenting to the emergency department and subsequently admitted to a community hospital had higher odds of being discharged home in relation to their counterparts in a cohort admitted to an acute hospital, and the association was still significant after controlling for age, gender, admitting diagnoses, and comorbidities (Ooi et al., 2012). The community hospital patients were more likely to reach pre-morbid independence upon discharge.

Several studies with a randomized control trial (RCT) design signal that community hospitals are an effective bed-based alternative to rehabilitation in the acute setting, in terms of patient outcomes. Functional independence at six months of older patients needing rehabilitation after acute hospital admission was significantly greater among the patients assigned to a locality based community hospital in England compared to those in the elderly



ward of the general hospital (Green et al., 2005).<sup>6</sup> This finding was confirmed by a larger multicenter RCT, providing greater reliable evidence for successful rehabilitation care of older people in a non-acute setting (Young et al., 2007a). Another study in Norway confirmed that intermediate care at a community hospital significantly decreased the number of readmissions for the same disease to general hospital and resulted in a significantly higher number of patients independent of community care after 26 weeks of follow-up, without increases in mortality and number of days in institutions (Garåsen et al., 2007). Researchers also evaluated a model of rapid transfer<sup>7</sup> to nursing home intermediate care in Norway through a RCT using acute hospital patients as the control group, and although they did not detect an effect on days living at home, they encountered significantly less need for home care and nursing home services (Herfjord et al., 2014). The findings also corroborated previous studies suggesting that intermediate care patients tended to be more independent, have a higher functional outcome and be better prepared for discharge.

In the United States, a considerable amount of research on bed-based (inpatient) post-acute care in facilities (SNFs<sup>8</sup>) has sought to compare their patient outcomes with those from the other principal post-acute care settings that receive Medicare financing, especially IRFs and HHAs. Although most studies applied methods to control for differences among cohorts, none involved random assignment of patients to the different settings, so bias could still exist through the influence of unobservable factors regarding patient characteristics.<sup>9</sup> Despite this limitation, the following main observations can be drawn from the literature:

- A group of studies focused on the differences in outcomes between SNFs and IRFs (and HHAs, in some cases), mainly for patients needing rehabilitation following a stroke, hip fracture, or joint replacement, without definitively identifying a setting with superior results. Conclusions from studies of lower extremity joint replacement and hip fracture patients are inconsistent (Buntin et al., 2010; DeJong et al., 2009a; DeJong et al., 2009b; Deutsch et al., 2005; Herbold et al., 2011; Kane et al., 1998; Kane et al., 2000; Kramer et al., 1997; Mallinson et al., 2011; Mallinson et al., 2014; Munin et al., 2005; Walsh and Herbold, 2006). Meanwhile, IRFs generally achieved slightly better outcomes

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<sup>6</sup> Both the community hospital and the district general hospital groups had a median length of stay of 15 days (interquartile range: community hospital 9-25 days; district general hospital 9-24 days).

<sup>7</sup> A quicker transfer to intermediate care may improve outcomes, since in one exploratory analysis there was an association between late transfer to a community hospital and a worse outcome at 6 months as measured by scores on a scale measuring extended activities of daily living (Young et al., 2007b).

<sup>8</sup> SNFs are roughly equivalent to community hospitals for elderly intermediate care in England and Norway.

<sup>9</sup> For example, patients who are more motivated to improve may be more frequently referred to IRFs, due to their requirement that referring physicians judge these patients as fit for more intensive therapy.

that SNFs for stroke patients, but selection bias could not be ruled out (Buntin et al., 2010; Deutsch et al., 2006; Kane et al., 1998; Kane et al., 2000; Kramer et al., 1997).

- The Medicare Post-Acute Care Payment Reform Demonstration (PAC–PRD) (Gage et al., 2012), contracted by the Centers for Medicare and Medicaid Services, used standardized data from the Continuity Assessment Record and Evaluation (CARE) tool to compare outcomes across rehabilitation care sites (IRFs, SNFs, HHAs and LTCHs), including readmission to an acute hospital and improvements on functional measures (mobility and self-care). After applying risk-adjustment that controlled for differences in patient acuity, hospital readmission rates did not differ significantly between IRFs, SNFs and HHAs. On functional outcomes, there was no significant difference in mobility improvement among settings, but there was a slightly higher gain in self-care outcomes in IRFs (nervous system disorder, including stroke, patients) and HHAs (musculoskeletal patients) compared to SNFs. Although the PAC–PRD modelled to control patient differences among settings more thoroughly than in other research, unobservable factors could have biased outcomes.

Another line of research aimed to understand relationships between SNF characteristics and patient outcomes, and several general conclusions appear to emerge:

- A literature review of 29 articles published between 1998 and 2011 could not identify consistent and strong links between SNF structure, process of care, and/or facility-specific and resident-reported outcomes as related to surgery patient outcomes (Hakkarainen et al., 2013). However, the authors judged that the literature suggests that several facility-level factors including volume of PAC, ownership, staffing turnover, and staff makeup may contribute to patient outcomes. Improved communication relating to the transition of care from acute-care hospitals to nursing facilities may result in decreased rehospitalizations.
- A retrospective cohort study of 164,672 Medicare beneficiaries discharged to skilled nursing facilities after hospitalization for heart failure showed an association between lower quality ratings (on an indicator incorporating health inspections, staffing, and clinical quality measures) and greater risk of readmission, which was reduced when adjusted for the number of beds and the type of ownership of the facility, as well as mortality, which persisted even after the adjustments (Unroe et al., 2012). Nonprofit status was significantly associated with lower readmission and mortality after controlling

for other covariates, and for-profit facilities may experience incentives to control costs by reducing staffing and other inputs.<sup>10</sup>

### **4.3 Cost-effectiveness and efficiency**

In England and Norway, community hospitals providing intermediate care for elderly patients show similar or superior cost-effectiveness to other service provision options. Cost-effectiveness analyses from randomized controlled trials in single and multiple center studies in England indicated that results were similar in community hospitals and general hospitals (O'Reilly et al., 2006; O'Reilly et al., 2008).<sup>11</sup> A pioneer study applying econometric analysis on a National Health Service benchmarking data set revealed high efficiency (83%) in intermediate care wards for elderly patients in English community hospitals (Buckell et al., 2016). Intermediate care wards in Norway also appear to incur lower average costs than the clinical departments at acute hospitals (Orvik et al., 2016).

The different types of post-acute care providers for elderly patients in the United States exhibit consistent patterns in terms of costs but have not been the subject of explicit cost-effectiveness analysis, despite the availability of information on outcomes. In general, HHAs are the least expensive option, under current Medicare payment policy, for patients with adequate social support who are apt for discharge to home. Regarding bed-based institutional settings, IRFs are normally more expensive than SNFs for several patient conditions, sometimes by large margins (up to 100%) (Deutsch et al., 2005; Deutsch et al., 2006; Herbold et al., 2011; MedPAC, 2014b; MedPAC, 2016b).

Given this disparity in payment levels to SNFs and IRFs by Medicare, but the similarity among some groups of patients discharged to the two types of facilities, the Medicare Payment Advisory Commission (MedPAC) has recommended that Medicare adjust its payment rates to match actual provider costs more closely and reduce improper incentives. Compared with SNFs, IRFs have more extensive requirements regarding the intensity of therapy and the frequency, level, and interdisciplinary focus of medical supervision for their patients, intended to benefit patients with especially complex care needs, such as those who have suffered severe strokes or brain or spinal cord injuries. However, actual placement decisions may frequently relate to local medical practice patterns, the availability of different types of PAC in each market, patient/family and physician preferences, and financial arrangements between a PAC provider

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<sup>10</sup> Burke et al., 2016 corroborate this finding for PAC facilities in general through a retrospective analysis of data from the Medicare Current Beneficiary Survey (MCBS) from 2003-2009.

<sup>11</sup> At the same time, cost analysis from another RCT examining nurse-led inpatient care compared with standard care of medical patients on an acute ward showed significantly higher costs for the nurse led unit (Walsh et al., 2005). However, a Cochrane review of the literature on nursing-led inpatient units could not determine in general whether they save money, since studies in the United Kingdom found them more costly than usual care units while studies in the United States found them less so (Griffiths et al., 2007).

and the referring hospital. Moreover, patients undergoing rehabilitation for common conditions such as a stroke, major joint replacement, and other hip and femur procedures (like hip fractures) often have similar profiles on admission to IRFs and SNFs and comparable outcomes after discharge. In this regard, MedPAC recommends the development of an episode or patient-based payment system instead of a facility-oriented one, as well as further bundling of services and implementation of prospective payment arrangements, to encourage providers to search for the most cost-effective PAC option (MedPAC, 2014a; MedPAC, 2014b; MedPAC, 2015; MedPAC, 2016a; MedPAC, 2016b).

## **5. Considerations regarding implementation of intermediate care in bed-based facilities**

Several broad themes relating to improvement in the delivery of inpatient intermediate care emerge from the relevant literature. These issues could be of interest both to countries that have already embarked on the structuring of intermediate care systems, as well as those that are considering this possibility. The most prevalent points are described as follows:

- **Identification of eligible patients.** For intermediate care resources in bed-based facilities to be used efficiently and to the greatest advantage of the potential beneficiary population, proper discrimination of appropriate patients is necessary. Acute hospital or other referral staff should proactively select suitable patients using standardized decision support tools that filter on patient characteristics and permit their assignment to intermediate care at home, where possible, or to the most appropriate facility. Kaambwa et al. (2008) emphasized this conclusion after revealing that a large portion of intermediate care patients (possibly as high as 47%) in the United Kingdom did not meet the stated Department of Health referral criteria. The authors advocated for the adoption of rigorous clinical criteria for intermediate care admission and close cooperation between referral and intermediate care providers regarding patient selection. Despite the extensive research on PAC in the United States, Jenq and Tinetti (2015) point out that it is limited to few diagnoses, variation in care processes and outcome measures confound comparability and results are conflicting. They feel that more studies are needed to determine what types of patients should be directed to the different care settings. In an effort to address these problems, researchers in the United States (Bowles et al., 2009) developed a preliminary knowledge-based model of factors using the input of multidisciplinary, gerontology experts to support PAC referral decision making.<sup>12</sup>

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<sup>12</sup> The model identified the following six factors as predictive in PAC referral: lack of help at home, walking restrictions, poor self-rated health, longer length of stay, worse depression scores, and number of comorbidities. Subsequently, this research led to the

- **Safe transitions.** Although transferring from one setting of care to another almost always increases the risk of adverse outcomes for patients,<sup>13</sup> this problem is intensified in the case of frail, elderly patients shifting into intermediate care. These patients frequently have complex health problems involving multiple comorbidities (including cognitive and functional deficiencies) that require inputs from various specialists, the use of several drugs and therapies, as well as consultations and care in different settings. Poor coordination, communication, and information transfer<sup>14</sup> among providers, patients and caregivers is the main factor in care transitions contributing to adverse results, which encompass but are not limited to medication errors, duplicative diagnostic tests, confusion about the patient's condition and appropriate care, inconsistent patient monitoring, nosocomial infections and falls. The ultimate outcomes may be increased hospital readmission, morbidity and mortality, and cost. In light of this situation, there are now a growing number of initiatives to improve transitions in intermediate care, especially for older adults, oriented towards different actors in the transitional care process: providers (education and training, staff rotation between settings); organizations (key coordinator, discharge protocol/planning/follow-up, medication reconciliation, standardized discharge tool,<sup>15</sup> electronic patient record, bundled payment schemes); and patient, family and caregivers (involvement, education, discharge support) (Baillie et al., 2014; Burke et al., 2016; Chandra et al., 2013; Dahl et al., 2014; Johannessen et al, 2013; Laugalanda et al., 2012; Mor et al., 2010; Unroe et al., 2012).
- **Characteristics of better-performing services.** The evidence suggests that “high-performing” schemes, those supporting lower lengths of stay in hospitals, have the following characteristics (Baumann et al., 2008): (i) clear, agreed scope, focused on prevention, rehabilitation, re-ablement and recovery for those at risk of emergency admission, or re-admission, to hospital, or to avoid premature permanent admission to a care home; (ii) time-limited, linking and complementing existing services; (iii) permanently accessible, flexible and responsive through a single point of access; (iv) based on holistic assessment to maximize independence, confidence and personal

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production of a commercial discharge decision support software marketed to providers handling Medicare patients that might face hospital readmission penalties under the new bundled care payment schemes (Bundled Payments for Care Improvement Initiative).

<sup>13</sup> For example, see Forster et al. (2005).

<sup>14</sup> To ensure care continuity and integration, elderly patients' medical information and history, which is often extensive and complex, must follow them and be successfully conveyed and processed by each new provider.

<sup>15</sup> At transition, the clinical teams should also perform a comprehensive geriatric assessment using agreed instruments that encompass mandatory domains: function (global and mobility); quality of life; cognition and mood; risk of falls and recurrent falls; nutrition; tissue viability; polypharmacy; symptoms (pain, dyspnea etc.); social situation and environment; goals and preferences of the patient in relation to treatment ceilings and escalation in the event of healthcare crises; and equipment and support required for discharge.

outcomes sought by the individual; (v) coordinated, able to draw on multi-professional and multi-agency skills and resources as required to meet complex needs; (vi) managed for improvement, gathering information on the impact of interventions and using this to inform service improvement; and, (vii) creating support for self-care to enable prevention, rehabilitation, re-ablement and recovery and so avoid the need for future hospital admissions.

## **6. Inpatient intermediate care: An option for developing countries and application in Brazil**

The demographic and epidemiological transition resulting in older populations and a shift in the disease burden to chronic conditions is already a health policy concern in several countries in Latin America and the Caribbean (LAC) that will become more prominent soon in other countries of the region, as well as other regions such as Southeast Asia. Health systems developed to provide acute care in an early stage of the epidemiological transition will need to adapt to this new reality, but until now, except for a few countries, this agenda is still pending. With regard to the specific issue of inpatient intermediate care, Brazil may offer some initial insights for other countries, considering that in the next few decades it will have the oldest population in LAC, recently established legislation on prolonged non-acute hospital care and has authorized the first services of this type. These factors likely place Brazil at the forefront of countries in the region in terms of policy and practice regarding intermediate care hospitals.

### **6.1 Prolonged care in Brazil**

Among developing countries in Latin America and the Caribbean, Brazil provides an interesting case to examine the issue of intermediate care, considering the extremely rapid pace at which its population is aging. Although in 2010 Brazil had a slightly lower portion of the population aged 60 years and over (10.2%) compared to countries such as Argentina (14.7%), Chile (13.2%) and Uruguay (18.4%), by 2050 it is expected to surpass all these countries on this indicator (29.3% versus 24.9%, 28.7%, and 27.4%, respectively) (Gragnotati et al., 2011). While it took 60 years in Germany for the share of the elderly population to rise from 10% to 20% of the total population, this process will occur in Brazil in less than half that time (27 years), which equates to a rate outpaced only by South Korea.<sup>16</sup> Despite this demographic scenario, and the epidemiological transition that accompanies it, Brazil has not progressed significantly in

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<sup>16</sup> The main factor contributing to population aging in Brazil is the extremely rapid decline in the fertility rate. While it took more than 50 years for the total fertility rate to fall from 3 to 2 in the average European country, this occurred in only 17.5 years in Brazil. On the other hand, mortality rates have not dropped so quickly in Brazil, especially among the male population, where external causes (violence and accidents) are an important source of mortality at all ages.

practical terms in the area of intermediate care, and there is limited evidence regarding the efforts in the country to promote it.

As early as 1998, Brazil introduced legislation<sup>17</sup> within its Unified Health System to establish a new modality of “prolonged care” within hospitals to improve services for patients with chronic conditions, multiple comorbidities and convalescent and rehabilitation needs. It specified the basic requirements necessary for the authorization of these services by the corresponding state and municipal health secretariats, including physical and technical parameters and the composition and dedication of a complex multidisciplinary team. However, one study showed that the type of service was not widely used, constituting less than 1.5% of hospital admissions in Brazil among the age group 65-79 years in 2007, and only around 6.5% in the state of Rio de Janeiro, which has an older population compared to the country (Romero et al., 2010). Furthermore, applying the parameters from current legislation that recommend an overall ratio of 3 hospital beds per 1,000 persons, of which 5.62% should be for prolonged care, there would be a shortage of 1,517 beds in the northeastern state of Bahia, for example, where existing beds of this type represent only 53% of projected demand.

In order to promote the expansion of prolonged care services in Brazil, in 2012 the Ministry of Health put forth new guidelines for structuring Inpatient Units for Prolonged Care within general or specialized hospitals as well as Specialized Hospitals for Prolonged Care.<sup>18</sup> This consists of an intermediate care strategy between hospital care for acute and chronic flare-up patients and primary care, including home health services, before the patient’s return home or to the community. The guidelines stipulate that hospitals with at least 50 beds may create the prolonged care units with 15-25 beds and that the prolonged care hospitals must have at least 40 beds. Both types of services must comply with regulations regarding the following aspects of service provision, among others: use of a multidisciplinary team (involving nurses and therapists, to support the patient recuperative process); comprehensive patient evaluation and creation of a treatment plan; specialized training of the team; and, installation of rehabilitation facilities. The Ministry also reserved funding to help finance these intermediate care initiatives with resources for capital investment and operation of services, with stepwise reduction of funds over time in the latter case, to incentivize de-hospitalization.

The recent legislation and increased financing appear to have stimulated interest among some states and municipalities to provide more hospital-based intermediate care for elderly patients. The state secretaries of health, in collaboration with the councils of municipal

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<sup>17</sup> Portaria GM/MS no 2.413/1998.

<sup>18</sup> Portaria GM/MS N° 2809 published on December 7, 2012 and republished on September 18, 2013 as Portaria GM/MS N° 2042.

secretaries of health, have included this service modality in their regional health services network action plans presented to the Ministry of Health. Still, four years after the implementation of the new legislation, the Ministry has been slow to approve and finance these plans, and the state secretaries have authorized only 14 Inpatient Units for Prolonged Care and three Specialized Hospitals for Prolonged Care in the whole country. Part of the problem related to the certification of these inpatient units and hospitals lies in the fact that many of the hospitals that intend to provide these prolonged care services are philanthropic institutions contracted with public funds but without the capability to meet quality requirements set forth in the legislation, especially regarding infrastructure.

Despite these difficulties, the model appears to hold potential and has shown some positive preliminary results. Pazin-Filho et al. (2015) reported on a recent experience in the state of Sao Paulo in which three small hospitals each provided 10 beds to receive post-acute chronic patients with rehabilitation needs from a high-complexity university hospital. This tertiary level hospital developed the required protocols, provided training to the multidisciplinary teams in the receptor hospitals, ensured the financial incentives, and coordinated patient transfer, all in accordance with the Ministry guidelines. The principal benefits cited by the authors relate to improved resource utilization, since the tertiary hospital was able to free up 4,253 patient-days during one year, representing 607 stays for acute patients (average 7 day stay) that corresponded to a 50% increase in spots for intensive care, 66% for neurology, and 9.3% in general. The majority of patient stays in the prolonged care hospital units had duration of up to 30 days (50%), with 75% up to 60 days.

## **6.2 Reflections for strengthening prolonged care in Brazil**

Several considerations are likely pertinent to the objective of expanding inpatient intermediate care in Brazil, and they may also be applicable to other countries adopting this type of service provision:

- **Reconditioning small, community hospitals.** In countries such as England, Scotland and Norway, there has been a movement to convert community hospitals, often in smaller municipalities, into intermediate care facilities, in some cases as acute services have been concentrated in fewer, larger hospitals in the principal urban centers so as to promote economies of scale.<sup>19</sup> Pazin-Filho et al. (2015) notes that Brazil could follow these examples in order to take advantage of the existing asset of community-based hospitals, which demonstrate an impressive presence in the interior of the country. Of

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<sup>19</sup> See Aletras et al., 1997.



the approximately 6,100 hospitals registered by the Ministry of Health, around 1,840 are non-profit and 60% are categorized as small (50 or fewer beds). Roughly 80% of the hospitals are either public or are private but provide contracted services to the public Unified Health System. However, payment rates are at times below the cost of service provision, and the smaller hospitals face large inefficiencies, such as low occupancy rates, all of which have led to economic difficulties.<sup>20</sup> A feasible proposal for the reconversion of these hospitals would necessarily involve the allocation of resources for investment to comply with regulations regarding staffing, equipment, and infrastructure, as well as improved payment rates for services.

- **Systemic approach to promote viability.** For intermediate care hospitals to function properly and avoid retaining patients for longer than intended, they would need to establish strong links with acute hospitals, primary care level services and ambulatory rehabilitation facilities to ensure coordination and continuity of care (see section 4.1). Also, as noted in section 5, it is essential to develop context-specific criteria and protocols for referral/counter-referral and follow-up. Although primary health care coverage and effectiveness in Brazil is well documented,<sup>21</sup> low installed capacity of home health services may impact negatively on the ability to discharge from bed-based intermediate care, particularly in the absence of family caregivers. Since in upcoming decades the elderly population will grow expressively and the number of family caregivers will contract due to demographic trends, the changing status of women, and evolving family and social norms, home health services will require strengthening, and the Family Health Program could assume a role in patient transitions and monitoring in the home environment (Gragnotati et al., 2011).
- **Multidisciplinary teams with focus on geriatrics and care of the elderly.** As indicated earlier (sections 4 and 5), effective bed-based intermediate care is predicated on the availability of multidisciplinary teams with geriatric assessment, rehabilitation, chronic care, and palliative care expertise. However, Brazil suffers from a serious shortage of specialists in geriatrics as well as limited options for the training of health professionals in the care of the elderly.<sup>22</sup> In addition to increasing the number of geriatricians, there must be an effort to adjust health professional training in general to

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<sup>20</sup> See Ramos et al., 2015 and La Forgia and Couttolenc, 2008.

<sup>21</sup> For example, primary health care services in Brazil through the Family Health Program and Community Health Worker program appear to have been effective in reducing ambulatory care sensitive hospitalizations (Guanais and Macinko, 2009).

<sup>22</sup> According to the Brazilian Society for Geriatrics and Gerontology, there are only around 1,300 geriatricians in the country, which equates to one per 18,000 older persons, when the ideal ratio might approximate 1/1,000. Moreover, almost half of these are concentrated in the southeastern region of the country. Finally, there are only 21 geriatric residency programs that graduate approximately 100 professionals per year.

incorporate geriatrics and care of elderly chronic patients into a curriculum that still emphasizes a previous stage of the epidemiological transition involving acute care, infectious disease and reproductive and child health.

- **Resources for development of a service model.** The Inter-American Development Bank (IADB) is financing the Program to Strengthen the Unified Health System in the Metropolitan Region of Salvador (PROSUS), and as part of its technical collaboration, the IADB contracted specialized consulting services to assist the government in the development of a profile and service model for an intermediate care hospital. The consulting report analyzes the context and data regarding this hospital but draws on international best practice and resources that could be useful to additional authorities in Brazil or other countries that are planning to set up this type of service. Topics covered in the report include case mix, care pathways, protocols and decision support tools, bed capacity, physical design, equipment and furniture, services, human resources, competency frameworks, education and training, information and communication infrastructure, operating costs, and quality assurance. Some of the main findings and recommendations of the report are as follows:
  - Estimates indicate that up to 25% of acute hospital inpatients in the Metropolitan Region of Salvador (MRS) would be more appropriately managed with rehabilitation, palliative, or long term chronic care in a less intensive setting.
  - Maximum benefit would be achieved from creating an integrated care facility that operates as a community 'hub' within the local healthcare network and provides interdisciplinary rehabilitation and support services, fully integrated with the local hospital at home team.
  - To ensure efficient flow within a geographically discrete health network, the facility should have a minimum of 150 beds to respond to the demand from nearby municipalities and the adjacent North Salvador districts. Following evaluation, this model could be replicated in other areas of the MRS. In the first instance the facility should provide post-acute care principally for a large general hospital in close proximity, which has an average length of stay double that of the other MRS acute hospitals and generates a high volume of demand for this model of care from conditions such as cancer, diabetes, and peripheral vascular disease.
  - According to international best practice, acute hospital staff should proactively identify suitable patients using decision support tools developed with the

intermediate care hospital clinical team and the regulation center. Following transfer, patients should have a comprehensive assessment completed by an interdisciplinary team using instruments that encompass physical, functional, psychological and social domains; identify goals and preferences of the patient with regard to treatment ceilings and escalation in the event of healthcare crises; and anticipate the equipment and support required for discharge.

- The core staff team should include nurses, physicians, physiotherapists, and occupational therapists with additional support from pharmacists, speech and language therapists, dietitians, psychologists, and social workers. The State Health Human Resource Management Center is willing to develop new parameters for workforce profiles for intermediate and long-term care that are relevant to the MRS context. The medical team should draw on physicians with skills and experience in geriatrics, rehabilitation, palliative care, and family health. Other clinical specialists, such as a cardiologist, a neurologist, a psychiatrist, a vascular surgeon and an orthopedic surgeon should be available for consultations when required, either remotely to provide professional advice or on a fixed visiting schedule.
- To support effective and integrated care, the new Unified Health System electronic health record should be prioritized for roll out to the hospital site. The technology used should be able to support telehealth and video-consultations to reduce the need for inter-hospital transfers for specialist consultations.
- The hospital should have a light and horizontal management structure with, for example, a Hospital Director supported by a Head of Clinical Services and a Head of Support Services.
- Early engagement with local universities and state healthcare training schools is advisable to develop educational modules that will enable staff to accumulate the appropriate skills and competencies. There is an opportunity to coordinate with educational providers who offer distance or on line learning programs that can be delivered through the tele-health platform. Over time, the intermediate care hub can evolve as a center of excellence for interdisciplinary education in intermediate care, palliative care, chronic disease, and long-term care.<sup>23</sup>

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<sup>23</sup> This would accompany the expertise and capacity of other MRS reference centers including the State Reference Centre for Elderly Care which offers specialist assessment only for outpatients.

## 7. Conclusion

In many developing countries, the demographic and epidemiological transitions are resulting in older populations and a higher burden of chronic disease and comorbidities, as well as a decline in capacity relating to the activities of daily living. These changes generate an increased demand for health and social services and a corresponding rise in spending. Under these circumstances, and in a context where governments are attempting to limit expenditure, many countries are searching for solutions through the reorganization of health services. They generally confront a scenario in which their health care systems are designed to address acute health issues rather than chronic conditions that may require fewer clinical and technological resources but more rehabilitation and therapy services over a sustained time period, structured in a layer of intermediate care that emphasizes integration, coordination, and multi-disciplinarity around a core nursing staff. This latter type of approach could help garner efficiencies by limiting the over usage of more expensive acute hospital services by non-acute patients.

Although there are several different models for intermediate care on the spectrum from hospital to primary care, and home health is attractive due to its relatively low service costs, many patients will need an institutional, bed-based solution due to clinical characteristics or lack of family and social support. Compared to a traditional acute hospital ward, non-acute inpatient establishments may offer superior results for these patients. Studies regarding patient and provider satisfaction with intermediate care hospitals generally revealed positive aspects of the service, but they also indicated a need to develop mechanisms for improved coordination among the hospital, intermediate and primary service levels and to agree upon clear procedures for the choice of the most appropriate patients. Quantitative research involving multiple randomized control trials published in the international literature have shown greater functional independence and reduced hospital readmissions among patients discharged to intermediate care hospitals compared to those remaining on wards in the general hospital. Although few in number, cost-effectiveness analyses suggest that results in intermediate care hospitals are similar or superior to those general hospitals.

Brazil may serve as a point of reference for other developing countries embarking on efforts to restructure their health care systems to deliver care for chronic patients in more efficient ways in light of fiscal constraints. The country recently developed new policy on the issue of intermediate care hospitals, and multiple facilities have already begun operating. Brazil also shows great potential to follow the example of countries such as England, Scotland and Norway, which have concentrated acute services in larger urban hospitals and reconverted community hospitals in the interior into intermediate care facilities. Small investments in staffing,

equipment, and infrastructure, as well as improved payment rates for services, could make this approach more feasible and bear significant dividends over the long run. In addition, it will be necessary to strengthen primary care in issues of chronic disease, home health care, and geriatrics training throughout the health system. The Inter-American Development Bank is providing technical assistance to the state government of Bahia in the implementation of one of these new hospitals, and its focus lies on the integration of best practice in the areas of protocols and procedures for patient identification and transfer, comprehensive assessment and development of individual therapeutic plans, and integral care provision by an adequately composed multidisciplinary team.

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