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## **Meeting the complex challenge of health and social care provision for rapidly-ageing populations. Introducing the concept of “avoidable displacement from home”.**

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### **Introduction.**

Low and middle-income countries are experiencing accelerated population ageing, with rapid increases in the numbers of people at very old ages. Developing well-integrated health and social care systems represents a daunting challenge for all countries. In high-income countries, where separate systems of health and social care have evolved independently over several decades, belatedly reengineering them into a single, integrated service has proved to be much more easily said than done.<sup>1</sup> Emerging economies have an opportunity to avoid these policy mistakes at an earlier stage of service development. To do so will require fundamental changes to established paradigms of policy-making, as well as to models of service provision and professional behaviour. This paper discusses these challenges and proposes a new conceptual framework to support policy responses.

### **An ageing world**

According to data taken from Department of Economic and Social Affairs of United Nations about Population Dynamics,<sup>2</sup> 67 per cent of all people aged over 70 lived in less developed regions by 2015, and this will rise to 76 per cent in 2050.<sup>2</sup> Over the same period, the share of Brazilian population aged 70 and over will approximately treble from 5.1 to 16.4 per cent (Table 1). Yet research and policy discussion about the needs of very old people remain focussed on more-developed regions.<sup>3</sup>

Increasing numbers of people at very old ages pose specific policy challenges. Disorders and functional decline are more prevalent for people aged 70 and over than for people at younger ages. Table 2 compares data on the functional status of older adults from a Brazilian national survey<sup>4</sup> to surveys in Mexico<sup>5</sup> and the USA.<sup>6</sup> These surveys belong to the Health Retirement Survey (HRS) family and use the same criteria to define disability,<sup>7</sup> which permits cross-national comparisons. The proportion of older people with at least one functional limitation rises sharply with age and in Mexico it has increased significantly over time for all age groups (longitudinal data are not yet available for Brazil). A combination of rapid population ageing and high levels of functional impairment are generating a rapid escalation in demand for social

care and geriatric health services.<sup>4-6</sup> The intensity of care needs is particularly high for conditions such as dementia. It has been estimated that the number of people with this condition in Latin America will rise from 7.8 million in 2013 to over 27 million by 2050.<sup>8</sup> Dementia is not the only condition that leads to complex and intensive care needs in later life. Frailty, multi-morbidity and other specific conditions are associated with severe levels of care dependency. For example, Brazil's National Health Survey estimated that there were 568,000 people with severe disabilities due to stroke in 2013.<sup>9</sup>

Rapidly escalating demand for long-term care and the limited capacity of families to meet this need call for robust policy responses by governments. In countries like Brazil, demographic trends, changes to family structures and increased female participation in paid work reduce the supply of potential family carers.<sup>10</sup> The experiences of high-income countries demonstrate a need to develop coordinated, inter-sectoral responses across different agencies.<sup>1,11</sup> There is growing evidence that caring for older family members is highly stressful, physically, financially and emotionally.<sup>12,13</sup> This does not mean, however, that formal service provision should be viewed as a direct substitute for family care. Instead, the two should be considered complementary parts of an integrated system of health and social care for older people.<sup>11</sup> The large variations in age-specific functional status shown in Table 2 in part reflect the potential for health interventions to limit the onset of functional decline and hence demand for long-term care.<sup>10</sup> Similarly, appropriate long-term care provision can substantially reduce demand for mainstream health services, which are often more expensive.

### **Avoidable Displacement from Home.**

ADH can be understood as a failure to deliver care that enables older people to choose to remain in their homes for as long as possible when this is in their best interest. It offers a comprehensive and holistic framework to treat health and social care as a single system, by examining relationships between different care settings. It combines consideration of individual preferences and personal agency with a health systems perspective. In this way, ADH encompasses and adds value to a number of established concepts, including person-centred models of geriatric care, integrated care, ageing in place and continuity of care.<sup>14-16</sup>

ADH results from relationships between different care settings that are seen as problematic, either from a health systems perspective and/or in terms of older people's preferences. These settings are where the older person currently resides, either on a long-term or (in the case of most hospitalisations) short-term basis. As such, they include residential care homes, as well

as the home and inpatient hospital settings (Figure 1). These relationships may be considered to be problematic when they promote the following outcomes:

**(Re)admissions to hospitals that could be reasonably avoided.** These include admissions for inappropriate clinical reasons, conditions potentially amenable to treatment in non-inpatient settings, and admissions for preventable conditions (such as acute health episodes resulting from inadequate self-care or falls).

**Unnecessarily long hospital stays, due to delayed discharge.** These may be due to inappropriate discharge protocols or a lack of suitable support for patients outside the hospital setting.

**Unnecessary admissions into care homes.** These are admissions of older people whose needs could be adequately met within domiciliary settings.

### **Policy relevance of ADH.**

ADHs contribute to growing pressures on health service funding in a number of different ways. They include hospitalisations for ambulatory care-sensitive conditions, which could have been avoided if suitable primary health care services had been available to the patient.<sup>17</sup> Older people represented 15 per cent Brazil's adult population in 2012, but accounted for almost a third of all hospital admissions and more than half of intensive care admissions in the public health system between 2009 and 2015. Additionally, older inpatients account for 39 per cent of the total adult inpatient budget of public hospitals.<sup>18</sup> It has been calculated that 31 per cent of inpatient hospital spending on people aged 60 and over in Brazil's National Health System between 2000 and 2013 was for conditions suited for ambulatory treatment. This amounted to around US\$275 million of hospital spending in 2013.<sup>19</sup>

ADHs also include conditions that are appropriate for inpatient care, but that could have been easily prevented by suitable outpatient health and social care. Combining inappropriate and preventable hospitalisation, studies of hospital admissions of older people in the UK estimate that between 20 and 32 per cent could be defined as "inappropriate".<sup>20-22</sup>

A third element of ADH is unnecessarily long hospital stays, when inpatients deemed medically fit for discharge continue to occupy a hospital bed for nonclinical reasons. The mean cost of a single case of delayed hospital discharge has been estimated at US\$7,020 by a systematic international review.<sup>23</sup>

As well as the wasteful use of resources, there are a number of other benefits to minimising ADHs.

First, older people face particular risks from unneeded hospitalisation, such as hospital-acquired infections.<sup>24</sup> Data for Brazil show that rates of such infections were 13.3 per cent for inpatients aged 60 and over, compared to 7.2 per cent for the total inpatient population, and that these infections were associated with longer hospital stays.<sup>25</sup> Between 2009 and 2015, the proportion of inpatients aged 60 or more who died in hospital rose from 9.8 to 11.2 per cent.<sup>18</sup> Second, where hospital inpatient capacity and beds in residential care homes are limited, ADHs reduce access to appropriate care for those people who really need it. This is especially problematic when the supply of beds is very limited, as in Brazil, where the number of hospital beds per 1000 population in 2014 was 2.11 compared to 8.13 and 13.17, in Germany and Japan, respectively.<sup>26,27</sup>

Finally, older people usually express a strong preference to remain in their own homes and this is associated with enhanced quality of life, and in some cases, better health.<sup>11</sup> In Latin America and Brazil, in part, this preference may reflect evidence that the quality of care in many care homes and inpatient settings leaves much to be desired.<sup>28</sup>

As well as addressing these issues individually, ADH encourages policy-makers to go beyond an exclusive focus on health system efficiency and quality management, such as improving primary health care to reduce hospitalisations. This narrow focus neglects the wider perspective of place-based care (such as poor or fragmented service provision) or the person-centred experiences, needs and wishes of older people and their carer.<sup>29,30</sup> One specific gap in current approaches is the relationships between care homes and other care settings. Just as is the case with hospital admissions, this can include avoidable and unnecessary admissions into care homes when older people have limited care dependency or when their needs might be met within domiciliary settings, were appropriate services available to support and complement family care.<sup>10</sup>

### **Comparing preliminary ADH components across different contexts.**

Patterns of ADH components vary between countries. In less-developed countries fewer old people live in residential care homes than in high-income countries.<sup>11</sup> In Brazil less than 1 per cent of older people were living in care homes in 2018, compared to 4.7 per cent of people aged 65 and over in the UK in 2016.<sup>27,31</sup> Conversely, average lengths of hospital stays in less-developed countries tend to be high by international standards. This indicates that a relatively high proportion of hospital stays in countries like Brazil may be for conditions better suited to care homes or domiciliary settings. A survey of hospital inpatients aged 60 and over in Rio de Janeiro between 2001 and 2007 found 2,260 had been there for over a year.<sup>32</sup> A survey of 11

public hospitals in Chile in 2014 categorised 36 per cent of stays of over a month as “social hospitalisations” (patients no longer in need of inpatient care, but who could not be discharged due to the unavailability of care at home).<sup>33</sup>

Unnecessarily protracted hospital stays do not mean countries should seek to directly substitute social hospitalisation with residential care facilities. In many cases, care homes also represent a sub-optimal form of provision, in terms of both cost-effectiveness and the quality of service they offer.<sup>11</sup> For example, in Argentina a significant number of residential care facility residents have neither moderate nor high levels of care dependency. Older people rarely express a preference for moving to a care home and admissions are often coercive, sometimes constituting an unjustifiable deprivation of liberty.<sup>34,35</sup>

Also, the extent to which the home represents the best environment for older people varies between settings. For example, in poor urban neighbourhoods, substandard housing conditions and a lack of safe pavements, among many other things, reduces their suitability for frail older people.<sup>36</sup> At the same time, the capacity of families to provide care varies according to the availability, disposition and ability of relatives to perform this role. Unpaid family carers, almost always women, often lack basic knowledge about caring for a frail older person and are exposed to high levels of stress. A survey of 52 family carers for people with dementia in Colombia found 55.8 per cent had been performing this demanding role for over three years and most had little knowledge of the condition.<sup>37</sup>

Figure 2 presents a stylised summary of how different processes can generate ADH across settings and at different levels. In high-income countries, a lack of family support is a major cause of delayed discharge from hospital.<sup>38</sup> It is sometimes claimed that family support is more abundant in countries like Brazil, but the 2013 *Pesquisa Nacional de Saúde* found that the majority of Brazilians aged 60 and over with care needs received no support from either a family member or another person.<sup>10</sup> There is evidence that gaps in family support and social care contribute significantly to ADH in Brazil.<sup>32,39</sup> Additionally, high-income country experiences show that inadequate local primary health services make a major contribution to ADH, as does poor coordination between services and limited coverage of health insurance.<sup>40,</sup>

<sup>41</sup> These effects are likely to be significant in countries like Brazil, where local service infrastructure is limited and tends to focus on the needs of younger people. In 2013, 31.3 per cent of Brazilians aged 60 and over were not enrolled in the Family Health Strategy.<sup>42</sup> Municipal data for poor neighbourhoods of Belo Horizonte show that average rates of health post use for older people living more than 500 metres away from a post were significantly less frequent for those living closer. A shortage of locally available outpatient services increases

rates of emergency department utilisation and this, in turn, is strongly associated with admissions for avoidable or preventable conditions.<sup>43</sup> Similarly, poor health management in long-term care facilities, coupled with limited coordination with local health services further contribute to hospitalisations. A study in Japan found that the majority of hospital admissions of nursing home residents were potentially avoidable.<sup>44</sup>

### **Reducing ADH.**

Significant cost benefits can be achieved by reducing ADH. For example, in the UK, the average length of inpatient stay for people aged 70 to 74 fell from 9.6 to 8 days between 2007 and 2016, without a comparable increase in the numbers of people in residential care.<sup>45</sup> The USA achieved a 20 per cent reduction in average length of hospital stays between 1993 and 2009, which is equivalent to 0.1 days per older person.<sup>46</sup>

Table 3 shows estimated cost savings for an annual reduction of 0.1 days of hospital inpatient stays for people aged 60 and over and 70 and over in 2015 and 2030.<sup>47,48</sup> The calculation multiplies the cost of a single inpatient day (using 2005 WHO data on public district hospital costs), by the population in each age group for the corresponding year and then divides by ten. In Brazil the estimated savings for the population aged 60 and over would be US\$197 million in 2015 and US\$342 million in 2030. The corresponding savings for just the population aged 70 and over would be US\$84 million and US\$162 million. While this is a very approximate exercise, it provides an indication of the scale of potential savings. These are likely to be conservative estimates done by the authors based on the WHO data,<sup>47</sup> as (i) district hospital stays are considerably cheaper than in teaching hospitals and (ii) the costs of hospital days in 2015 and 2030 will be higher than in 2005.

In high income countries, there are growing concerns about potentially detrimental effects on older people of reducing hospital stays “at all costs”.<sup>49</sup> How can hospital stays be reduced without either shifting the burden to care homes or family carers, or harming the wellbeing of older people? The experiences of high-income countries indicate this cannot be achieved through a single or simple set of interventions. Most studies emphasise a need for packages of community-level interventions based on integrated health and social care.<sup>50</sup> This has proved to be a challenging agenda: many countries are belatedly attempting to integrate systems of health and social care which were allowed to develop separately over time.<sup>11</sup> Other countries may be able to learn from these past mistakes, by applying more comprehensive ADH strategies.

In countries like Brazil, almost no family carers of older people receive meaningful support in performing this role. Yet the experience of high-income countries demonstrates the potential

effectiveness of a wide range of interventions. For example, Finnish long-term care policy places a large emphasis on respite services for people who care for older relatives. This forms part of a wider policy goal to ensure that at least 90 per cent of people aged 75 or more can remain living at home.<sup>51</sup>

There is a need for the careful coordination of complementary interventions across a wide range of agencies and stakeholders. Evidence on the effectiveness of many interventions remains very limited for high-income settings.<sup>52</sup> Even in cases where evidence exists, it should not be assumed that outcomes will be the same if these interventions are directly replicated in less-developed settings. There is an urgent need to build knowledge of what works in countries like Brazil, both in terms of specific interventions to support care at home, as well as how they can be effectively combined into a wider strategy of reducing ADH.

Some countries in Latin America have started to develop interventions to address specific aspects of ADH. However, these are generally quite limited in terms of scope and resources, and they usually do not address ADH as a whole.<sup>33</sup> National level programmes are being developed alongside policy experimentation at local government level.<sup>53</sup> There is an urgent need to develop comparative evaluations of these different interventions and to share experiences.

## **Conclusion**

This paper has introduced the concept of ‘avoidable displacement from home’ and demonstrated its potential application in Brazil and other countries. The development of the concept is at an early stage and will require more detailed elaboration, as well as validation, by policy-makers.

At first sight, the concept of ADH has a number of potential advantages. First, it recognises the inseparability of health and social care, and the need to view them as part of a single system, not as two conjoined ones. Second, it places equal emphasis on system efficiency and the needs and preferences of older people. Existing concepts fail to provide a holistic, person-centred and place-based understanding of how being “displaced” from home is experienced by older people and their carers. Third, ADH combines an element of conceptual simplicity (as illustrated in Figure 1) with a more elaborate frameworks to guide the analysis of more complex underlying processes (such as Figure 2). Finally, ADH links to rapidly emerging policy concerns in countries like Brazil, and may serve as a bridge between research and policy-making.

Despite its conceptual simplicity, the application of ADH to real life scenarios is likely to be challenging. Establishing what may or may not constitute an avoidable or inappropriate



displacement from home will depend on personal expertise and an element of subjective judgement. ADH should not be interpreted as a binary phenomenon, but as a spectrum of judgements, ranging from more obvious and egregious cases to more marginal ones. This is likely to be context-specific and judgements may vary within and across different professions. For example, despite there are some ambulatory care sensitive conditions (ACSC) used for classifying hospitalizations as ACSC, using ICD-10 codes, and following the definitions of<sup>54</sup> for Brazil, Brazil is the only country in Latin America that has made a systematic effort to adapt the ACSC lists from the US, Canada and Spain to its own circumstances. However, it is important to note that until now there is no international consensus on how best to compose ACSC lists.<sup>55</sup> We could argue that age-neutral ambulatory care sensitive condition lists are not sensitive to the needs of very old people (for whom hospitalisation for a given condition may be more appropriate than for people of other ages). This demonstrates the danger of reducing ADH to a simple set of criteria. Rather than over-simplify, it may be instructive to explore different meanings and interpretations of ADH across settings and stakeholders, as part of a process of concept validation. Identifying these disagreements may in itself reveal valuable policy lessons to enhance service integration in a meaningful and sustainable way and support person-centred care.

A final word of caution. ADH should not be used to justify policies and strategies that assume “home is always best” for older people, thus delegating all responsibility to families and minimising state responsibility. Such an approach ignores the potential unsuitability of home environments for some older people and the limitations of family care. Also, it places an unjust burden on a growing army of mainly female family carers. Equally, seeking to reduce avoidable or unnecessary admissions into care homes does not equate to the view that these admissions are always a bad option. Across Latin America, social attitudes tend to view social care as a private, family concern and the use of formal services is often stigmatised. Properly interpreted, however, ADH should challenge these misconceptions, rather than reinforce them. Instead of seeking to reduce admissions at all costs, ADH emphasises place-based care that is appropriate to the needs and preferences of the older person.

Regardless of policy, rapid increases in numbers of frail, care-dependent older people will generate rising demand for both formal social care and related health services. Existing models of health and social care are already unfit for purpose. Effective resource allocation can only be achieved through strong partnerships, where families are provided support by integrated health and social care at the community level, and where the preferences of older people and their carers are properly acknowledged.



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**Table 1**

Current and projected population aged 70 and above

<b>Year/Region's population</b>		<b>More developed regions</b>	<b>Less developed regions</b>	<b>Brazil</b>
<b>2015</b>	Population 70 +	153,319	242,073	10,423
	% total pop	12.2	3.9	5.1
<b>2020</b>	Population 70 +	172,539	287,453	12,983
	% total pop	13.6	4.4	6.1
<b>2025</b>	Population 70 +	194,329	362,510	16,320
	% total pop	15.2	5.3	7.4
<b>2030</b>	Population 70 +	216,356	439,839	20,225
	% total pop	16.8	6.1	9.0
<b>2035</b>	Population 70 +	236,686	535,598	24,796
	% total pop	18.3	7.0	10.8
<b>2040</b>	Population 70 +	250,225	644,804	29,213
	% total pop	19.3	8.1	12.6
<b>2045</b>	Population 70 +	260,902	745,306	33,433
	% total pop	20.1	9.1	14.4
<b>2050</b>	Population 70 +	267,911	827,848	38,244
	% total pop	20.6	9.8	16.4

Source: Based on United Nations Population World Population Prospects data<sup>2</sup>

**Table 2**

Percentage of older people over reporting at least one functional limitation (ability to eat, get dressed, transfer in and out of bed, use the toilet, and bathe/shower)

Survey*/ Gender/Age (yrs)	Men			Women			Total aged 60+
	60-69	70-79	80+	60-69	70-79	80+	
Brazil, ELSI 2015/2016	13.5	15.7	32.9	14.8	22.3	37.7	18.7 N = 5,432
p		<0,0001			<0,0001		
Mexico, MHAS 2001	6.6	13.2	34.3	10.4	15.5	42.2	14.6 N = 6,692
p		<0,0001			<0,0001		
Mexico, MHAS 2012	10.3	20.1	35.3	17.5	28.3	52.0	21.2 N = 8,974
p		<0,0001			<0,0001		
United States, HRS 2012	13.8	18.1	31.9	17.0	20.0	41.4	22.1 N = 13,889
p		<0,0001			<0,0001		

\* Variation of prevalence of disability in at least one activity of daily living over time in Mexico: p value of <0.0001 in the Confidence Interval at 95%.

Sources: BRA - Brazilian Longitudinal Study of Ageing (ELSI), wave 1 (2015/2016)<sup>4</sup>; MEX - Mexican Health and Aging Study (MHAS), waves 1 (2001) and 3 (2012)<sup>5</sup>; USA - Health and Retirement Study (HRS), wave 13 (2012).<sup>6</sup>



**Table 3**

Estimated cost savings of reducing annual inpatient hospital stays by 0.1 days per person aged 60 and over and 70 and over

<b>Country</b>	<b>District hospitals cost per day per person (US\$ 2005)</b>	<b>Total cost of 0.1 days in district hospital multiplied by population aged 60+ (2015) (million US\$)</b>	<b>Total cost of 0.1 days in district hospital multiplied by population aged 70+ (2015) (million US\$)</b>	<b>Total cost of 0.1 days in district hospital multiplied by population aged 60+ (2030) (million US\$)</b>	<b>Total cost of 0.1 days in district hospital multiplied by population aged 70+ (2030) (million US\$)</b>
Brazil	80.60	197	84	342	162
Mexico	88.04	106	47	189	82
USA	628.43	4,143	1,966	5,666	3,222

Sources: UN Population Division (median variant projection for 2030)<sup>47</sup>; WHO-CHOICE Unit Estimates for Service Delivery (2010).<sup>48</sup>