Older people’s access to medicines and assistive devices in the Western Pacific Region
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ACKNOWLEDGEMENTS

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The Sustainable Development Goals, adopted at the United Nations Summit in September 2015, emphasizes health and well-being for all at all ages. The goals set a new and ambitious paradigm for development in the context of rapid, unprecedented and potentially overwhelming environmental, social, demographic and political changes, including population ageing, drawing attention to the broader social determinants of health and related intersectionalities. Meeting the health needs of vulnerable groups, such as older people, is a key aspect of the universal health coverage agenda. Member States of the WHO Western Pacific Region endorsed a regional action framework on “Universal health coverage: moving towards better health” in October 2015. A key dimension of this agenda relates to the availability, accessibility, acceptability and quality of essential medicines and assistive devices for older people. It is also timely in the context of ongoing efforts by Member States, WHO and other partners to respond to the health implications of population ageing in the Western Pacific Region. The Regional Framework for Action on Ageing and Health in the Western Pacific (2014–2019) was endorsed by the 64th session of the WHO Regional Committee for the Western Pacific in October 2013 (1). One of the four action pillars of the Framework relates to reorienting health systems and strengthening their responsiveness to the needs of older people and is fully aligned with the universal health coverage agenda. This report builds on these frameworks and analyses nine key issues concerning access to essential medicines and assistive devices that meet the needs of older people in the context of universal health coverage in the Western Pacific Region.

First, medicines for chronic conditions that contribute to the highest burden of disease for older people, cardiovascular diseases and diseases of the sensory organs, are listed on essential medicines lists in all countries in the Region. However, the lack of availability of medicines, the high cost of purchasing medicines, and the lack of access to health professionals and diagnostics services all have the potential to act as barriers to medicine use for treatment of chronic conditions. Surveys of the availability of medicines show that medicines may not always be present in services and, thus, available for use. This may have a significant effect on the ability of countries to achieve desired health outcomes for older people. Of the countries and areas in the Western Pacific Region, where survey data were available, both Malaysia and the Pacific island country surveyed had the highest levels of availability, while Shaanxi Province in China, as well as Mongolia and the Philippines, had poorer availability of medicines for chronic conditions. For some of the countries, the data were more than five years old, and it is not known if the results are reflective of current practice. Data were unavailable for the majority of countries in the Region, and thus, availability in many countries could not be assessed.

Second, high procurement prices for medicines used to treat chronic conditions in older people are a barrier to their access. Collectively, the evidence presented in this report suggests that countries in the Region pay twice the international reference price for generic products and 12 times the price for innovator brand products. In China, Mongolia, the Philippines and Viet Nam, prices of medicines for chronic conditions were highly variable, particularly for innovator brand products. Malaysia and the Pacific island country surveyed have less variability in prices compared to the international reference price, although the evidence was dated. Evidence concerning prices paid by other countries in the Region was not located.

Third, factors identified that contribute to inefficient procurement include the failure to purchase cheaper products where they were available, the purchase of innovator brand products where generic products were available, the presence of counterfeit substances and the lack of transparency and accountability for purchasing, which may result in payment of kickbacks that further inflate prices. The pricing surveys showed that generic medicines were more likely to be available than innovator brand products in the public sector in most countries. However, for some medicines, innovator brand products were available and no generic equivalent was available, suggesting there may still be room for
improvement. Greater availability of innovator brand products was observed in the private sector, which was also where higher procurement prices were observed. The payment of high prices has flow-on costs for patients.

Fourth, in many countries in the Western Pacific Region, out-of-pocket costs in the public sector are high, with patients having to pay between two and seven times the international reference price for lowest priced generics and many times the reference price for innovator brand products. However, in a few countries, such as Malaysia and the Pacific island countries, public sector medicines are provided without patient charge. Patients who are unable or choose not to access the public sector services face higher prices, particularly for innovator brand products. Some countries in the Region are moving to health insurance systems, which may improve affordability for older people, and some countries have in place special access schemes for older people. In Viet Nam, access to medicines is not fully subsidized for older people before 80 years of age; in the Philippines, a discount is available but not universally applied; and in China and the Lao People’s Democratic Republic, the available schemes cover only a small proportion of the older populations.

Fifth, data on the appropriateness of use of medicines for chronic conditions in the Western Pacific Region suggest undertreatment of cardiovascular disease and hypertension in China and Mongolia, and undertreatment of diabetes in Malaysia and the Philippines. Non-adherence to medicines for chronic conditions was found to be an issue in China and the Philippines. High use of traditional or complementary medicines for management of chronic diseases was observed in Chinese and Malaysian studies. Health literacy was identified as a problem in China, Malaysia, Mongolia and the Philippines. Evidence from other countries was not located. Cost of medicines was one factor reported to be contributing to underuse, as was limited knowledge by health professionals. Use of traditional medicines in substitution or in combination with western medicines is common in China and Malaysia. Evidence from other countries was not located.

Sixth, availability and use of the seasonal influenza vaccination is low in all countries that have not implemented a subsidized seasonal influenza vaccination programme. Better data on the burden of disease of seasonal influenza would inform the development of evidence-based and cost-effective seasonal influenza vaccination policies targeting the older population.

Seventh, most assistive devices are neither readily available nor affordable for older people in low- and middle-income countries in the Region. Research examining ways to improve access to or use of assistive devices for older people in the Region is lacking.

Eighth, with regards to improving medicine use for chronic conditions, there is evidence from the Philippines on the success of disease self-management programmes improving diabetes management in people with a median age of 57–59 years. The trial included rural and regional areas and involved village health workers. Innovative work is under way to test whether the use of mobile devices further supports disease self-management. Australia has successfully used peer education to teach older people about medicines management and has some medicine information available that have been translated into Chinese, Korean and Vietnamese. No studies that have assessed the suitability of peer education about medicines for chronic disease in low- and middle-income countries were located, although peer education has been used in a number of countries to support HIV treatment in younger patients and this is likely to be adaptable to other medicines in older people. Australia also runs a medicines review programme, which is being supported by the Western Region Pharmaceutical Forum and which also may be adaptable to other countries in the Region as pharmaceutical services develop. Malaysia has a national programme on quality use of medicines. Evaluation of this initiative’s effect on older people’s medicine knowledge and use may inform the adaptability of this type of intervention to other countries in the Region. The Republic of Korea successfully uses a real-time prospective drug utilization review that identifies medicines contraindicated in older people and medicine–medicine interactions. This tool may be adaptable to other countries as information systems are developed. As
countries develop their information technology infrastructure to support health system development, there are likely to be opportunities to trial novel interventions to support medicine use by older people. Ninth, there is a strong case to be made for coordinating and integrating policies on ageing, medicines and assistive devices. Organizations and groups involved in the care of older people should be active partners in the integration of the different policies.

Going forward, strengthening the procurement systems and implementing policies that promote the use of generic medicines are likely to have the most significant impact on improving availability of medicines for older people. Adopting best practices in procurement, supported by a strong policy on use of generic medicines, could provide savings for cardiovascular disease management in China of between US$ 5 billion and US$ 80 billion over 10 years. Additional savings would accrue for other chronic conditions. Similar projections, adjusted for populations, would apply to other countries in the Region.

There are significant gaps in the development of resources supporting use of medicines and assistive devices for chronic conditions in older people that need to be addressed. These include the development of objective information for health workers and older people, educational programmes to improve health and medicine literacy, and while now trialled in some countries, development and implementation of self-management programmes. Policy options for improving access to assistive devices include the development of guidelines for the analysis of country needs and device selection, the development of appropriate provision, delivery and financing of assistive devices, and the promotion and awareness of assistive devices to older people, carers and health professionals.

Improving pharmaceutical and health information systems would assist in monitoring progress. While Malaysia uses surveys and registries for monitoring medicine use (suitable model for middle-income countries), the Republic of Korea uses electronically linked data with real-time feedback (suitable for high-income countries). The development of the Asian Pharmacoepidemiology Network may further support capacity-building for medicine utilization monitoring in the Region.
1. Background

The Western Pacific Region of the World Health Organization comprises a population of 1.8 billion people from 37 countries and areas. Population ageing is a key public health challenge confronting the Region. The proportion of people aged over 60 years is increasing at a faster rate than any other age group, a result of declining fertility rates and longer life expectancies (1). The growth in the number of older people is a consequence of the success of public health and development policies. The challenge now is to maximize the health, functional capacity, social participation and security of older people. This requires developments in health and social system infrastructure and services. The window of time available to develop policies, programmes, infrastructure and services to meet the social and health needs of the ageing population is relatively narrow because of the rapid rise in the proportion of the population that is older.

Attention to the health needs of older people is especially timely in the context of universal health coverage. Universal health coverage is a critical component of the post-2015 agenda, bringing together various health and development efforts to ensure health and well-being for all at all ages and that no one is left behind. A key dimension of this agenda relates to the availability, accessibility, acceptability and quality of essential medicines and assistive devices for older people. It is also timely in the context of ongoing efforts by Member States, WHO and other partners to respond to the health implications of population ageing in the Western Pacific Region. The Regional Framework for Action on Ageing and Health in the Western Pacific (2014–2019) was endorsed by the 64th session of the WHO Regional Committee for the Western Pacific in October 2013 (1). One of the four action pillars of the Framework relates to reorienting health systems and strengthening their responsiveness to the needs of older people and is fully aligned with the universal health coverage agenda. This report builds on these frameworks and analyses nine key issues concerning access to essential medicines and assistive devices that meet the needs of older people in the context of universal health coverage in the Western Pacific Region.

Older people’s needs with regards to the availability of essential medicines and assistive devices are related to their morbidity profile. The burden of chronic disease in older people in the Region is significant, as it represents 80% of the total burden of disease in older people aged 60 years or over. Chronic conditions contributing to the burden include ischaemic heart disease, stroke, chronic lung disease, osteoarthritis, dementia and diabetes (1). In low-income, lower-middle-income and upper-

Table 1: Overview of WHO initiatives in ageing and health and essential medicines

<table>
<thead>
<tr>
<th>Year</th>
<th>Focus (Global/ Regional)</th>
<th>Agencies involved</th>
<th>Title of document and reference</th>
</tr>
</thead>
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<tr>
<td>2015</td>
<td>Western Pacific Region</td>
<td>WHO Western Pacific Regional Office</td>
<td>Regional action framework on Universal health coverage: moving towards better health (103)</td>
</tr>
<tr>
<td>2014</td>
<td>Global</td>
<td>WHO</td>
<td>WHO and Health Action International: Data base of medicine prices, availability, affordability and price comparisons (3)</td>
</tr>
<tr>
<td>2014</td>
<td>Western Pacific Region</td>
<td>WHO Western Pacific Regional Office</td>
<td>Regional framework on ageing and health in the Western Pacific (2014-2019) (1)</td>
</tr>
<tr>
<td>2013</td>
<td>Global</td>
<td>WHO</td>
<td>WHO list of essential medicines</td>
</tr>
<tr>
<td>2012</td>
<td>Global</td>
<td>WHO</td>
<td>WHO vaccines against influenza (62)</td>
</tr>
<tr>
<td>2011</td>
<td>Global</td>
<td>WHO and World Bank</td>
<td>World report on disability (70)</td>
</tr>
</tbody>
</table>

1 American Samoa, Australia, Brunei Darussalam, Cambodia, China, Cook Islands, Fiji, French Polynesia, Guam, Hong Kong Special Administrative Region (China), Japan, Kiribati, the Lao People’s Democratic Republic, Macao Special Administrative Region (China), Malaysia, the Marshall Islands, the Federated States of Micronesia, Mongolia, Nauru, New Caledonia, New Zealand, Niue, the Commonwealth of the Northern Mariana Islands, Palau, Papua New Guinea, the Philippines, Pitcairn Islands, the Republic of Korea, Samoa, Singapore, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Viet Nam, Wallis and Futuna.
middle-income countries, cardiovascular disorders are the leading contributor to the burden of disease.

In the majority of lower-middle-income and upper-middle-income countries, diseases of the sensory organs (vision and hearing) account for the second greatest contributor to the burden of disease (1). Mobility challenges are also an issue for older people in the Region. In surveys, 20–30% of older people living in the Western Pacific reported moderate, severe or extreme difficulty in moving around. Falls also cause a high burden of disease and account for significant health costs in all countries (1).

As populations age, the prevalence of chronic disease increases, as does the prevalence of coexisting chronic disease, sometimes referred to as multimorbidity. A consequent challenge for the Region is the management and treatment of people living with multiple chronic illnesses.

Medicines and assistive devices are essential elements in the therapeutic management of older people with chronic illnesses. This report focuses on the issues concerning access to essential medicines and assistive devices that meet the needs of older people in the Western Pacific Region.

1.1 Objectives

The objectives of this study were to:
(1) analyse the Region-specific issues, needs and gaps with regard to the availability, accessibility and quality of essential medicines and assistive devices for older people; and
(2) identify current policies, practices and lessons learnt in the Region, where applicable, as well as policy options and priority actions of particular relevance to low- and middle-income countries in the Western Pacific Region.

1.2 Scope

This review covers literature published in English since 2000 concerning medicines or assistive devices for older people in countries and areas in the Western Pacific Region. The review includes published academic literature as well as government reports and grey literature. Details of the search strategy, including databases searched and search terms, can be found in Annex 1. Four broad categories of studies were found as follows:

(a) WHO resources on essential medicines, assistive devices and ageing (e.g. references 1-2, 29-30, 34-35, 48, 62, 64, 70-71, 98-100, 103);
(b) Additional multi-country studies and resources (e.g. references 3-6, 10, 17, 21-22, 24, 31, 42, 52, 60, 69, 73);
(c) National resources including national reports compiled by government and other agencies (e.g. references 11-12, 15-16, 36, 46-47, 49-50, 65, 74, 76, 79, 97); and
(d) Smaller scale research studies, mostly conducted in one country (e.g. references 7-9, 13-14, 18-20, 23, 25-28, 32-33, 37, 39, 40-41, 43-45, 53, 55-59, 66-68).

In examining the literature, the focus was on whether medicines used to treat common chronic conditions in older people were available in the Region, as indicated by their listing on the national formularies and their availability in the public and private sector. Where materials were available, access barriers to essential medicines and assistive devices for older people and for the general population were examined. Access barriers included lack of rational selection of essential medicines and assistive devices, lack of effective pricing policies, poorly managed procurement systems, lack of sustainable coverage programmes and lack of adequate and reliable health and pharmaceutical information systems. Search for age-specific access barriers, such as medicine packaging or font size of printed material, social isolation, reduced mobility, and lack of social protection for older people was made. Analysis of what is known about quality use of medicines for chronic conditions in older people in the Region was included and what supporting infrastructure and educational or professional resources specific to the needs of older people were offered. Finally, based on the evidence reviewed, gaps in current practice as well as interventions from the Region that may support appropriate use of essential medicines for chronic conditions for older people were identified.
2. Availability and access to essential medicines

2.1 Availability of medicines for chronic conditions on the national essential medicines list or national formulary

Medicines for chronic conditions that contribute to the largest burden of disease in older people, cardiovascular diseases and diseases of the sensory organs, are listed on the essential medicines list or national formulary for all countries in the Western Pacific Region. Medicines for osteoporosis, macular degeneration and dementia, examples of chronic conditions specific to older people, are rarely on national formularies in countries in the Western Pacific Region.

Essential medicines for most chronic diseases in the older population are listed in the *WHO Model List of Essential Medicines* (2). Most countries in the Region have adopted a national essential medicines list. Medicines for chronic conditions that contribute most to the burden of disease in the Region—cardiovascular disease, diabetes and diseases of the sensory organs—are available on the national essential medicines lists or formularies for all countries in the Western Pacific Region (Table 1).

Conditions not yet identified as a major contributor to the burden of disease in the Region but likely to become an increasing burden in the future include osteoporosis, dementia and macular degeneration. Medicines for dementia and osteoporosis (other than calcium and cholecalciferol) are not in the WHO essential medicines list, however, medicines for dementia have limited or uncertain efficacy and may not be considered as appropriate for inclusion. Bevacizumab as a treatment for macular degeneration was added to the WHO complementary medicines list in 2013. High-income countries in the Region, such as Australia, include medicines for dementia, osteoporosis and macular degeneration in their national formularies. Low- and lower-middle-income countries, such as many Pacific island countries, Malaysia and Viet Nam, do not have these medicines in their list. Osteoporosis medicines were listed in some provincial formularies in China and on the Philippines’ essential medicines list. Medicines for dementia are also in the Philippines’ essential medicines list (Table 2). All or some of these medicines may be available in the private market, but this was not ascertained.

2.2 Availability of medicines for older people: in stock

Despite being listed in the essential medicines list, medicines for chronic conditions that contribute to the largest burden of disease in older people—cardiovascular diseases and diseases of the sensory organs—are sometimes out of stock in both public and the private sector services in most countries in the Western Pacific Region.

Although not specifically looking at the availability of medicines for older people, medicine price and availability surveys in Western Pacific Region countries provide information on availability of medicines for chronic conditions.
### Table 2. Inclusion in the essential medicines list or national formulary of medicines for chronic diseases that account for the majority burden of disease in the Western Pacific Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Cardiovascular diseases</th>
<th>Diabetes</th>
<th>Sensory diseases</th>
<th>Respiratory diseases</th>
</tr>
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<tr>
<td></td>
<td></td>
<td>Anti-platelet</td>
<td>ACE</td>
<td>ARB</td>
<td>Beta blocker</td>
</tr>
<tr>
<td>Australia</td>
<td>2014</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2012</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>China</td>
<td>2011</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
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<tr>
<td>Cook Islands</td>
<td>2007</td>
<td>yes</td>
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<tr>
<td>Fiji</td>
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<td>yes</td>
<td>yes</td>
<td>no</td>
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<tr>
<td>Kiribati</td>
<td>2009</td>
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<td>yes</td>
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<td>Niue</td>
<td>2006</td>
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<td>Viet Nam</td>
<td>2013</td>
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</tbody>
</table>

ACE, angiotensin-converting enzyme; ARB, angiotensin II receptor blockers; Ca, calcium; COPD, chronic obstructive pulmonary disease

* Year of publication of essential medicines list or national formulary reviewed

### Table 3. Availability on the essential medicines list or national formulary of medicines for future high-burden chronic conditions in the Western Pacific Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Osteoporosis</th>
<th>Dementia</th>
<th>Macular degeneration</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>2014</td>
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<td>yes</td>
<td>yes</td>
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<tr>
<td>Cambodia</td>
<td>2012</td>
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<td>China (some provincial lists only)</td>
<td>2011</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>2007</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Fiji</td>
<td>2013</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Kiribati</td>
<td>2009</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2008</td>
<td>no</td>
<td>no</td>
<td>no</td>
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<tr>
<td>Nauru</td>
<td>2010</td>
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<tr>
<td>Niue</td>
<td>2006</td>
<td>no</td>
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</tr>
<tr>
<td>Palau</td>
<td>2006</td>
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<td>2008</td>
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<tr>
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<td>2007</td>
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<tr>
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<td>2008</td>
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<tr>
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<td>2007</td>
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</tr>
<tr>
<td>Viet Nam</td>
<td>2013</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>2013</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>

* Year of publication of essential medicines list or national formulary reviewed
Variable availability was reported in the private sector in Fiji in 2004 (public sector not assessed) and in the public and private sectors in Malaysia in 2004, in an unnamed low-middle-income country in the Western Pacific Region in 2005, in the Philippines in 2005, in an unnamed Pacific island country in 2007, in Shaanxi Province (China) in 2012, and in Mongolia in 2012 (3). All of the surveyed medicines were rarely available in 100% of services assessed; however, at least one medicine was usually available to treat cardiovascular conditions or diabetes, although not all classes of medicines for cardiovascular conditions were available. Fig. 1 and Fig. 2 show the median availability, indicated by the bars of the graph, of any medicine (innovator brand or generic) for chronic conditions, while the error bars indicate the range of availability among the services surveyed. The Pacific island country surveyed and Malaysia had the highest levels of availability in the public sector; however, the survey results were more than five years old and may not represent current practice. In some countries, availability was higher in the private sector, but in others, availability was higher in the public sector. The surveys may be limited if they included medicines not listed in the national essential medicines lists. The extent to which this was the case was not ascertained; the effect would be an underestimate of availability in cases where estimates are zero.

**Fig. 1. Median availability (and range of availability) of medicines for chronic conditions, selected countries in the Western Pacific Region, public sector, 2004–2012**

![Fig. 1](image1)

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

*Data included either generic or innovator brand medicine, whichever was more available.

Source: World Health Organization and Health Action International (3).

**Fig. 2. Median availability (and range of availability) of medicines for chronic conditions, selected countries in the Western Pacific Region, private sector, 2004–2012**

![Fig. 2](image2)

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

*Data included either generic or innovator brand medicine, whichever was more available.

Source: World Health Organization and Health Action International (3).
When examining availability of medicines for specific chronic conditions, medicines for cardiovascular disease were usually less available in the public sector than in the private sector (Fig. 3). There was greater variability in the availability of diabetes medicines among countries: availability was particularly low in Shaanxi Province (China) and Mongolia (Fig. 4). There was significant variability in availability of medicines for neuropsychiatric disorders and respiratory disorders (Fig. 5 and Fig. 6). For respiratory disorders, short-acting bronchodilators, which are used intermittently for symptom relief, were more commonly available than preventive corticosteroid inhalers. There was also significant variability in availability of nonsteroidal anti-inflammatory drugs (NSAIDs) and simple analgesics (see Annex 2; Fig. A2-1). Medicines for gastro-oesophageal reflux disease or gastric ulcer were frequently available in all countries, particularly in the private sector (see Annex 2; Fig. A2-2).

![Fig. 3. Median availability (and range) of medicines for cardiovascular disease, selected countries in the Western Pacific Region, public and private sectors, 2004–2012*](image)

**Notes:** BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

* Data included either generic or innovator brand medicine, whichever was more available.

Source: World Health Organization and Health Action International (3).

![Fig. 4. Median availability (and range) of diabetes medicines, selected countries in the Western Pacific Region, public and private sectors, 2004–2012*](image)

**Notes:** BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

* Data included either generic or innovator brand medicine, whichever was more available.

Source: World Health Organization and Health Action International (3).
Fig. 5. Median availability (and range) of medicines for neuropsychiatric disorders, selected countries in the Western Pacific Region, public and private sectors, 2004–2012

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

Data included either generic or innovator brand medicine, whichever was more available.
Source: World Health Organization and Health Action International (3).

Fig. 6. Median availability (and range) of medicines for respiratory disorders, selected countries in the Western Pacific Region, public and private sectors, 2004–2012

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

Data included either generic or innovator brand medicine, whichever was more available.
Source: World Health Organization and Health Action International (3).

A published analysis of data collected as part of medicine price and availability surveys in 40 developing countries, including five countries of the Western Pacific Region: China (2 sites), Fiji, Malaysia, Mongolia and the Philippines, support the results presented above (4). In that study, the mean availability of medicines for chronic conditions in the public sector ranged from 28% for antidepressants to 52% for antiulcerants, while the mean availability of medicines in the private sector ranged from 40% for antiepileptics to 83% for antiulcerants (Fig. 7). Antiulcerants, antidiabetics and antihypertensive medicines were the three most frequently available medicines in the public and private sectors (4). With regard to antihypertensive medicines, another published study based on data from medicine price and availability surveys in 36 developing countries, including the five Western Pacific Region countries above-mentioned, showed that atenolol was the most commonly available cardiovascular medicine across all countries studied (average availability 39%), with captopril (average availability 32%) and hydrochlorothiazide (28%) being the next most commonly available products (5).
The results presented in this section of the report demonstrate that while medicines for chronic conditions that contribute to the highest burden of disease for older people may be listed in the essential medicines lists in countries in the Region, the medicines might not be present in services and thus not available for use. Lack of availability may have a significant effect on a country’s desire to meet the health needs of older people. Of the countries where data were available, the Pacific island country and Malaysia had the highest levels of availability, while Shaanxi Province in China, Mongolia and the Philippines had lower levels of availability of medicines for chronic conditions. It should be noted that country data are not fully comparable because the baskets of medicines surveyed differed between countries. For some countries, where data were more than five years old, the results might not be reflective of current practice. Also, data were unavailable for the majority of countries in the Region and thus, availability in many countries could not be assessed. One of the factors that may contribute to limited availability of medicines in services is a country’s procurement practice. The next section of this report examines the literature concerning procurement prices and practices in the Region.

2.3 Procurement price

Inefficient procurement practices may result in prices paid for medicines that are above international reference prices. Data from medicine price and availability surveys in six Western Pacific Region countries (namely, China [2 sites], Fiji, Malaysia, Mongolia, the Philippines and Viet Nam) show that procurement prices for lowest priced generic medicines in the Western Pacific Region are about 45% more than the international reference prices (6, 7). Analysis of data from 2005 from Viet Nam shows that the median public procurement price of the 19 lowest priced generic medicines for chronic conditions was more than double (2.3 times) the international reference price (8). The median public procurement prices in Viet Nam for generic medicines for chronic conditions are shown in Fig. 8. The prices paid for medicines for cardiovascular disease and diabetes varied widely, with ranges of up to 17 and 10 times, respectively, of the international reference price.

Fig. 7. Availability (present in store on day of survey) of medicines for chronic diseases in 40 developing countries, 2003–2008

Notes: N = number of medicines.
Source: Cameron et al, 2011 (4).

<table>
<thead>
<tr>
<th>Medicine Type</th>
<th>N</th>
<th>% Public</th>
<th>% Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antacid</td>
<td>2</td>
<td>83</td>
<td>52</td>
</tr>
<tr>
<td>Antihypertensives</td>
<td>5</td>
<td>52</td>
<td>66</td>
</tr>
<tr>
<td>Antidiabetics</td>
<td>3</td>
<td>43</td>
<td>50</td>
</tr>
<tr>
<td>Antiasthmatics</td>
<td>2</td>
<td>35</td>
<td>57</td>
</tr>
<tr>
<td>Antiepileptics</td>
<td>2</td>
<td>40</td>
<td>43</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>2</td>
<td>28</td>
<td>45</td>
</tr>
</tbody>
</table>
Further support for the argument that higher prices are paid for medicines for chronic conditions in the Western Pacific Region comes from the medicine price and availability surveys (2), which also show that countries in the Western Pacific Region pay about twice the international reference price for the lowest priced generic medicines for chronic conditions (range: 0.2 to 41) (Fig. 9) and about 12 times the international reference price for innovator brand products for chronic conditions (range: 1 to 119) (Fig. 10). The Pacific island country surveyed and Malaysia had the least variation in prices paid, while the low-middle-income country surveyed, Shaanxi Province (China), and the Philippines had wide price variations for both generic and innovator brand products. Price variations for generic medicines in Mongolia were also wide. Insufficient data were available to conclude about brand prices in Mongolia.

Conference reports provide further support for the argument that high prices are paid for medicines used to treat chronic conditions in the Western Pacific Region. In the Philippines, in 2008 and 2009, Department of Health hospitals reportedly had greater procurement efficiency than provincial and municipal hospitals. However, most hospitals were procuring medicines at prices much higher than the international reference price. For example, diazepam, a medicine for anxiety disorders, and fluoxetine, an antidepressant, were purchased at prices that were 13–40 times higher than the international reference price (9).

A 2008 study comparing ex-manufacturer prices of generic medicines in 16 countries in the Organisation for Economic Co-operation and Development (OECD) found that the prices of generic medicines in the Republic of Korea, adjusted for GDP purchasing power parity, were higher than in other OECD countries (10).

In Malaysia, the 2011 medicine price monitoring survey showed that the median wholesale price was 1.9, 6.7 and 2.9 times higher than the median international reference price in government hospitals, private hospitals and retail pharmacies, respectively, (no data publicly available for specific medicines) (11).
Fig. 9. Public sector procurement prices of generic medicines for chronic conditions, selected countries in the Western Pacific Region, 2004–2012

Notes: GREEN DOT = median ratio to the international reference price; ERROR BAR = range of ratios to the international reference price; N = number of medicines; LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).

Fig. 10. Public sector procurement prices of innovator brand medicines for chronic conditions, selected countries in the Western Pacific Region, 2004–2012

Notes: GREEN DOT = median ratio to the international reference price; ERROR BAR = range of ratios to the international reference price; N = number of medicines; LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).
2.3.1 Factors contributing to inefficient procurement

**Procurement systems**

In the previous section, the high prices that are paid by countries in the Western Pacific Region for both generic and innovator brand medicines compared to the international reference prices was highlighted. One factor affecting medicine prices might be procurement systems.

In Viet Nam, a decentralized procurement system is in place for hospitals to purchase medicines, and hospitals are not required to adopt a uniform purchasing approach. This system has been associated with wide variation in prices paid by hospitals in Viet Nam for diabetes (12).

Another factor that can contribute to inefficient procurement is failure to purchase cheaper medicines when they are available. One study found that six countries including Viet Nam were purchasing analogue insulin formulations instead of human insulin, even though they were 3–13 times more expensive, thereby failing to achieve the maximum value for the resources available. In addition, they were purchasing newer treatments for type 2 diabetes, which cost up to 40 times more than the older treatments of metformin and sulphonylureas, both of which are equally efficacious alternatives (13).

**Health system governance**

Health system governance issues of transparency and accountability may also affect medicine prices. Lack of transparency and accountability in the pharmaceutical sector is a common issue in low- and middle-income countries. A study in Viet Nam found that the provision of so-called kickbacks, which was able to occur due to limited transparency and accountability, contributed to inflated medicine prices; the final medicine price was inflated by 3–30% as a result of inducements to procurement officers within hospitals to purchase the medicine (8).

Procurement management is another governance issue affecting access to medicines. In the Pacific island country surveyed, medicines were found to be either in stock (100% availability) or out of stock. Similarly, in Palau, poor procurement management was a main reason provided for the chronic outage of essential medicines (14). Lack of human resources, difficulty in distribution due to geographical setting, lack of organization and supervision, and lack of quality assurance system for pharmaceutical goods were the major constraints faced by Vanuatu (15). In Palau, the creation of an essential medicine list, a pharmacy inventory system and mandatory obligatory funding led to a major reduction in essential medicine stock-outs (14).

**Generic medicines versus innovator brands**

The purchase of generic medicines versus innovator brand products also plays a role in efficient procurement. In general, branded products are more expensive than generic products, and the failure to procure generic products where they are available may contribute to less purchasing power overall due to budget caps. The surveys of medicine price and availability in the Region show that in the public sector, most countries surveyed have greater availability of generic medicines than innovator brand medicines for treatment of chronic conditions (Fig. 11). The survey on medicine price and availability in the Pacific island country found that all the medicines for cardiovascular disease and diabetes were available only as generic products. However, salbutamol for respiratory disorders and omeprazole for gastric ulcer and gastro-oesophageal reflux disease were available only as the innovator brand products in the public sector. Overall, innovator brand products were more likely to be available in the private sector than in the public sector; however, in most countries surveyed, except the Philippines, generic medicines were more commonly available than innovator brand medicines for treatment of chronic conditions (Figs. 11–12).
The extent of implementation of policies supporting generic medicine use is variable across the Region. Viet Nam adopted a national medicine policy in 1996, however, a strategy to develop and promulgate a national generic medicines policy was only developed in 2009 (16). In Malaysia, the 2007 national medicines policy included a generic medicines policy. The use of generic names when prescribing medicines is gradually improving, with 54% of medicines prescribed by generic names in public hospitals and clinics in 2011 compared to 49% in 2008; however, other components of the policy such as generic substitution in community pharmacies have not been fully implemented (17, 18). In Japan, generic substitution is being strongly encouraged as generic drug prescriptions accounted for only 18% of the total prescriptions in 2008 (19). In Australia, a number of pricing reforms including compulsory price disclosure of generic medicines by manufacturers have been implemented in recent years to decrease the price of generic medicines and increase their utilization (20).

**Fig. 11.** Median availability of generic and innovator brand medicines for chronic conditions in the public sector, selected countries in the Western Pacific Region, 2004–2012

![Fig. 11.](image)

Notes: N = number of medicines; LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).

**Fig. 12.** Median availability of generic and innovator brand medicines for chronic conditions in the private sector, selected countries in the Western Pacific Region, 2004–2012

![Fig. 12.](image)

Notes: N = number of medicines; LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).
Substandard or counterfeit medicines

One other factor that contributes to inefficient procurement is the purchase of substandard or counterfeit medicines. The extent to which counterfeit or substandard medicines circulate in the Western Pacific Region is uncertain due to limited data. Reports from the Philippines suggest that 10% of marketed medicines are counterfeit (21), and that an antihypertensive (Adalat GITS 30 mg) and an antiasthma product (Ventolin expectorant syrup) were the top two counterfeited medicines (22), however, the year the data were collected is unknown. In Malaysia, a study in 1997 by the Ministry of Health found that 5.3% of sampled medicines were counterfeit. In line with this finding, the Pharmaceutical Services Division announced that 5.3% of all over-the-counter medicines on sale in Malaysia in 2008 were counterfeit (21). The proportion of counterfeit medicines that was for chronic disease was not reported. In Cambodia, a study in 2010 found that counterfeiting was not limited to essential medicines, but that new products were also targeted. Of the samples analysed, including omeprazole for chronic peptic ulcer, between 9% and 23% failed the different tests applied (23). The extent of counterfeiting of medicines for chronic diseases is understudied in the Western Pacific Region as well as globally. A systematic review of studies on substandard and counterfeit medicines identified 44 studies, with 15 studies of high quality (24). Only two of these 15 studies included medicines for chronic diseases, such as salbutamol, in their sampling process. Future monitoring of medicines quality will need to include medicines for chronic conditions given the increasing use of medicines to treat chronic conditions.

Policy measures and resources

The potential for policy implementation to effect procurement prices was studied in China. After the initial implementation of the National Essential Medicine Policy in 2009, decreases in availability of lowest-priced generic medicines in both the public and private sectors were found in 2012, from already low availability in 2010, despite lower prices (25). Insufficient funding and inadequate procurement systems were considered possible reasons for these findings. The study had some limitations. In particular, as argued by Hogerzeil & Jing (26), the standard basket of essential medicines in the survey may not have been representative of usual prescribing practices in China. They also argued that other studies in China have shown a positive effect on access to medicines on the basis of price reduction (26). Restricting the reimbursement of medicines to the list of essential medicines, limiting the level of reimbursement to the median or mean price of available generic products of assured quality, linking reimbursement to compliance with treatment guidelines, and stopping the cross-subsidization of health services by the sale of expensive medicines have been proposed as mechanisms that would improve access to essential medicines in China (26). In community health services in Beijing, a zero mark-up policy (no mark-up is allowed), seemed to be effective in containing the rapid growth of medicine costs (27). However, despite the zero mark-up policy and government-led bidding platforms for online purchasing of essential medicines, widespread corruption has been reported in the bidding process, as well as purchase of medicines of inferior quality (28).

In the Philippines, the Philippines Drug Price Reference Index requires all public health services to adhere to a ceiling purchase price for all medicines listed in the national formulary. Evaluation of this project has not yet been reported (29).

One resource now available to support improved procurement practices in the Region is the Price Information Exchange (PIE), an initiative of the WHO Regional Office for the Western Pacific in collaboration with the University of the Philippines Manila – Telehealth Center (30). The exchange aims to provide comparative information on procurement prices for selected medicines across the Western Pacific Region that can be used by procurement staff in Member States when negotiating prices with suppliers. Evaluation of the success of this initiative has not yet been reported.
The results of this section show that factors contributing to inefficient procurement include issues of health systems governance such as the failure to purchase cheaper products where they were available (e.g., Viet Nam), the purchase of innovator brand products where generic products were available, poor procurement management resulting in purchases not made in a timely manner, the presence of counterfeit substances, and the lack of transparency and accountability for purchasing, which may result in kickbacks that further inflate prices. The medicine price and availability surveys showed that in most countries generic medicines were more likely to be available than innovator brand products in the public sector. However, for some medicines, innovator brand products were available and no generic equivalent was available, suggesting there may still be room for improvement. Greater availability of innovator brand products was observed in the private sector, which was also where higher procurement prices were observed. The payment of high procurement prices has flow-on costs for patients. In the next section, the prices paid by patients for medicines for chronic conditions were examined.

2.4 Prices paid by patients

Patients in the Western Pacific Region pay prices for medicines that are more than 10 times higher than the international reference price.

Patients in Viet Nam pay prices for medicines that are more than 10 times higher than the international reference price. Results for China were similar, with prices paid by patients at least five times higher than the international reference price.

Medicines make up 48% of all out-of-pocket costs for consumers in the Lao People’s Democratic Republic and 37% in Viet Nam.

The World Health Survey reported that medicines constitute the largest component of out-of-pocket payments for health care, representing a median of 42% of all out-of-pocket costs in low-income countries, with the proportion rising as country income decreases (31, 32). Medicine prices are a major access barrier for the population generally, and for the older age group particularly because of the higher burden of disease in that age group. Medicines are unaffordable for large sectors of the population in low- and middle-income countries, especially for those who lack social protection or insurance (7).

With regard to countries in the Western Pacific Region, out-of-pocket costs for medicines as a percentage of all out-of-pocket costs for consumers were 48% in the Lao People’s Democratic Republic, and 37% in Viet Nam, the two countries for which information was reported (31, 32). A study assessing insulin access in Viet Nam found that many families with diabetic patients would need to get a loan (52%) or sell assets (21%) to fund diabetes care and treatment (33).

By comparison, a Chinese study reported the median costs of medicines for treatment of cardiovascular disease were affordable for most people because the rural health insurance system covered 30% of medicines purchased from township hospitals. The combination of two antihypertensive medicines and aspirin cost patients approximately US$ 2.66 per month. However, use of statins for lowering lipid levels was uncommon, and costs were considered a reason for limited statin use (34).
The medicine price and availability surveys undertaken in the Western Pacific Region revealed excessive prices to patients in both the public and private sectors (Figs. 13–14). Among the countries surveyed, China, the Philippines and the lower-middle-income country surveyed appear to have the biggest excess price to patient in the public sector at the time the data were collected (Fig. 13). Overall, patients were paying more for innovator brands in the public-sector services than in private pharmacies. The Pacific island country surveyed and Malaysia provide medicines free of charge to patients in the public sector, thus, limiting patient vulnerability to financial stress due to medicine costs. In the private sector, excessive prices compared with the international reference price were observed in all countries (Fig. 14). The prices in the following figures were not adjusted for year of data collection or for international purchasing price parity, thus, current prices to patients are not available.

**Fig. 13. Prices to patients of medicines for chronic conditions in the public sector, selected countries in the Western Pacific Region, 2004–2012**

![Graph showing prices in the public sector](image1)

Notes: LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).

**Fig. 14. Prices to patients of medicines for chronic conditions in the private sector, selected countries in the Western Pacific Region, 2004–2012**

![Graph showing prices in the private sector](image2)

Notes: LMIC, lower-middle-income country.
Source: World Health Organization and Health Action International (3).
A published secondary analysis of data from the medicine price and availability surveys in 36 low- and middle-income countries, including five countries in the Western Pacific Region: China (two sites), Fiji, Malaysia, Mongolia and the Philippines, support the results presented above. According to that study, the median patient price across a basket of 15 lowest priced generic medicines, 10 of which were for chronic conditions, was 12 times higher in the public sector and 11 times higher in the private sector than the international reference price (6). The median patient price for lowest priced generic glibenclamide 5 mg was 57 times higher than the international reference price in the public sector and 35 times higher in the private sector. For the innovator brand of this antidiabetic medicine, the median patient price in the private sector was 100 times higher than the international reference price (6). The reasons for the price differences were not reported.

A 2005 Vietnamese study provides further support that patients are paying high prices for medicines for chronic conditions. The price to patients for the lowest priced generic medicines for chronic conditions in the public sector was 13 times higher than the international reference price (8). Of the 19 lowest priced generic medicines for chronic conditions (with data on prices available) in the public sector, 16 medicines were priced more than 10 times higher than the international reference price. Examples include a medicine for diabetes (36 times), a lipid-lowering medicine (32 times), an antihypertensive (30 times), an antiulcerant (27 times), and a diuretic (26 times). When originator brands were prescribed, patients sometimes paid prices that were more than 100 times higher than the international reference price. Examples include the antiulcerant, omeprazole (124 times), and the antihypertensive, atenolol (118 times) (8).

Older people are particularly vulnerable to the impact of out-of-pocket payments. As their burden of chronic disease increases, they are likely to require multiple medicines and so their out-of-pocket costs increase (35). In the absence of adequate health insurance protection, this may mean older people forgo necessary medicines due to costs or sacrifice other essential goods and services (1). In the next section, information on whether older people in the Region have access to subsidized medicines or whether older people have lower copayments where subsidy schemes exist are reviewed.

### 2.5 Health financing schemes

Subsidization of medicines for older people is implemented in China, Malaysia, the Philippines and the Pacific island country surveyed. Subsidization of medicines for poor, older people is implemented in Cambodia and Viet Nam.

In 2005, the Fifty-eighth World Health Assembly adopted a resolution urging Member States to develop health financing mechanisms in an effort to achieve universal coverage and to prevent impoverishment of individuals seeking care (36). Health financing and social assistance schemes can reduce the burden of costs of medicines for chronic conditions in older people. With regard to the Western Pacific Region, literature relating to subsidized medicine for either older people or the poor in low- and middle-income countries was located for Cambodia, China, Fiji, the Lao People’s Democratic Republic, Malaysia, some Pacific island countries, the Philippines and Viet Nam.

**Cambodia**

In Cambodia, the Ministry of Health adopted a National Policy on Health Care for Elderly and Disabled People in 1999 (37). The Policy identifies the need, among others, for ensuring sufficient medicines for older people, and providing free medical treatment to older people with disabilities and those who are unable to support themselves. Health equity funding for the poor has led to the consolidation of a number of nongovernmental health funding schemes under the government’s social health protection structure (38). However, high reliance on donors and insufficient government budget for funding medicines means that consumers are still paying out of pocket for pharmaceuticals (39).
China
In 2009, China announced a plan to achieve universal access to health care by 2020. It included the adoption of a National Essential Medicines Policy and the establishment of three different types of health insurance: Urban Employee Basic Medical Insurance (UEBMI), Urban Resident Basic Medical Insurance (URBMI), and New Cooperative Medical Scheme (NCMS), targeting different population groups (40, 41). Reimbursement of costs associated with essential medicines varies according to the insurance scheme. The NCMS for rural residents provides free screening for cardiovascular disease and covers the costs of up to 17 essential medicines for four chronic diseases, namely, hypertension, diabetes, coronary heart disease and stroke. By the end of 2009, NCMS covered 833 million rural residents, accounting for over 90% of the total rural population. Between 2008 and 2010, 45% of rural residents aged 40 years or older were screened for the four chronic diseases, and 85% of those who screened positive received free medicines. Accessibility and affordability improved while total medical spending and out of pocket per case had not increased (42).

Fiji
In Fiji, all medicines on the essential medicines list are provided free of charge in public health services. Consumers are not reimbursed for medicines purchased in the private sector (43).

2.5.4 Lao People’s Democratic Republic
The Lao People’s Democratic Republic has a strategy to increase health allocation for the poor through implementation of community health insurance schemes. Membership is voluntary. Family premiums are set by the Government and are approximately US$ 2–3 per month, although rates are different in rural and urban areas (amounts not reported). Under the scheme, medicines in the essential medicines list are provided free of charge in public health services. The scheme was announced in 2005, and by late 2006 five community health insurance schemes were in operation. However, published literature suggests only around 2.2% of the population are covered by these schemes. The effect on access to medicines was not reported (32, 44).

Malaysia
The Malaysian population, including older people, have free access to essential medicines in the public sector. Medicines are not subsidized in the private sector. The lack of a universal funding scheme and the fragmentation of primary health care services into public and private sectors was considered a limitation of care for older people who often have complex health needs (45).

Mongolia
In Mongolia, national policy ensures that some medicines are provided free of charge at public primary care services and to patients with chronic diseases requiring long-term treatment (46). However, the national Health Insurance Fund has had difficulty in adequately covering the costs of essential medicines. A Drug Discount Program to reduce costs of medicines purchased from pharmacies was implemented in 1994, but it reached only 7% of the Mongolian population in 2012 (46).

Philippines
The National Health Insurance Program (NHIP), which was launched in the Philippines in 1995, historically provided insurance benefits primarily for inpatient care. In November 2014, as an outcome of the National Health Insurance Act of 2013, Filipino citizens over the age of 60 years were granted automatic coverage under NHIP. The insurance covers the costs of essential medicines for 10 common conditions including for chronic diseases such as asthma, diabetes, hypertension, dyslipidemia and ischemic heart disease (47).

In addition, people older than 60 years are able to access a 20% discount on the retail price of medicines through the Senior Citizen’s Act and associated regulations (48). All pharmaceutical outlets are expected to provide the discount, and are theoretically able to offset some of the cost (7%) through their Value-Added Tax (VAT) returns. However, there is no specific budget line within the Department of Health for offsetting this cost. The remaining 13% is largely borne by retailers who, in response, increase their mark-ups on medicines. The end result is an increase in the price of medicines for all
patients, although some retailers make the distinction between medicines that senior citizens are more likely to use (e.g. medicines for arthritis, dementia) and apply lower mark-ups. The literature suggests many small drugstores fail to give the senior citizen discount and refer patients to the chain drugstores, which results in chain drugstores having a higher older patient burden (48).

2.5.8 Pacific island countries

In many Pacific island countries including Cook Islands, Fiji, Papua New Guinea, Solomon Islands and Tuvalu, older people are provided medicines free of charge by the public health system (49). In practice, access may be impeded by limited availability of essential medicines in the public sector.

2.5.9 Viet Nam

Viet Nam has a number of policies regulating access to health services and medicines for the older population. Under the current Vietnamese health insurance law, pensioners 60 years of age or over have to pay only 5% of their health examination and treatment cost, with the remainder paid by public health insurance (50). People who are 80 years of age or older and have neither a salary nor a monthly social subsidy are provided with public health insurance free of charge, which entitles them free access to essential medicines (51).

Funding of essential medicines in low- and middle-income countries also relies on private funding by international and charity organizations. “Vertical” or disease-specific programmes supported by international donors have been very successful in delivering both health care and medicines for tuberculosis, malaria and HIV (52). A group of international experts on noncommunicable diseases has proposed that similar schemes should be developed to make medicines for chronic conditions available through the public sector at no cost or at subsidized prices (52).

In this section, it has been shown that in many countries in the Western Pacific Region there are high out-of-pocket costs for patients. While some countries in the Region are moving to health insurance systems, and some have put in place special access schemes for older people, many older people do not have access to subsidized medicines. The lack of availability of medicines, the high cost of purchasing medicines, and the lack of access to doctors and diagnostics services all have the potential to affect medicine use. In the next section of this report, what is known about the extent of use of medicines to treat chronic conditions in older people in the Western Pacific Region will be examined.
3. Use of medicines and assistive devices

3.1 Use of medicines

Medicines for chronic conditions that contribute to cardiovascular disease—the largest burden of disease in older people—are underused, and many people with cardiovascular disease are not receiving treatment.

While only limited data are available, up to 80% of people with cardiovascular disease in low-income countries do not receive any of the recommended therapies, and up to 70% of people diagnosed in lower-middle-income countries do not receive recommended therapies.

Results of studies assessing the use of medicines for treatment of chronic conditions in older people in the Western Pacific Region suggest considerable underuse of recommended therapies, that is, people who may benefit from these medicines do not receive them.

One multinational study, undertaken between 2003 and 2009, assessed the use of recommended medicines in people aged 35 to 70 years with established cardiovascular disease. Overall results showed that up to 80% of people with established cardiovascular disease in low-income countries received none of the recommended therapies, 70% of people in lower-middle-income countries did not receive any recommended therapies, and 45% in upper-middle-income countries did not receive any recommended therapies. This compared with only 10% of people with cardiovascular disease in high-income countries not receiving any recommended therapies. Where medicines were used for treatment, less than 10% of people with established cardiovascular disease in low-income countries used individual medicines. In low-income countries, only 9% used antiplatelet agents, 10% used beta blockers, 5% used angiotensin-converting-enzyme (ACE) inhibitors and 3% used statins. One third of participants in China and one quarter of participants in Malaysia used antihypertensive medicines, and one third of the Chinese participants used Chinese medicines (Fig. 15).

China

In China, compound medicines, which usually combine traditional Chinese medicines and low-dose western medicines, were the most frequently prescribed medicine to people with established cardiovascular disease (59%). People living in rural areas were more likely to use traditional compound medicines than those living in urban areas (69% compared to 49%, P < 0.0001). Among people who were aware of their condition, only 66% were taking antihypertensive medicines, suggesting at least one third of people who were diagnosed were not treated. The rates of use of secondary prevention therapy were higher in urban areas than in rural areas (56% compared to 44%, P < 0.0001 (34)).

This study also showed evidence of undertreatment among individuals on therapy. Of those on monotherapy for hypertension, about one quarter to one third had a blood pressure of 140/90 mm Hg or less, i.e. the standard blood pressure target. Among people using antihypertensive monotherapy, 26% of people using traditional compound medicines achieved the blood pressure target, which compared with 26% of people using medicines affecting the angiotensin system, 28% of people using beta blockers and 35% of people using diuretics (34).

Insight into diagnosis rates and medication adherence in people with established cardiovascular disease was provided by a Chinese study conducted in two towns of the Zhejiang region. Participants were rural residents aged 40 to 75 years enrolled in the rural health insurance scheme, NCMS, which provides free health checks annually (54). Of the people at risk for cardiovascular disease (risk of 20% or
higher), 76% had been diagnosed with a cardiovascular-related disease. Of the people who had taken medicines in the previous two years, 69% had taken recommended cardiovascular medicines. Calcium channel blockers were the most commonly used medicine (used by 38% of the target population), while statins were used by only 1.5% of the population, and aspirin was used by 4% (Fig. 16). With regard to compliance, 38% reported never missing a single dose of medicine, 44% reported missing at least one dose per week, and 19% reported having occasions of stopping treatment for at least a month. The reasons suggested for low use of medicines included belief in traditional therapies, limited knowledge of medicines by doctors, lack of a diagnostic approach considering overall cardiovascular risk, and the cost of medicines.

Another Chinese study assessed hypertension knowledge of more than 1500 respondents from 24 villages in a rural area in north-east China. Eighty per cent of the sample was over the age of 50 years, and 27% were aged over 65 years. Of those with hypertension, 48% reported attending an educational session about hypertension in the last six months, and 84% reported having had their blood pressure checked in the last 12 months. When asked questions on hypertension, only 49% of

**Fig. 15. Medicine use by participants with coronary heart disease or stroke in Malaysia and China, 2005–2009**

![Graph showing medicine use by participants with coronary heart disease or stroke in Malaysia and China, 2005–2009](image)

Notes: ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker. Sources: Yang et al (34, 53).

**Fig. 16. Medicine use in 200 rural residents with high risk of cardiovascular disease who had taken medicines in the last two years, Zhejiang, China, 2010**

![Graph showing medicine use in 200 rural residents with high risk of cardiovascular disease who had taken medicines in the last two years, Zhejiang, China, 2010](image)

respondents with hypertension correctly answered that people with hypertension needed to take their medicines every day, and only 45% correctly answered that hypertension usually lasts for life. Less than 40% correctly answered questions related to the consequences of hypertension, namely, stroke, heart attack, kidney disease or eye problems. People who reported attending a hypertension educational session in the last six months had higher knowledge scores than people who had not. Illiteracy was associated with poorer knowledge scores (55). There is some evidence of inappropriate diabetes medicine use in China. High uptake of new oral antidiabetic medicines in China in comparison to Brazil and Thailand was attributed to systems failures that generated perverse financial incentives, which drove use of the more expensive products (56).

Malaysia
Management of diabetes has been the focus of a number of Malaysian studies. Malaysia has established a registry for diabetes patients, and in 2009, records were held for slightly fewer than 73,000 patients. The registry enables monitoring of medication use. Seventy per cent of the registered patients were managed on biguanides or sulphonylureas, with minimal use of other oral antidiabetic therapies. Only 58% were prescribed antihypertensives, while 42% received lipid-lowering therapy and 28% an antiplatelet. Three per cent of patients practised blood glucose self-monitoring. This registry provides an example of how health care and appropriateness of medicine use for chronic conditions can be monitored in a middle-income country (see crc.gov.my).

An audit of diabetes care at a Malaysian public community clinic found nearly all patients received blood glucose testing and blood pressure monitoring at each visit; however, only 46% had an annual HbA1c test for monitoring long-term blood glucose control. Use of medicines was not reported (58).

A cross-sectional study in Malaysia examined complementary and alternative medicine use in patients with type 2 diabetes; 63% of patients reported using complementary therapy (59). The use of conventional medicine was not surveyed. fifty-eight percent of patients believed using complementary therapy would improve their diabetes control; 17% reported it was easily available and better value for money; and 5% reported they were dissatisfied with western medicines. Although this study surveyed only a small population attending a primary health care clinic in Sepang, Malaysia, and the results should not be generalized for other groups or settings, the results do highlight the fact that ready availability is a factor contributing to the use of complementary therapies. These results may have implications more broadly if conventional therapies are not readily available in countries in the Region.

Another cross-sectional study in Malaysia examined medication labelling literacy among 3851 patients with diabetes (60). More than 30% of respondents were over 60 years of age. Among the participants, men and people living in urban areas were most likely to read medication labels, while people aged 70 years or older were least likely to read labels. While 75% reported reading labels, only 46% reported reading information on dosage, and only 42% reported reading about the method of administration. Among the people who reported reading labels, 97% reported they understood the label information. The majority of respondents, 87%, also reported clarifying information on a label with the person dispensing the medicine; however, people aged 70 years or older were least likely to report clarifying information. The overall prevalence of people who reported not understanding the label and not seeking clarification from the person dispensing the medicine was 29% (60). The results of this study, which was undertaken using data from a national medication use survey, are likely to reflect Malaysian practice, however, the applicability to other countries in the Region is unknown. The results do suggest there is significant potential for incorrect medication use in people with diabetes in Malaysia, and highlight the need to improve health literacy.

Mongolia
In Mongolia, a national survey involving 3450 persons was undertaken to assess awareness of hypertension and hypertension-related disease (57). Half of the respondents were from rural areas. Only 7% were aged 55–64 years, the oldest age group. Seventeen per cent of respondents indicated they
had never heard of hypertension. The majority of respondents did recognize hypertension as a threat to health, with older people, women and people living in urban areas more likely to report correct answers. When barriers to blood pressure monitoring were explored, 47% reported perceiving it was not important, while 30% reported a lack of awareness of the need to be screened. Medication and exercise were perceived to be effective treatments, while diet changes and weight loss were considered less effective (57). This study provides some insight into the educational needs required for improving blood pressure management in Mongolia.

Philippines
A Philippines study undertaken with participants from a major city and a rural area in Luzon Province examined patients’ attitudes to and knowledge of diabetes self-management practices (61). Of the 549 participants, whose mean age was 63 years, 18% were found to be nonadherent with their diabetes medicines. Participant location was one factor associated with nonadherence; city participants reported a higher level of compliance (91%) compared to participants from the rural area (67%). Educational level was another contributing factor; people who had more than 10 years of schooling reported a higher level of compliance (86%) compared to people with 7 - 10 years of schooling (82%) and people with six years of schooling or less (75%) (P = 0.04) (61).

Other studies of appropriateness
Other evidences on the appropriateness of therapy for chronic disease in countries in the Region. A systematic review of 900 studies conducted in 104 low- to lower-middle-income countries up to 2009 found that the proportion of treatment according to standard treatment guidelines in countries in the Western Pacific Region was 35%. The review also found that 76% of prescriptions were for medicines in the essential medicines list, and that 67% of medicines were prescribed by generic name. Overall, however, the studies were small, with sample sizes of between 16 and 38 people. As such, the results may not be generalizable to the Region. The extent to which these studies included treatment of chronic conditions was not reported; however, since many of the studies were undertaken prior to 2000, they more likely focused on management of acute conditions (62).

Small studies examining patient knowledge and understanding of their medicines were found, but if the medicines are related to chronic conditions could not be determined. In the Philippines, a survey of people attending pharmacies in Manila found 56% had an incomplete understanding of their prescriptions; 45% were not able to identify the correct dose of the prescribed medicine, and 26% were not able to identify the name of the drug (63). Illegible prescriptions, prescriptions with an incomplete set of written instructions, and no prior use of the medicine were factors significantly associated with poorer patient understanding.

Data on the appropriateness of use of medicines for chronic conditions in older people in countries in the Western Pacific Region suggest undertreatment of cardiovascular disease and hypertension in China and Mongolia, likely due to lack of knowledge about the diseases. Under-treatment of diabetes is also an issue, with evidence from both Malaysia and the Philippines. Nonadherence with medicines for chronic conditions was found to be an issue in both China and the Philippines. High use of traditional or complementary medicines for management of chronic diseases was observed in both Chinese and Malaysian studies. Health literacy was identified as a problem in China, Philippines, Malaysia and Mongolia. Evidence from other countries was not located. In addition to medicine use, vaccination is another issue relevant to the needs of older people in the Region. In the next section of this report, what is known about use of seasonal influenza vaccination in the Region are examined.
3.2 Seasonal influenza vaccination

Availability of the seasonal influenza vaccination for older people is common in high- and middle-high income countries and areas that have subsidized seasonal influenza vaccination programmes, such as Australia, Hong Kong Special Administrative Region (SAR), the Republic of Korea, Japan and New Zealand.

Availability is low in countries with no or limited seasonal influenza vaccination policies such as most Pacific island countries, Cambodia, and the Lao People’s Democratic Republic.

Better data on the burden of disease of seasonal influenza relative to other diseases in countries with no active vaccination policies would inform the development of evidence-based and cost-effective policies targeting the older population.

Seasonal influenza is an important contributor to the annual increase in hospitalizations and deaths attributed to pneumonia and influenza during the winter months, particularly among older people. It can also serve as a case study of an effective public health measure of relevance to older people. Other conditions of relevance to similar public health approaches may be pneumonia (although many may have been exposed), and TB testing leading to treatment, and diabetes testing leading to treatment.

A WHO position paper on vaccines against influenza recommends vaccination of older people and people with chronic medical conditions as a priority group (64). A 2012 study aimed to compile information on seasonal influenza policies, recommendations and practices for the 37 countries and areas in the WHO Western Pacific Region (65, 66). Data collected via questionnaire were available for all countries and areas of the Region except the Commonwealth of the Northern Mariana Islands.

3.2.1 Seasonal influenza vaccination policies

Eleven countries and areas reported having neither seasonal influenza vaccination policies nor recommendations for risk groups for seasonal influenza vaccination (Table 3). The majority of the Pacific island countries and areas did not have established seasonal influenza vaccination policies. Of the 25 countries and areas that reported having established policies or recommendations for risk groups, 24 recommended vaccinating older people (Table 3). Malaysia had a seasonal influenza vaccination policy but had no recommendation for vaccination of the older population. The Lao People’s Democratic Republic did not have a policy, but it did recommend vaccination for people over 50 years of age. Several countries reported a vaccination schedule inconsistent with their peak influenza seasons. (65, 66)

3.2.2 Availability and funding of seasonal influenza vaccination

In that same study, 10 countries reported that seasonal influenza vaccine was not available: Fiji, Kiribati, the Lao People’s Democratic Republic, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. Twenty-six (72%) countries reported having seasonal influenza vaccines available through public funding, private market purchase or both (Table 4). Cambodia, Cook Islands, Singapore and Viet Nam reported that seasonal influenza vaccine was available for purchase in the private market only. (65, 66)

High-income countries in the Region such as Australia, Hong Kong (SAR), the Republic of Korea, Japan and New Zealand have implemented seasonal influenza vaccination programmes. The Korea Centers for Disease Control and Prevention (KCDC) recommend annual vaccinations to all citizens aged 65 years or older, and vaccinations are administered free of charge at public health centres (67). In China, seasonal influenza vaccination is not included in the national immunization programme and is therefore not subsidized. However, in a few cities, including Beijing, local government subsidy programmes have been introduced for people older than 60 years (68).
### Table 4. Seasonal influenza vaccination policy and recommendations for the older population by country and area, WHO Western Pacific Region, 2011

<table>
<thead>
<tr>
<th>Country or area</th>
<th>Policy</th>
<th>Recommendations for older population (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Samoa</td>
<td>No</td>
<td>Yes (&gt; 40)</td>
</tr>
<tr>
<td>Australia</td>
<td>Yes</td>
<td>Yes (&gt; 65)</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>Yes</td>
<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Cambodia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Yes</td>
<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Cook Islands*</td>
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<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Fiji</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>Yes</td>
<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Guam</td>
<td>Yes</td>
<td>Yes (&gt; 50)</td>
</tr>
<tr>
<td>Hong Kong SAR</td>
<td>Yes</td>
<td>Yes (&gt; 50)</td>
</tr>
<tr>
<td>Japan</td>
<td>Yes</td>
<td>Yes (&gt; 65)</td>
</tr>
<tr>
<td>Kiribati</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Lao People's Democratic Republic (the)</td>
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<td>Yes (&gt; 50)</td>
</tr>
<tr>
<td>Macau SAR</td>
<td>Yes</td>
<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Marshall Islands (the)*</td>
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</tr>
<tr>
<td>Micronesia (Federated States of)*</td>
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<td>Yes (&lt; 50)</td>
</tr>
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<td>Yes (&gt; 60)</td>
</tr>
<tr>
<td>Nauru</td>
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<td></td>
</tr>
<tr>
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<td>Yes (&gt; 65)</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Yes</td>
<td>Yes (&gt; 65)</td>
</tr>
<tr>
<td>Niue</td>
<td>Yes</td>
<td>Yes (&gt; 65)</td>
</tr>
<tr>
<td>Northern Mariana Islands (Commonwealth of the)</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Palau</td>
<td>Yes</td>
<td>Yes (&gt; 50)</td>
</tr>
<tr>
<td>Papua New Guinea</td>
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<td></td>
</tr>
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<td>Yes</td>
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</tr>
<tr>
<td>Pitcairn Islands</td>
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<td></td>
</tr>
<tr>
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</tr>
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<td>Samoa</td>
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<td></td>
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<td>Singapore</td>
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</tr>
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<td></td>
</tr>
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<td>Tonga</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Tuvalu</td>
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<td></td>
</tr>
<tr>
<td>Vanuatu</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Viet Nam</td>
<td>No</td>
<td>Yes (&gt; 65)</td>
</tr>
</tbody>
</table>

* These countries and areas reported not having policy but having recommendations for seasonal influenza vaccination.  
Source: Dwyer et al (65).
<table>
<thead>
<tr>
<th>Country or area</th>
<th>Year vaccine introduced</th>
<th>Formulation</th>
<th>Type of vaccine</th>
<th>Public sector or private market purchase</th>
<th>No. doses purchased (% of population)</th>
<th>No. doses distributed (% of population)</th>
<th>Source (domestic or international)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2003</td>
<td>NH</td>
<td>TIV</td>
<td>Both</td>
<td>8900 (12.1)</td>
<td>6502 (11.5)</td>
<td>International</td>
</tr>
<tr>
<td>Australia</td>
<td>1997</td>
<td>SH</td>
<td>TIV</td>
<td>Both</td>
<td>3 776 512 (16.9)</td>
<td>–</td>
<td>Both</td>
</tr>
<tr>
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<td>Both</td>
<td>TIV</td>
<td>Both</td>
<td>28 000 (6.9)</td>
<td>26 800 (6.6)</td>
<td>International</td>
</tr>
<tr>
<td>Cambodia</td>
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<td>Both</td>
<td>TIV</td>
<td>Private</td>
<td>–</td>
<td>–</td>
<td>International</td>
</tr>
<tr>
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<td>1998</td>
<td>NH</td>
<td>TIV</td>
<td>Both</td>
<td>–</td>
<td>–</td>
<td>Both</td>
</tr>
<tr>
<td>Cook Islands</td>
<td>2010</td>
<td>Both</td>
<td>TIV</td>
<td>Private</td>
<td>60 (0.3)</td>
<td>60 (0.3)</td>
<td>International</td>
</tr>
<tr>
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<td>NH</td>
<td>TIV</td>
<td>Public</td>
<td>17 000 (16.6)</td>
<td>10 000 (9.3)</td>
<td>International</td>
</tr>
<tr>
<td>French Polynesia</td>
<td>2002</td>
<td>NH</td>
<td>TIV</td>
<td>Both</td>
<td>16 000 (6.0)</td>
<td>–</td>
<td>International</td>
</tr>
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<td>Guam</td>
<td>1997</td>
<td>NH</td>
<td>TIV</td>
<td>Public</td>
<td>7300 (4.0)</td>
<td>–</td>
<td>International</td>
</tr>
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<td>Hong Kong (SAR)</td>
<td>1998</td>
<td>NH</td>
<td>TIV</td>
<td>Both</td>
<td>480 000 (6.8)</td>
<td>408 000 (5.8)</td>
<td>International</td>
</tr>
<tr>
<td>Japan</td>
<td>1951</td>
<td>NH</td>
<td>TIV</td>
<td>Both</td>
<td>50 000 000 (39.2)</td>
<td>50 000 000 (39.2)</td>
<td>Domestic</td>
</tr>
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<td>TIV</td>
<td>Both</td>
<td>110 000 (19.9)</td>
<td>85 000 (15.4)</td>
<td>International</td>
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<td>1988</td>
<td>Both b</td>
<td>TIV &amp; ATIV</td>
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<td>–</td>
<td>–</td>
<td>International</td>
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</tr>
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<td>NH</td>
<td>TIV &amp; LAIV</td>
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<td>–</td>
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<td>–</td>
<td>–</td>
<td>International</td>
</tr>
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<td>SH</td>
<td>TIV</td>
<td>Both</td>
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<td>22 (42.3)</td>
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<td>TIV</td>
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<tr>
<td>Wallis and Futuna</td>
<td>2004</td>
<td>NH</td>
<td>ATIV</td>
<td>Public</td>
<td>1600 (12.1)</td>
<td>1530 (11.5)</td>
<td>International</td>
</tr>
</tbody>
</table>

ATIV, adjuvanted trivalent inactivated influenza vaccine; LAIV, live attenuated influenza vaccine; NH, northern hemisphere formulation; SAR, Special Administrative Region, SH, southern hemisphere formulation; TIV, trivalent inactivated influenza vaccine.

* Estimation based on vaccine purchased by the government and claims made by private doctors to the Government’s Vaccine Subsidy Schemes.

b Public funding limited to frontline health workers.

c Public sector purchase figure, i.e. does not include the 9–10 million doses available through private market purchase.

Source: Dwyer et al (65).
3.2.3 Use of seasonal influenza vaccination

For the 21 countries and areas in the survey that reported the number of doses of vaccine purchased, the estimated proportion of the total population that could be covered varied from 0.3% in Cook Islands to 99.7% in Tokelau (Table 4). Most countries and areas purchased only enough vaccines to cover 25% or less of their population. For the seven countries with available data for 2012 or 2013, coverage of the older population ranged from 30% to 40% in Macao (SAR) and Hong Kong (SAR), and ranged from 60% to 70% in New Zealand and the Lao People’s Democratic Republic (66).

Additional studies on the use of seasonal influenza vaccination in the older population showed high uptake in countries with subsidized vaccination programmes such as the Republic of Korea, and low uptake in countries without free access to vaccines such as China. A survey of 6391 older people in the Republic of Korea, conducted in 2009 and 2010 in 13 communities in the Honam region, found that 82% reported having received an influenza vaccination in the past year (69). A 2014 study conducted in Hong Kong SAR found that the current influenza vaccination rate among at-risk Chinese older adults was 59% (70), while a 2011 survey in five provinces in China found the vaccination rate in the older population (aged over 60 years and over) to be only 7.4% (68).

3.2.4 Factors contributing to vaccination uptake

A systematic review of the studies revealed the social determinants of seasonal influenza vaccination in the older population, including age, socioeconomic status, behavioural beliefs or perceived health status (71). In countries without subsidization of vaccines, cost was an important determinant of use. Subsidy policy seems to have a positive effect on vaccination rates (68). Other determinants of use such as personal experience with vaccination (e.g. adverse effects, occurrence of a flu-like disease despite vaccination) and health beliefs need to be taken into consideration. The study of at-risk older, Chinese adults in Hong Kong (SAR), which found the current influenza vaccination rate to be 59%, also revealed that only 36% intended to get vaccinated the following year (70).

In this section, we have shown that there is variable implementation of policies supporting seasonal influenza for older people across the Region, as well as variable access and uptake for older people, with many older people in low- and middle-income countries in the Region missing out on seasonal influenza vaccination. Another component of health care that facilitates independence and maintenance of quality of life in older people is the use of assistive devices, such as spectacles, hearing aids and walking sticks. In the next section of this report, we examine availability and use of assistive devices for older people in the Region.

3.3 Assistive devices for older people

Most assistive devices are neither readily available to nor affordable for older people in low- and middle-income countries in the Region.

Low-technology personal mobility devices such as walking sticks, crutches, frames and wheelchairs are more commonly available than high-technology devices such as hearing aids and electrical devices, which are available only in high-income countries.

Assistive devices are more likely to be available in urban areas than in rural and remote areas.

In most lower-middle and upper-middle income countries, diseases of the sensory organs (e.g. vision and hearing) account for the second greatest contributor to the burden of disease (1). Diseases of the sensory organs are particular prevalent in the older population and necessitate the use of assistive devices such as spectacles and hearing aids. Mobility deficits increase with older age and require the use of devices such as walking sticks or wheelchairs. Assistive devices have been shown to be powerful
tools to increase independence and improve participation of older people (72). A number of actors have stressed the importance of facilitating access to assistive devices (73). All Member States of the Western Pacific Region have signed or ratified the UN Convention on the Rights of Persons with Disabilities (74). The Convention provides a strong mandate for regional and international cooperation and assistance on improving the availability, affordability and suitability of assistive devices in the Region. Under this Convention, Member States have a general obligation to promote the availability and use of assistive devices suitable for people with disabilities, giving priority to assistive devices that are most affordable.

A recent study commissioned by WHO provides detailed mapping of the availability, affordability and quality of assistive devices for older people in the Western Pacific Region (73). The study includes a literature review (search up to January 2013) and a survey of 42 key informants from eight countries in the Region, namely: Australia, China, Fiji, Japan, Malaysia, the Philippines, the Republic of Korea and Viet Nam. Assistive devices included in the WHO study supported conditions that contributed to the top causes of years lost to disability. They included orthoses and prostheses, assistive products for personal care and protection (e.g. incontinence, dressing, toileting), assistive products for personal mobility (e.g. walking sticks, wheelchairs), assistive products for housekeeping (e.g. cooking), assistive products for communication and information (e.g. spectacles, hearing aids), and assistive products for handling objects and devices.

Another survey of UNESCAP member countries, including Australia, China, the Republic of Korea, Malaysia and the Philippines, examined the availability and use of a range of assistive devices in 2002 (75).

3.3.1 Availability of assistive devices for countries in the Region
According to the WHO-commissioned study (73), the more developed countries in the Region, those being, Australia, Japan and the Republic of Korea, had greater availability of assistive devices than less developed countries. In all countries in the Region, low-technology personal mobility devices, such as walking sticks, crutches, frames and wheelchairs, were more frequently available than high-technology devices. Devices such as hearing aids and electrical devices were only available in high-income countries. Country-specific results are summarized in Table 5.

Across countries in the Region, there appeared to be greater availability of assistive devices in urban areas than in rural and remote areas, with the exception of Fiji (and possibly other Pacific islands countries) where most assistive devices were not available at all. Access to assistive devices in rural and remote areas is problematic everywhere, except in the Republic of Korea and Japan. Devices for handling objects and for housekeeping (e.g. preparing food) were not widely available in any countries in the Region.

3.3.2 Affordability of assistive devices
Affordability of devices is a key concern, with subsidy schemes playing a key part in making devices affordable for older people, and the absence of subsidy schemes acting as a barrier to affordability. Subsidy schemes were more likely to be in place in more developed countries, including Australia, Japan and the Republic of Korea. However, the rules for subsidy or reimbursement of assistive device costs varied within and between countries. In Malaysia, subsidy schemes were reported as “fragmented and patchy”, with payable benefits needing to be updated. The cost of prostheses and orthoses was a barrier everywhere, except Japan and the Republic of Korea.

3.3.3 Quality and acceptability of assistive devices
The WHO report found that the appropriateness and quality of assistive devices requiring customization (e.g. hearing aids, wheelchairs and spectacles) were concerns for countries in the Region because of the lack of availability and capacity of trained personnel to fit and maintain assistive devices. The quality of donated second-hand devices distributed through charities was also a problem for countries in the Region. Lack of awareness and information on assistive devices was reported as an access barrier to assistive devices in China, the Republic of Korea and Viet Nam. Negative social attitudes to hearing loss may also be an access barrier to hearing aids in Australia and the Republic of Korea. Older people may also experience discrimination and stigmatization by health workers, families and communities regarding a perceived lack of value, thereby reducing their access to assistive devices.
<table>
<thead>
<tr>
<th>Country</th>
<th>Availability</th>
<th>Affordability</th>
<th>Access barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Spectacles, walking sticks, crutches, walking frames, white canes, magnifiers, amplified telephones, devices for grasping and grip attachments are widely available. All other devices including hearing aids were considered to be less available in rural areas. However, there are programmes that facilitate people living in rural/remote areas to access these devices.</td>
<td>There are many different subsidy and support schemes available at either federal or state level to assist the supply and acquisition of assistive devices with varying eligibility criteria and benefits. Affordability of many devices is still an issue, in particular, for indigenous Australians. Some categories of devices are not subsidized by any schemes (e.g. Braille typewriters). Devices considered unaffordable to most included prostheses and orthoses and modified footwear; products to assist with toileting, incontinence management, bathing and showering; products to assist lifting; portable, personal FM radio systems (for hearing impairment); laptops with refreshable Braille and Braille typewriters; calculation products, computer software and technology, and assistive devices for dishwashing. Australian hearing supplies basic hearing aids for free to pensioners and to all indigenous people over 50 years of age.</td>
<td>Lack of technicians to fit assistive devices such as wheelchairs in rural and remote areas. Cost of upgraded devices and attitudes may prevent the uptake of hearing aids.</td>
</tr>
<tr>
<td>China</td>
<td>Most devices are available only in cities. Mobility devices are most widely available, and communication devices and devices for grasping and housekeeping are less available. Availability may be higher in Hong Kong SAR and eastern China than in western China.</td>
<td>Walking sticks, crutches and spectacles are affordable, whereas wheelchairs, hoists, walking frames and white canes are unaffordable to many. Mobility devices seem to be better covered by subsidies than devices for activities of daily living such as bathing, eating and housekeeping. Local governments also provide some subsidies for assistive devices. China’s Government, in its 12th five-year plan (2011–2015), pledged to invest more than US$ 160 million to help more people with disabilities to buy and use enabling devices. In Hong Kong SAR, a Comprehensive Social Security scheme includes reimbursement for items deemed necessary by a medical professional.</td>
<td>Lack of awareness of both the availability of devices and of health conditions. Lack of therapists to fit assistive devices properly. Poor quality of spectacles.</td>
</tr>
<tr>
<td>Fiji</td>
<td>The vast majority of assistive devices are not available at all or are available in Suva only.</td>
<td>When orthoses and prostheses are available at government hospitals, patients must pay out of pocket, which makes them unaffordable to most. Devices are also donated to local disabled peoples organizations, but they may not always be suitable (e.g. wheelchairs, prostheses and spectacles).</td>
<td>Lack of trained allied health workers.</td>
</tr>
<tr>
<td>Japan</td>
<td>Most devices for mobility, personal care and communication are widely available. Devices for handling objects and housekeeping are less available.</td>
<td>Most larger devices such as wheelchairs and prostheses can be hired or rented under the long-term care insurance scheme and seem to be more affordable than smaller items such as white canes which must be bought.</td>
<td>The introduction of the insurance scheme has caused a dramatic rise in the cost of all devices, making people more reliant on subsidies and rental schemes than before.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Assistive devices such as prostheses, orthoses, wheelchairs, hearing aids and “devices for activities of daily living” are available but only in cities.</td>
<td>Devices are subsidized in theory, but schemes are “fragmented and patchy”, with payable benefits needing to be updated.</td>
<td>Lack of information and awareness on the range of available assistive devices.</td>
</tr>
<tr>
<td>Philippines</td>
<td>Most assistive devices (with the exception of Braille button telephones and captioned phones) are available in cities but not rural areas.</td>
<td>Most assistive devices are unaffordable. The 20% discount provided by the main government programme is insufficient and is not consistently applied by suppliers. Nongovernmental organizations and community-based rehabilitation programmes do provide some devices.</td>
<td></td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>Most assistive devices are available. Some assistive devices such as hoists, computing devices, devices for handling objects, devices for housekeeping, powered wheelchairs, Braille button phones, captioned phones, Braille typewriters, laptops with refreshable Braille and other computer technology are only available in cities.</td>
<td>Most assistive devices are affordable as 80% of costs are subsidized by Korea’s Ministry of Health and Welfare. Hoists, computing devices, devices for handling objects and for housekeeping, Braille button phones, captioned phones, Braille typewriters, laptops with refreshable Braille and other computer technology are unaffordable to most.</td>
<td>Negative social attitudes to hearing loss may be a barrier to access hearing aids.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Most assistive devices with the exception of walking sticks, crutches and spectacles are available only in cities. Many assistive devices for activities of daily living (e.g. handling objects, housekeeping and some communication devices) are not available at all.</td>
<td>Most assistive devices with the exception of spectacles, walking sticks and crutches are unaffordable. The Government provides a few basic assistive devices free of charge (e.g. hearing aids, wheelchairs and prostheses), but overall there is a lack of subsidy schemes for assistive devices.</td>
<td>Lack of awareness about the availability of devices and concerns about the quality of some devices.</td>
</tr>
</tbody>
</table>

Source: CBM-Nossal Institute Partnership for Disability Inclusive Development (73).
In summary, access to assistive devices for older people in the Region is limited. Barriers to access concern availability, cost, awareness, knowledge, perceived social stigma and access to trained personnel. In this section, and the previous two sections, we have shown that there is underuse of medicines, vaccinations and assistive devices in the Western Pacific Region. Cost was one factor reported as a contributing factor to underuse, as was limited knowledge by health professionals. Given the extent of underuse of medicines and assistive devices for chronic conditions, and the limited awareness about medicines for chronic conditions and assistive devices, strategies to improve use of medicines and devices are necessary. In the next section of this report, evidence from the Region on the availability of information about medicines, vaccines and devices that meet the needs of older people and the evidence supporting the effectiveness of programmes to improve the use of medicines, vaccines and assistive devices by older people with chronic conditions are reviewed.

3.4 Availability of medicine and assistive device information

Printed and online educational resources have been developed and are available in some countries in the Western Pacific Region. Australia provides printed consumer information, with some materials translated into Chinese and Vietnamese languages. Malaysia has a “Know Your Medicines” website that provides important consumer information.

Data are lacking on the following:

- on the availability of information on medicines, vaccines and assistive devices for older consumers with chronic illness;
- on whether information is objective, tailored to the needs of older people, in large font and culturally appropriate;
- on the availability of packaging that meets the needs of older people (e.g. Braille labelling, ease of opening);
- on the availability of medicines, vaccine and assistive device information to support health workers and prescribers treat older consumers with chronic illness; and
- on whether standard treatment guidelines address issues concerning treatment in older people and in people with multiple chronic health conditions.

Data are limited on the availability and accessibility of suitable information about medicines or assistive devices for health professionals, communities, caregivers and older people themselves, and the related implications for training of the health workforce. Data are limited on interventions for improving health literacy of older people, on availability and accessibility of consumer medicines information and device information, on the existence of disease-specific self-help groups, and on the inclusion of ageing and health topics in the training of health professionals to improve the delivery of health services for older people.

No studies that assessed the availability in the Western Pacific Region of information for older people on medicines to manage chronic conditions could be located, although patient education resources for diabetes self-management have been developed in Cambodia and the Philippines. The suitability of these resources for older people was not reported, and full details of the types of printed materials given to patients in the self-management programmes were not provided in the article. The self-management programmes are described in the next section of this report. Malaysia has a “Know your Medicines” website that provides information on medicines and diseases to consumers (76).

Studies that assessed the presentation of information for older people, e.g. font size, or the literacy level of the material and its appropriateness for the targeted population, e.g. people from low- or middle-
income countries in the Region could not also be located. No studies that assessed the applicability of standard treatment guidelines to the management of older people with or without comorbidity from low- or middle-income countries in the Region could be found.

In Australia, consumer medicines information is provided via health professionals, as package inserts, and via the Internet on a search facility hosted by the Therapeutic Goods Administration (https://www.ebs.tga.gov.au) and the NPS MedicineWise website (http://www.nps.org.au). NPS MedicineWise provides a wide range of information resources for health workers and consumers in several languages, including Chinese, Korean and Vietnamese, which may be useful for other countries in the Region (77). The translated materials include information on diabetes (e.g. Diabetes health tracker; Keeping track of your diabetes, it’s not just about glucose), information on medicines in general and generic medicines, information on providing a medicine history (e.g. Medimate, Medilist, Why are we offered a choice of medicine?, Learn about your medicines) and a fact sheet on managing pain. Australia also has a specific education programme on safe medicine use by older people. Finally, as part of a programme funded by the Australian Government’s Department of Veterans’ Affairs to improve the use of medicines by veterans, a predominantly older population of ex-service men and women and their dependents, information is provided in 14 point font (large font) for ease of readability.

The Australian Medicines Handbook produces the Aged Care Companion (78). It is intended primarily for general practitioners, nurses and pharmacists working in aged-care settings. It is also relevant to the care of frail older people living in the community. It contains information on the management of more than 70 conditions common in older people, including dementia and management of behavioural symptoms, cardiovascular diseases, fall prevention, osteoporosis, palliative care issues, chronic obstructive pulmonary disease, insomnia and depression.

In summary, only limited data are available on suitability of medicine, vaccine and device information for older people and health workers in the Region. While some information is available from high-income countries, the suitability and adaptability of this information to other countries in the Region is unknown.

### 3.5 Interventions to improve medicine, vaccine or assistive device use in older people with chronic diseases

- **Malaysia** has a Quality Use of Medicines programme, but its impact on older people with chronic illnesses has not been reported.

- Disease self-management programmes involving village health workers in regional or rural areas of the Philippines have been successful in improving diabetes management.

- Novel interventions involving text messaging via mobile devices within disease self-management programmes are being trialled in Cambodia and the Philippines.

- Cambodia successfully implemented a monitoring, training and planning approach that has improved medicine use for acute conditions. The applicability of the method for improving medicine use for chronic conditions has not yet been assessed.

- Peer education has been used in Australia to teach older people about medicines management. It is also being used in Malaysia to support medicines management for the general population.

- One-stop demonstration centres and mobile centres for education on assistive devices exist in Australia.
Programmes to improve the use of medicines have been implemented in a number of countries in the Region, but only a small number have focused on older people.

Australia

Australia has a national strategy for quality use of medicines. NPS MedicineWise, an independent not-for-profit company that promotes quality use of medicines, has developed an educational tool for health professionals on the safe use of medicines by older people. The aptly named tool, Older and Wiser: Promoting safe use of medicines in older people, focuses on achieving optimal medicines management and improving use of medicines by reducing polypharmacy and increasing recognition among health professionals of medicines to avoid in older people (77). The NPS MedicineWise tool provides general information about ageing-related changes that affect medicines use and the need for monitoring. It also provides specific information on medicines with an increased risk of adverse effects in older people such as anticholinergics, sedatives or antipsychotics; when and how to stop taking a medicine; and the best approach to medicine use. The programme includes academic detailing services, which involve a face-to-face meeting between an educator and the health professional. These educational interventions, for which evaluation is under way, have been implemented in response to concerns about quality use of medicines in the older population. Australian studies have shown that older people experience a significant number of medicine-related adverse events, with medicine-related hospital admissions in those aged 75 years and older representing up to one third of unplanned admissions.

Another Australian initiative, organized by NPS MedicineWise and the Council on the Aging, the leading national organization representing the rights, needs and interests of older Australians, involves the training of older people to become peer educators. Once trained, the peer educators are sent to their state or territory to talk about medicines management with their peers, that is, other older people (88).

The Veterans’ Medicines Advice and Therapeutics Education Services (Veterans’ MATES) project, which is funded by the Australian Government’s Department of Veterans’ Affairs, aims to improve the use of medicines in the veteran population, that is, ex-service men and women and their dependents (89). Through an online tool, medical practitioners can directly access patient-specific information, including information regarding medications dispensed to their veteran patients. Tailored educational materials are also sent to medical practitioners, pharmacists, directors of care of aged-care services and veterans. Since the average age of veterans is 80 years, many education materials have focused on medicine use in older people. Topics have included use of anticholinergic medicines, multiple sedative use and risk of falls, use of antipsychotics in dementia, as well as medicines and renal function. The project has been successful in improving medicine use, with relative effect sizes of up to 15% and, for some interventions, effect sustained over a two-year follow-up period (89).

Another Australian programme supports patients who have adherence difficulties with dose administration aids (90). The Department of Veterans Affairs provides a subsidy for dose administration aids veterans, but the devices are not subsidized for other Australians.

Australia’s Home Medicines Review (HMR) programme and a related residential medication management review programme also focus on improving the use of medicines. The programmes target patients who live in a community setting and are at high risk of medication misadventure, predominantly the older population. The HMR programme involves collaboration among general practitioners, pharmacists and patients. When a general practitioner refers a patient for a medicines review, a pharmacist will visit the patient at home to undertake a comprehensive medication review. The pharmacist then makes recommendations for the general practitioner to consider. The programme has been demonstrated to be successful in reducing time to next hospital admissions for heart failure by 45% and hospital admissions for bleeds in warfarin users within the short term by 79%, however, this effect was not sustained beyond six months, suggesting regular reviews may be required in the population taking warfarin (91).

With regard to assistive devices, in Australia, demonstration centres have been set up for people to try assistive devices in simulated home settings with support from trained professionals (92). Mobile
demonstration centres, using adapted vans or trailers to show a variety of assistive devices, are used in rural areas in Western Australia (93). Demonstration centres, including mobile one, may be applicable to other countries and areas in the Region.

**Cambodia**

Cambodia adopted a monitoring, training and planning approach to improve antibiotic use. This problem-solving approach was systematically implemented in public provincial referral hospitals in Cambodia between 2001 and 2010 (79). Members of drug and therapeutics committees of participating hospitals identified medicine use problems (e.g. misuse of antibiotics and injectable medicines), quantified the problems using suitable indicators, identified possible causes of the problems, and worked with hospital staff to devise appropriate solutions to the problems. Between 2005 and 2008, inappropriate antibiotic use in medical, paediatric, surgical and maternity wards dropped 48% (range: 3–82%). While not directly applicable to chronic conditions, the success of the approach suggests it may be a promising practice that could be adapted and trialled in the Region to improve medicine use for people with chronic conditions.

In Cambodia, the Ministry of Health adopted a National Policy on Health Care for Elderly and Disabled People in 1999 (37). The main objectives were to prepare the Cambodian people for healthy ageing and to improve the health status of older and disabled people by strengthening prevention programmes for communicable and noncommunicable diseases. The policy called for educating older people on illnesses affecting them, such as hypertension, and setting up multifunctional older people associations (OPAs) to provide services for older people, including education in personal health, biannual health check-ups and monthly health measurements (80). Outcomes have not been reported with regard to the use of medicines, but evaluation may inform the success of this type of programme and its potential for adaptation to other countries in the Region.

**Malaysia**

Malaysia has developed a national health policy for older people to ensure they will achieve optimal health through integrated and comprehensive health-related services (81). A review of the implementation of policies on health and ageing in the Malaysian health system revealed a shortage of secondary care services for older patients, a lack of geriatricians, and the health system’s orientation towards acute care rather than chronic conditions (45). Implementation of specialized programmes for older people in public primary care clinics is sporadic, with a shortage of health personnel trained in geriatrics. Malaysia also has a national Quality Use of Medicines programme that includes national campaigns, peer education through “Know your Medicines” ambassadors, a “Know your Medicines” web portal for the public, and a 24-hour national pharmacy call centre (82). A comparison of the results of two national surveys in 2008 and 2012 showed an improvement in consumer knowledge of medicines in some areas; 57% of respondents understood the proper use of medicines in 2012 compared to 44% in 2008; 36% did not know the side effects of their medicines in 2012 compared to 56% in 2008. Adherence measures worsened across surveys, with 67% reporting they had forgotten or were careless in taking medicines in 2012 compared to 46% in 2008 (82). Thirteen medication therapy adherence clinics are helping patients adhere to medicine schedules for diabetes, geriatrics, nephrology, psychiatry, respiratory, rheumatology and stroke, as well as warfarin management (11). Outcomes of the adherence clinics have not been reported, but evaluation may inform the success of this type of programme and its potential for adaptation to other countries in the Region.

**Mongolia**

A proposal for a heart failure self-management plan in Mongolia was developed in 2013, as part of study requirements for a Master of Public Health degree (85). The programme’s status of implementation is unknown.

**Philippines**

The Philippines is piloting a self-management programme for diabetes called the First Line Diabetes Care (FiLDcare) project (83). Prior to the project, patient education concerning chronic conditions
was limited to disease-specific posters and one-day annual campaigns. To prepare for FiLDcare, local government health unit staff and village health workers participated in 32 hours of training. The project was trialled in a rural area where most health services were paid out of pocket. Participants were asked to visit the rural health clinic at least once every three months for a consultation, during which time, a local government health officer or nurse provided one-on-one education and printed materials on topics such as diabetes, medications, self-management, disease control, problem solving and goal setting. The initial consultation was 20–30 minutes with subsequent sessions lasting between 5 and 15 minutes. Village health workers conducted home visits to continue support and reinforce educational messages and behaviours between sessions. Group education was also offered at the health stations. Statistical analysis of FiLDcare was limited to assessments of participating patients before and after the project as there was no control group. One year after its launch, the project recorded significant improvements in patients’ knowledge and perceived control of their diabetes, as well as significant decreases in HbA1C levels and waist circumferences. Adherence to medicines and exercise improved, but adherence to diet worsened. The proportion of people with optimal glucose control rose from 42% to 51%. In addition, 60% of participants improved their glycaemic control, despite not everyone reaching optimal control. The median age of participants was 57 years for women and 59 years for men, suggesting the results of this study are likely to be applicable to older people (83). While not controlled, the results of this study suggest that diabetes self-management programmes can be successfully implemented in rural areas in low- and middle-income countries of the Region.

A randomized control trial was conducted in Cambodia, Congo and the Philippines to assess the usefulness of adding text-messaging support via mobile devices to further improve diabetes self-management (82). Both standardized and individualized (tailored) text messages were sent via the mobile devices. Participants were encouraged to use the mobile devices to contact other patients, educators and their health service providers. Assessments of health outcomes, medication use and patients’ self-management were conducted. A cost-effectiveness assessment was also included in the study protocol. Analysis of data over a one-year implementation period revealed constraints throughout the process, related to the technology, the context and the participants. However, phone use frequency increased after the intervention.

Republic of Korea

A national e-health platform in the Republic of Korea, which was developed to support the national insurance scheme, offers integrated prescribing and dispensing information (86). In 2010, a nationwide drug utilization review system for physicians and pharmacists was established, enabling checks for interactions and contraindications in real time as part of this platform. In 2013, the system was monitoring 631 medicine–medicine interactions and 129 age-specific contraindications. (In 2009, guidelines for medicine use in older people were introduced.) Both retrospective and real-time reviews are undertaken, but for physicians who are connected to the system, the real-time reviews prevent prescribing or dispensing of medicines that have absolute contraindications. The system also alerts physicians of diseases, doses and therapeutic duplication. The system is run by the Drug Utilization Review Unit of the Korea Institute for Drug Safety and Risk Management (87).

Summary

In summary, only a limited number of studies evaluating the success of programmes to improve medicine use in older people with chronic diseases in low- and middle-income countries have been undertaken. No studies on quality improvement programmes for vaccinations or assistive devices were found. The majority of the evidence for improving use of medicines for chronic conditions in older people comes from high-income countries, and the suitability and adaptability of the programmes to other countries and areas in the Region is unknown. Evidence of the success of disease self-management programmes using health workers as the agent of change is emerging from low-income countries, and innovative work is under way to test whether the use of mobile devices further supports disease self-management. Peer education is used in high-income countries to support medicine use in older people and has been used in a number of countries to support HIV treatment in younger
patients (94). Evaluation of this initiative in low- and middle-income countries to support medicine use for chronic conditions is warranted. Medicines review programmes have been successful in resolving medication-related problems in older people in high-income countries and may be adaptable to other countries and areas in the Region as pharmaceutical services develop. Advancements in information technology systems may provide additional avenues for intervention with real-time prospective drug utilization review being successful in high-income countries but not yet tested in low- or middle-income countries. In the next section of this report, the systems for evaluating and monitoring medicine, vaccine or assistive device use, which are critical to monitoring any programme to improve the use of medicines, vaccines or assistive devices, are discussed.

### 3.6 Health and pharmaceutical information systems

Systems for monitoring the use of medicine, vaccines or assistive devices can be used to identify problems with utilization and to evaluate the effect of interventions to improve health care. These types of systems are being developed in the Western Pacific Region. Since 2004, Malaysia has undertaken regular surveys on the use of medicine and has published two reports so far. A study of the use of medicine in the treatment of diabetes has also been undertaken (11). Malaysia also produces Malaysian Statistics on Medicines (95) and has established a number of registries for monitoring diseases. The inclusion of vaccines or devices in the registries is not known.

In the Republic of Korea, national medicine use reviews are organized by the Drug Utilization Review Unit of the Korea Institute for Drug Safety and Risk Management (87). Other health service data are captured, but information on whether monitoring the use of vaccines and assistive devices by older people was possible could not be located.

Australia has a Drug Utilisation Sub-Committee that provides routine reports of medicine use, and assesses utilization of medicines that have been listed in the Australian Pharmaceutical Benefits Scheme. It also produces Australian Statistics on Medicines, an annual publication of data on community use of medicines in Australia (29, 56). Nationally, data are not available on use of assistive devices or on the use of vaccines by older people.

The Asian Pharmacoepidemiology Network (AsPEN) is a multinational research network promoting collaboration for pharmacoepidemiological research and facilitating the prompt identification and validation of safety issues with emerging medicines and devices in the participating countries (91). The Network currently comprises eight countries and areas, including five in the Western Pacific Region: Australia, China, Hong Kong SAR, Japan, the Republic of Korea and Singapore (96). In the majority of
countries, medicine use can be disaggregated by age so that medicine use in older age groups can be assessed. Information on assistive devices exists in some databases, but not all.

4. **Policy options, priorities for action and conclusions**

4.1 **Integrating policies on ageing, health and medicine use**

Integration of policies on ageing, health and medicine use should be a high priority to support the health, welfare and social needs of older people in the Region.

The fast rate of population ageing and the rise in the prevalence of noncommunicable diseases have been recognized as important health challenges worldwide and have generated the development of specific programmes at international, regional and national levels. However, it appears that the policies and programmes supporting ageing have not been fully integrated with existing initiatives on essential medicines, vaccines and assistive devices. The formulation of sustainable and effective ageing strategies that include approaches related to health and the development of social security systems is a priority of the Association of Southeast Asian Nations (ASEAN) Plus Three network (Brunei Darrussalam, Cambodia, China, Indonesia, Japan, the Republic of Korea, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam) (97). Despite this, there is limited reference to the importance of strengthening access to medicines, vaccines and assistive devices by older people in many ageing policies. The WHO 2012–2013 biennial global report on essential medicines and health products refers to ageing (98), but it mentions only the need for “minimizing adverse drug events” in older people and improving “access to controlled medicines for pain management”. National health action plans should include medicines for chronic diseases, vaccines for older people and assistive devices. International guidelines should be developed to help countries to undertake a needs assessment and determine which assistive devices are required.

4.2 **Strengthening procurement systems to improve access and availability of essential medicines, vaccines and assistive devices for older people.**

Strengthening the procurement system may have the biggest impact on access to medicines for older people. If all patients used branded products at current prices, then the additional costs of managing cardiovascular disease in China alone, compared with international best practice, would be US$ 82 billion over 10 years.

Strengthening the procurement systems and implementing policies that promote generic medicine use are likely to have the single biggest impact on improving availability of medicines for chronic conditions for older people in the Region.

In the previous sections, we found evidence that countries in the Western Pacific Region are paying higher prices to procure medicines compared with the international reference price. This has flow-on costs to patients who are faced with high out-of-pocket costs. There is also evidence that medicines for chronic diseases are underused in the Region, and while many factors contribute to the underuse
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of medicines, costs to the government and costs to patients are both factors that can lead to the underuse of necessary medicines. High costs to the government are associated with reduced availability, particularly where budget caps are in place, while high costs to patients lead to reduced purchase of medicines or reduced purchase of essential items.

Using the noncommunicable diseases costing tool developed by WHO as part of its programme on the prevention and control of noncommunicable diseases (99), we projected the costs of managing cardiovascular disease in China, with current procurement prices for brand and generic medicines compared with international best practice (Fig. 17). The assumptions in the model include treating all people with established cardiovascular disease, treating all new cases of cardiovascular disease, treating everyone with moderate and high absolute risk, and treating everyone with high blood pressure and high cholesterol. By 2025, the total cost of managing cardiovascular disease, with best practice procurement prices, would be US$ 7 billion in 2025 (US$ 60 billion over the 10 years, 2015–2025); the medicine component would account for US$ 1 billion in 2025 (US$ 9 billion over the 10 years, 2015–2025). Based on current costs of generic medicines for the Region, the overall management would cost an additional US$ 5 billion if all patients used generic medicines. If all patients used branded products at current prices, then the additional costs of managing cardiovascular disease would be US$ 82 billion over the period 2015–2025. These same projections could be made for other chronic conditions. They demonstrate the significance of managing procurement costs to ensure availability of essential medicines for older people as they develop chronic conditions.

With regards to vaccines and assistive devices, procurement systems should be supported with economic and financial analysis of the impact of providing seasonal flu vaccination or specific assistive devices in low- and middle-income countries in the Region. International guidelines addressing the cost-effectiveness of assistive devices, such as assistive devices for hearing impairment and vision impairment, would be of assistance. WHO’s Guidelines on the provision of manual wheelchairs in less-resourced settings offer an example of the process for carrying out this work and its potential outputs (100).

Procurement systems for assistive devices require appropriate linkage between community-based rehabilitation and health system services for the production and provision of assistive devices. Tension between increasing access through donations and the risk of suboptimal quality products and service delivery will need to be addressed. Regional procurement strategies may be required in small countries, in particular across the Pacific, to achieve economies of scale. Regional procurement would include a defined list of products, would require a multistakeholder management group and strong governance to mitigate risk for corruption and conflict of interest.

Fig. 17. Projected costs of managing cardiovascular disease (CVD) in China with and without generic medicine policies promoting best practice procurement and use

Procurement and technical specifications consistent with standards already in place are required. The WHO Regional Office’s web-based price registry for essential medicines could be expanded to include assistive devices. Appropriate funding schemes for assistive devices, such as short-term rental or equipment loans schemes, health insurance and incentive schemes should be developed. Contextual factors that affect the provision of devices should also be addressed. Some of these factors include affordability of transport to urban centres, because the majority of assistive devices are provided from urban centres, access to health and rehabilitation services for diagnosis, and availability and capacity of trained personnel to fit and maintain assistive devices.

Strengthening existing pharmaceutical systems, particularly procurement systems and use of generic medicines, supported by the development of appropriate subsidization of medicines for older people, such as free access, concessional copayments or safety nets, are likely to make the largest impact on availability and access to medicines for chronic conditions for older people. Good forecasting and procurement strategies need to take into account the increasing needs of the older population. Given the availability of the WHO noncommunicable diseases costing tool and the availability of pricing information in many countries in the Region, workshops could be held to teach country procurement managers how to model the impact of differing procurement strategies on future health budgets. This will facilitate the strengthening of evidence to inform procurement strategies and support governments in strengthening their procurement strategy.

4.3 Health and pharmaceutical information systems monitoring medicine use

Systems for monitoring the appropriateness of medicine, vaccine and assistive device use in older people with chronic diseases are lacking. Malaysia has a model that may be adaptable for other middle-income countries in the Region. The development of information technology infrastructure within countries provides an opportunity for testing novel methods for capturing and monitoring medicine use.

The lack of health and pharmaceutical information systems in the low- to middle-income countries of the Asia-Pacific region has been identified as a problem that needs to be addressed (101). The lack of routine monitoring of medicine use, as well as vaccine use and provision of assistive devices, makes it difficult to draw generalizable conclusions about access, affordability and rational use. Adequate and reliable health information systems are required to monitor the implementation and effectiveness of national medicines and health policies. For example, more accurate data on the burden of disease of seasonal influenza would inform the development of evidence-based, cost-effective seasonal influenza vaccination policies targeting the older population. Additionally, improved data collection would facilitate early identification of medication-related problems and enable evaluation of interventions. The development of surveys and registries, as exemplified by Malaysia, might serve as an example for middle-income countries. In high-income countries, the systems in place in the Republic of Korea may be relevant. These monitoring systems should allow subgroup analyses by age and sex to ensure the needs of older people in the Region are being met. Where possible, the systems should also be integrated with other health care databases so that changes in health outcomes can be assessed. This would allow monitoring issues such as determining the burden of seasonal influenza in countries within the Region. Additionally, options for recording person-specific data using mobile phone technology as has been done in the Philippines and may be a model for data collection (102).
4.4 Provision of objective information and skills, tailored to the needs of older people and health workers in the Region

Provision and evaluation of medicine, vaccine and assistive device information for older people with chronic diseases and health workers via Internet portals and smart devices may be an option for many countries in the Region.

Investment in human resources for health capacity to respond to the needs of older people

A significant gap in practice identified in this review was the lack of data on the availability of appropriate, tailored information for older people and health workers on use of medicines for chronic diseases, vaccines for older people and assistive devices. The development of information relevant to the needs of low- and middle-income countries in the Region to support appropriate use of medicines, vaccines and assistive devices appears to be a priority. The suitability of adapting existing information sources that have been developed as part of self-management programmes in the Philippines, or education programmes in China, as well as information developed and supplied via web-portals in Australia and Malaysia could be explored. Provision and evaluation of medicines, vaccine and assistive device information via internet portals and smart devices may be an option for many countries in the Region.

Limited capacity of health workers to meet the needs of older people is a related concern. This includes building needed technical skill to prescribe appropriate medicines and to fit and maintain assistive devices, which can greatly affect the availability and quality of services. Older people may also experience discrimination and stigmatization by health workers, families and communities regarding a perceived lack of value, thereby reducing their access to essential medicines and assistive devices. Ensuring the age-friendliness of services and health workers, including the needed soft skills, is a core component of the health systems agenda on ageing and health.

4.5 Programmes for improving medicine, vaccine and assistive device use

Programmes for improving the use of medicines, vaccines and assistive devices for chronic diseases in older people are needed due to poor levels of health literacy, high levels of undertreatment (people not getting needed therapy) and nonadherence to therapy.

Strategies implemented in the Region that may be adaptable include:
- peer education,
- chronic disease self-management programmes,
- monitoring, training, planning approach targeting identified problems, and
- medication review.

Further testing of novel programmes that exploit developments in technology is warranted.

There is a significant need to further develop and test interventions supporting improvements in medicine, vaccine and assistive device use for people with chronic disease in low- and middle-income countries in the Region. Many studies to date have been carried out on a small scale; trials would be
required to inform possible national implementation. In addition, none of the programmes reported the behavioural theory that underpinned implementation. Training to support behaviour-based intervention programmes may need to be developed.

Potential models that have preliminary supportive evidence include the chronic disease self-management programmes with village workers acting as support staff in the Philippines. Further, the current trials of use of mobile devices to support self-management in both the Philippines and Cambodia will provide evidence of the success of this type of intervention. However, evaluation is not yet reported, and it is not established whether similar interventions would be suitable for older people.

Peer education is another strategy likely to be adaptable to many countries in the Region. Peer education has been successfully utilized in low- and middle-income countries for management of HIV and this is likely to be adaptable for chronic disease management and medicines issues in older people. Medicines review by pharmacists is another strategy that may be adaptable to countries in the Region. While we only located studies of the success of this type of programme from Australia, many pharmaceutical societies throughout the Region are promoting this type of activity. Medicines review services are currently being developed in Japan, and are also being promoted in Viet Nam and the Philippines through the Western Pacific Pharmaceutical Forum.

With regards to vaccinations, the establishment of a surveillance and client reminder system to monitor the annual vaccination status of older people within the Region has not been explored, but it is an approach that could be considered as countries develop their health infrastructure. Targeted communication strategies and educative interventions to promote seasonal influenza vaccines in the older population would further support uptake.

Means of increasing information and awareness among older people and their families regarding options for assistive devices are required. Information portals on assistive devices that would help consumers to access clear, objective information on products and prices, as well as online training on the use of the device and guidelines for maintenance, are required. Environmental, social and cultural factors will also need to be considered in developing educational programmes. For example, some people might not want a hearing aid because of the stigma associated with hearing impairment. Educational programmes would need to address this barrier to facilitate access to devices.

4.6 Conclusions

Reorienting health systems to the needs of older people is not only a core pillar of WHO’s framework for action on ageing and health; it is also timely in the context of universal health coverage (103). A key dimension of this agenda relates to the availability, accessibility, acceptability and quality of essential medicines and assistive devices for older people, which has been the focus of this review. Based on the evidence available, it appears that access barriers to essential medicines for chronic diseases are similar for the older age group and the general population. However, the issues may be aggravated for older people due to a greater burden of disease and limited income.

As populations in the Regions grow older, partnerships across sectors and teams will continue to grow in importance. Coordination and integration will be required, with the importance of access to essential medicines for older people explicitly acknowledged in policies on ageing and policies on chronic diseases. Information sharing within and among countries of the Region on the development of a national medicines policy should cover issues specific to older people. In addition, the spectrum of stakeholders involved in the development and implementation of the national medicines policy should include organizations involved in the care of older people. As this work progresses, new indicators for monitoring national medicines policy will need to be added to support collaboration and integration. For example, is a mechanism in place to integrate medicines policy and ageing policies, and are medicines issues relevant to the needs of older people with chronic diseases identified in ageing policies?
Sound information will be critical to policy-making. Information on the availability, accessibility and affordability of essential medicines and assistive devices in the older population is currently limited in the Western Pacific Region. Data on the availability of objective, tailored information relevant to the needs of older people with chronic diseases and health workers in the Region were limited. We also found only a small number of studies that evaluated quality use of medicines programmes focusing on the needs of older people with chronic conditions in the Region. This report relied on information available in the public domain and cannot be excluded that important information may have been missed. Many studies to date have been carried out on a small scale; trials would be required to inform possible national strategies and actions. There is an important role for the WHO Regional Office for the Western Pacific in collaboration with its partners to help to convene stakeholders, support the documentation and analysis of experiences and encourage the exchange of lessons learnt in this area. Enhanced collation and analysis of information and research in the future will be important to direct strategies and actions that advance universal health coverage and meet the health needs of older people in the Western Pacific Region.
5. References


59. Fox K. Seasonal influenza vaccination in the WHO Western Pacific Region. Manila: WHO Regional Office for the Western Pacific; 2014.


64. Fox K. Seasonal influenza vaccination in the WHO Western Pacific Region. Manila: WHO Regional Office for the Western Pacific; 2014.


Annex 1: Methods

This scoping study included a literature and practice review and analysis. The following literature and databases were searched for relevant studies:

- academic peer-reviewed literature on MEDLINE;
- published WHO documents and literature:
  - WHO Regional Office for the Western Pacific, WHO Department of Essential Medicines and Pharmaceutical Policies, WHO Medicines Documentation system, WHO library database (WHOLIS)
- published documents of other relevant international organizations:
  - United Nations Development Programme (UNDP)
  - Health Action International (HAI)
  - World Bank
  - Organisation for Economic Co-operation and Development (OECD)
- where the information was available in English, government plans and documents identified by searches of ministry of health websites of the 37 Member States of the WHO Western Pacific Region; and
- other online resources:
  - 2011 International Conferences on Improving Use of Medicines (http://www.icium.org/index.htm)
  - International Network for Rational Use of Drugs (INRUD): (http://www1.inrud.org:81/rmwp)
  - Google search.

The search terms included the following keywords: access or accessibility or availability or acceptability or quality or substandard or sub-standard or counterfeit; essential; medicine* or drug* or medication* or pharmaceutical* or information; old* or elder* or aged or aging; chronic; disease* or illness* or sickness; glaucoma; macular degeneration; Alzheimer or dementia; cardiovascular; diabetes; osteoarthritis; osteoporosis; chronic obstructive pulmonary disease or COPD; chronic disease self-management; medicine review; medicine management; the names of the individual Western Pacific Region countries; Western Pacific; and Pacific island*. Both text words and subject headings (MeSH terms), where relevant, were used in the search. Included studies were limited to English-language publications and the publication year from 2000 to current.

Additional information was obtained through consultation with the WHO Regional Office for the Western Pacific.

A recent systematic review on assistive devices for older people (1) and a recent consultation report on advanced technological innovation for older people (2) commissioned by WHO were provided by the WHO Regional Office for the Western Pacific. These reports were used to inform the scoping study on the topic of assistive devices. Limited additional search of the literature on this topic was undertaken.

A survey (3) and a presentation on seasonal influenza vaccine policies (4) were provided by the WHO Regional Office for the Western Pacific, and limited additional search of the literature on access to influenza vaccines was undertaken.

References:
Annex 2: Supplementary data

Fig. A2-1. Median availability (and range) of NSAIDs and simple analgesics, selected countries in the Western Pacific Region, public and private sectors, 2004–2012

Public sector

Private sector

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

Data included either generic or innovator brand medicine, whichever was more available.


Fig. A2-2. Median availability (and range) of antiulcerants, selected countries in the Western Pacific Region, public and private sectors, 2004–2012

Public sector

Private sector

Notes: BAR = median availability; ERROR BAR = range of availability; N = number of medicines; LMIC, lower-middle-income country.

Data included either generic or innovator brand medicine, whichever was more available.

Annex 3: Limitations

This scoping study has a number of limitations. Most of the information collected came from peer-reviewed literature available online or from organizations’ and governments’ websites. Although numerous searches were undertaken to collect information on specific aspects of access to medicines and assisted devices for older people, the literature review was not systematic.

It cannot be overlooked that important information may have been missed out, in particular information provided in country reports not publicly available. Furthermore, there was no attempt to collect information through a survey of key informants from countries and areas of the Region due to resource and time constraints.