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Sustainable Health Care System in Ageing China: A Case Study of Regional Practice in China

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Abstract

Objectives: This paper will document the Qingdao Long-term Care Medical Insurance (LTCMI) programme in order to properly understand and analyse its recipient demographics and the determinants of cost differentials for clients presenting with different patterns of disability, and to estimate a full-coverage Long-term Care (LTC) programme cost in Qingdao. Information on Activity of Daily Living (ADL) status and mortality patterns in different care locations will be used.

Methods: Detailed data from the Qingdao programme are used to build multi-logit models to analyse the exit patterns of clients from the Qingdao LTC system. Statistical estimation is then employed to assess costs.

Results: Findings reveal that about 10% of the programme's clients received institutional care, while the rest received care at home or in other residential places. More than 60% of recipients were aged eighty and above. For those who survived after twelve months in the programme, exit ratios were only correlated with age eighty and above, gender and entry level of ADL scores. This recipient structure suggests that the LTC system, assuming current per unit costs, would only cost about 0.1% of GDP.

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Discussion: China is in a unique position to set up an imperative comprehensive LTC system. Such a system will not only provide frail elderly people with long-term medical care services, but also greatly relieve the pressure on hospitals caused by ageing patients and systematically distribute medical resources in the long run, thus contributing to its sustainability.

Introduction

LTC policies represent the next frontier of public response to demographic change and economic development. What used to be primarily a family responsibility is now the subject of systematic policy focus. Ageing populations, along with advances in medical technology, smaller families, increasing longevity and changes in the labour market, are driving this shift, as well as the increase in the population for whom LTC is most relevant—the "oldest old". The proportion of the population aged eighty or over in OECD countries is projected to increase from 4% in 2010 to nearly 10% by 2050. In a few countries, such as Germany, Italy, Japan and Korea, this figure will be around 15% (OECD 2011, p62).

In emerging economies, LTC policy is even less developed. However, many of these countries are ageing rapidly and witnessing the unprecedented scattering of families due to large-scale urbanisation and regional migration. In China, traditional models of family care are beginning to break down in the face of the world's largest migration—from rural to urban regions—which has, inevitably, reduced the informal care available to older people. Already, there are some 23 million Chinese over the age of eighty and this number is projected to rise rapidly, to 130 million by 2050 (Lu et al., 2014).

National policy attention is only now turning to LTC policy in China[2]. Currently, the elderly in need of LTC support are mostly treated in hospitals, either as outpatients (where informal home support is available) or as inpatients. This is a situation reminiscent of Japan in the late 20th century, before the introduction of its LTC insurance policy (Matsuda & Yamamoto, 2001; Mitchell et al., 2004).

In anticipation of the upcoming demand for LTC, some cities and provinces in China are piloting LTC programmes[3], of which the Qingdao LTC project is an important example. Located in Shandong Province, Qingdao is already demographically old by Chinese standards, with some 20% of its population over the age of sixty. Set up in 2006, the pilot is the first of its kind and represents one of the guideline models recommended by the national government[4] in June 2016.

Notwithstanding the level of importance ascribed to it by national, regional and local government, a clear description of its development and current features is not available and no comprehensive analysis of usage or cost has been undertaken. This paper aims to fill this gap. LTC in China has already received some research attention (Ma et al., 2012; Zhu et al., 2009; Gu et al., 2009; Jin, 2006). However, these papers approach LTC from the demand side only. The Qingdao data provide the opportunity to gain insight into supply side issues and costs. As well as documenting and contextualising the initiative, the paper exploits unique

[2] Document No. 80 by the Ministry of Human Resources and Social Security (June 2016) and Document No. 200 (July 2016) by the Ministry of Civil Affairs both encouraged specific policy pilots of LTC systems.
3 It is a common pattern in China that new policies are trialled at provincial, city or county level before national guidelines are adopted.
4 Document No. 80, 2016, by the Ministry of Human Resources and Social Security on June 27, 2016. Accessed at http://www.mohrss.gov.cn/gkml/xxgk/201607/t20160705_242951.html on August 14, 2016.

data made available by the Qingdao authorities which allow calculation of full coverage and cost, making possible, for the first time, a quantitative analysis of the long-term costs and benefits of programmes of this type in the Chinese context, as well as the impact factors in determining the system costs.

The paper has two objectives:

1. To document the Qingdao LTC programme so that its nature is properly understood, and assess a full coverage LTC programme cost in Qingdao and its associated insurance premium and funding mechanisms; and,
2. To analyse its cost per client and the determinants of cost differentials of clients presenting with different patterns of disability, using information on ADL status and the mortality pattern in different care locations.

This paper is the first of its kind to link an actual policy practice of LTC eligibility based on ADLs with some system mortality analysis in China. Previous studies (Stineman et al., 2012; Gu et al., 2009; Feng et al., 2010) based analysis on self-reported survey data. A projection based on self-reported survey data is likely to be different from actual LTC system assessment criteria for eligibility.

The LTCMI is relatively new and is a local policy. It is evolving and is regularly reformed. The current policy will be in force until the end of 2019. The next section describes in some detail the LTC programme of Qingdao, followed by data and analysis in section 3. Section 4 concludes.

THE QINGDAO LTC PROGRAMME

Qingdao runs one of the fifteen recommended pilot LTC programmes in China. It consists of two parts managed by the two provincial administrative government agencies: the Bureau of Human Resources and Social Security, which launched an innovative LTCMI policy (starting in 2006, but first documented as a policy in June 2012); and the Bureau of Civil Affairs, which manages personal care assistance services to communities and homes. In practice, these agencies complement each other in delivering LTC to a non-resident clientele.

In China, medical care is typically tied to hospitals. The LTCMI programme permits medical care to be delivered outside a hospital environment. Where the alternative is inpatient care, hospital accommodation costs are saved. Where the alternative is outpatient care, medical care quality and convenience are improved, and coordination with home care support is facilitated. Insured medical services are available to all disabled, either in nursing institutions or in their own homes.

The Qingdao LTCMI was rendered feasible because of a surplus in the medical insurance fund. By 2012, in Shandong Province, the total medical insurance fund reserve was RMB 41.6 billion, while the total outlay in the same year was RMB 32.2 billion[5]. This made it fiscally feasible to transfer premiums from those accounts to LTC insurance. This separation of funding allowed the separation of medical long-term nursing needs from the pool of medical insurance funds, providing a standard service structure to the whole population.

Motivation

[5] *Source: http://www.stats.gov.cn/tjsj/ndsj/2013/indexch.htm, China Statistic Year Book 2013*

Policy makers have long been concerned about the costs of caring for older people in existing medical facilities. According to the National Health Survey carried out by the Ministry of Health in 2008, the hospital rate for people aged sixty-five and above was 193.6 per thousand, while the national average was 70.8 (China Health Statistics Year Book 2012, p 192). Quite a few older people were in intensive care, often as part of palliative care. The lack of palliative institutions and rehabilitation services put great pressure on medical insurance expenses. This was the initial motivation: seeking to mitigate medical expenses in acute care.

To give some sense of the increasing resources devoted to medical care, hospital beds increased from 4.72 beds per thousand residents in 2010 to 6.20 in 2015, and doctors per thousand residents from 2.32 to 3.35 (2015 Qingdao Year Statistic Book, p 367). Currently, most top grade hospitals are already fully occupied although lower grade hospitals have lower utilisation rates. Officials were concerned that the rapid growth of hospital beds, together with demographic ageing, would induce "social hospitalisation", such as existed in Japan, if there were no LTC system.

Anticipating growing demand from an ageing population, the Chinese government has been encouraging both public and private sectors to build more nursing home beds. However, most of the so-called LTC beds are simply a motel type of bed for self-sufficient older people. Only a small proportion of LTC beds have a high care service capacity. The LTC facilities with high care service are either highly subsidised by the government and financed by the traditional welfare system of the Civil Affairs agencies[6], or so expensive that few people can afford them. By 2014, there were 34,463 beds for LTC facilities in Qingdao but only 21,782 residents. Qingdao had about 90,000 disabled elderly residents in 2015. Local officials say that the low

[6] *Usually there are limited places, and a very long waiting list for these Public Welfare Nursing Homes.*

(63%) occupancy rate in nursing homes was mainly due to a lack of medical treatment facilities and affordability[7]. The launch of LTCMI is partly aimed at enabling existing nursing homes to deliver affordable medical care to disabled elderly people.

Operation of LTCMI since 2012

The model was established formally in 2012 with the publication of Qingdao Document No. 91, which defined three pillars of service: Hospital high care (twenty-four hours a day) in either grade two or grade three hospitals; and care directed to residential institutions or individual homes. These services are provided for unit prices set by the LTCMI. In 2012, for those eligible in nominated nursing homes or home care, the daily subsidy was RMB 60 per day per head. For those in second and third grade hospitals, the subsidy was RMB 170 and RMB 200 per bed respectively. (This should be compared with an average of RMB 498 and RMB 1072 per day in second and third grade hospital bed fees).

In 2015, a reformed policy was announced which further expanded service provision. In addition to the hospital, nursing home and home care pillars of care, mainly providing services to urban citizens, a fourth pillar–mobile clinic care–was added to take care of rural disabled elderly people with medical needs.

The 2015 reform merged unit prices for high care provided by all qualified institutions, including both grade two and grade three hospitals, which were set at RMB 170 per day. The nursing home service price was increased to RMB 65 per day per head, with recipients receiving medical services at least twice a week and with each service lasting at least one hour. Home care was charged at RMB 50 per day, with similar requirements for nursing home

[7] *Information from: http://news.qingdaonews.com/qingdao/2015-12/05/content_11386785.htm, accessed on Jan 13, 2017 and translated by authors.*

providers. The above three service types are mainly for urban Employee Medical Insurance beneficiaries. By contrast, the mobile clinic services are provided by community centre doctors and rural clinic doctors, and subsidised by the LTCMI at between RMB 800 and 1600 per year per client. Co-payments for these services were set at 10% of the prices for urban Employee Medical Insurance members and 20% for rural and urban residents who contribute to high level of Basic Medical Insurance. For other urban and rural residents who contribute lower level Basic Medical Insurance, co-payment is set at 40%, which only allows for access to the mobile clinic type of service.

To give an aggregate overview, the Shandong Bureau of Finance reports that between 2012 and 2016, about 40,000 recipients received services under the LTCMI, with a total expenditure of RMB 1130 million. This is estimated to have saved some 20 million days of hospital bed services, with an outlay equivalent to normal hospital charges of 1.4 million days.[8]

Service Model and Providers

LTCMI was designed to deliver medical services outside a hospital environment, redistributing health resources and utilisation from top to lower grade hospitals/clinics. By the end of 2016, under the LTCMI policy, about five hundred urban institutions had acquired qualifications to provide services to LTCMI recipients. Among them, forty-seven institutions, including nursing homes, are now qualified to provide high care services. Seventeen institutions provide special care to totally disabled recipients who need medical support to maintain life.

The four pillars of services covered by the LTCMI target four different groups of people in need. Hospital special care provides the necessary services to totally disabled people with

[8] *Information from* http://www.mof.gov.cn/xinwenlianbo/shandongcaizhengxinxilianbo/201612/t20161201_2471088.htm

high medical needs, with providers being mainly second and third grade hospitals. Lower grade hospitals are encouraged to transform their normal hospital beds into geriatric wards. By 2016, about eighteen public hospitals had set up or transformed their operations to focus on geriatric services.

Nursing home care mainly focuses on hospice care; providers are special medical institutions for care of the elderly. By 2015, seventy-one nursing institutions were qualified to provide this type of service. Major hospitals can also establish partnerships with nursing homes and provide a "green channel" to elderly people with an emergency, as well as sending doctors to nursing homes or institutions to train the doctors and nurses there.

For home care and mobile clinics, community health centres are the major service providers. Institutions or clinics with General Practice (GP) doctors sign contracts with LTCMI institutions and provide care accordingly. About 4000 community centres, including village clinics, are now extending their services to homes in rural or near rural areas. The rural doctors provide services to disabled rural patients at their homes. Without LTCMI, most of the rural disabled could not afford to receive medical services regularly and rural doctors would not get paid fairly to visit home patients.

In practice, the LTCMI agency signs a contract with service providers based on the number of clients who are approved by the assessment body[9]. The LTCMI does not sign contracts with any individuals. The service providers have discretion to adjust service provision in light of changing circumstances. Individuals pay only the specified co-payment.

[9] *All information taken from http://www.china-reform.org/?content_675.html*

Most Chinese patients prefer to go directly to the top grade hospitals and emergency units when they become ill. LTCMI enables medical resources in top grade hospitals to be redistributed to lower level hospitals or qualified institutions at much lower cost to the Basic Medical Insurance system. It also enables primary level medical service providers (ie, GPs at community centres and rural clinics) to provide more services, thus increasing the overall efficiency of resource utilisation.

Source of Funds and Fund Management

LTCMI is a city-level pooling insurance system with no individual accounts[10]. It has two separate accounting systems: one for Urban Employment Medical Insurance members and the other for Rural and Urban Resident Basic Medical Insurance members. Before 2014, LTCMI fund sources included contributions from medical insurance funds and fiscal transfers, including welfare lottery revenues.

At the end of 2014, Qingdao Municipal Order No. 235 was issued, to be valid for five years. It changed the funding structure to rely solely on the Basic Medical Insurance premiums. It stipulated that up to 20% of the accumulated Qingdao Employee Basic Medical Insurance fund balance, about RMB 1980 million, be transferred to the LTCMI account. Every year, all Urban Employee Medical Insurance members, comprising about 3.85 million people, transfer 0.5% of their individual account premium, ie, a quarter of their 2% individual account contribution, into the LTCMI account. This annual transfer totalled about RMB 500 million in

[10] Unlike the usual social pooling medical insurance policy, China's Basic Medical Insurance consists of two parts: the social pooling part and an individual account.

2015. Rural and urban citizens, comprising about 4.92 million people, pay 10% of their total medical contribution into the LTCMI account, a total of about RMB 300 million[11].

In 2015, through tender, the LTCMI introduced two insurance companies to manage the funds. The Qingdao branch of the PICC Health Insurance Company Limited manages the fund for the Employee Medical Insurance account and China Life Qingdao manages the remaining funds, supporting rural and urban residents. Evaluation for service eligibility has been transferred to the insurance companies as independent certification institutions. Co-ordination with various involved parties has been organised.

Eligibility

The LTCMI covers all members who join the Employee Medical Insurance system as well as rural and urban residents with Basic Medical Insurance. Members experiencing functional disability due to ageing, disease and disability can apply for institutional/hospital care or at-home care. The Qingdao application form for LTC service is attached as Annex 1.

There are ten ADL evaluation conditions with a maximum total score of one hundred. These questions are the same as the Barthel Index ADLs (Wade & Collin, 1988). Lower scores indicate greater disability. Most eligible beneficiaries have ADLs of less than fifty-five, with some chronic disease or other medical conditions. This is different to standard longitudinal questions which usually only have six questions.

Full Coverage LTCMI Cost Estimation

[11] *Information released from MOF report via http://www.mof.gov.cn/xinwenlianbo/shandongcaizhengxinxilianbo/201612/t20161201_2471088.htm*

Currently, the system covers the whole city of Qingdao, with a population of 9 million[12] although in practice, service delivery is less than complete. As indicated above, the 2015 policy stipulates four service types. Government estimates indicate that there were about 20,000 disabled LTC recipients under the LTCMI[13] by the end of 2014, at which time not all districts were covered. Assuming the LTCMI becomes a separate social insurance system, the full coverage budget needs to be calculated. In line with the ADL score grouping distributions which will be described later, some 90,000 individuals would be eligible to receive services under LTCMI when coverage is complete. LTCMI costs are estimated using this figure.

Table 1. Qingdao's LTC costs with full coverage to 90,000 recipients

	Service Fee	Beneficiaries	Total Cost ('Mil)	OOP Pay ('Mil)	LTCMI cost ('Mil)
Institution (10%)	170/day	9,000	558	112	447
Nursing Home (20%)	65/day	18,000	142	28	114
Home Care (40%)	50/day	36,000	219	44	175
Mobile Clinic (30%)	1200/year	27,000	32	6	26
Total		90,000	***952***	***190***	***762***

Note: The out-of-pocket payments are assumed at an average of 20% for all service types and for all recipients, as the different account members are required to pay between 10 and 40% for various services; both nursing home and home care patients are assumed to receive a care service once every three days.

Table 1 indicates an annual LTCMI outlay of RMB 762 million. The Qingdao government reported that in 2016 the cost of the institutional, residential and nursing home care was

[12] *This figure includes migrants without local Hukuo, who are not covered by the LTCMI*.

[13] *The coverage number is as per http://zqb.cyol.com/html/2015-02/12/nw.D110000zgqnb_20150212_1-06.htm (column on China Youth Newspaper of Feb 12, 2015, mentioning that there were about 93,000 totally disabled Qingdao residents, which rounded up to 100k., accessed on August 26, 2016, translated by authors. The allocation in Table 5 is based on the number in Table 1, where about 10% of the recipients were ADLs 0 and should be included in the institutional care; and about 19% in ADLs 5-15, which meets the nursing home number. This allocation provides full coverage for the totally-disabled-recipients distribution demand.*

about RMB 300 million and that of the mobile clinic only about RMB 20 million. On this basis, the system still falls short of full coverage.

Social LTC Assistant Programme

The LTCMI system is complemented by a social care programme administered by the city's Bureau of Civil Affairs. The programme is implemented at district level (there are ten districts in Qingdao City). In contrast to medical services, which are, in principle, available to all, support for social care is strictly means tested, with both financial resources and family situation being considered.

Qingdao now provides forty-five to sixty hours' home services per month to 7788 frail older people with no family support and poor financial status. The local government also established 1244 "day care centres" and 236 community canteens which supply meals to five thousand elderly people[14].

The Qingdao Government subsidises each day care centre with RMB 50-100,000 as an initial operational fund. Some thirty pilot centres were chosen to provide specialist services and were granted some additional funding. For example, one of these facilities, the "Licang Memory Day Care Centre" which is operated by a private enterprise, provides care for more than thirty semi-disabled or totally disabled elders with dementia. The recipients can choose day care, boarding care or respite care services, and the local government spends RMB 250,000 to purchase the centre's services annually, based on the current service volume.

[14] *Mild-disabled elders with MLA would get forty-five hours per month of social services, and the totally disabled would get sixty hours. The cash subsidy for the service is RMB 15 per hour in urban areas and RMB 10 per hour in rural areas. The hours would be used to purchase services such as preparing meals, shopping, cleaning, bathing, etc. Source from: http://www.china-reform.org/?content_675.html, translated by authors and accessed on August 4, 2016.*

These pilot centres were set up to encourage institutions to provide services to more disabled elderly people locally.

Furthermore, a cash subsidy is available to the oldest elderly, regardless of disability status. The amount of subsidy varies from district to district. In Laoshan District, for example, every elderly person between the ages of eighty and eighty-nine receives RMB 120 per month, increasing to RMB 220 for those in their nineties, and to RMB 800 for centenarians[15]. The cash subsidy programme increases elderly people's purchasing power for LTC services.

The following section mainly focuses on the LTCMI analysis. The data are more comprehensive and detailed than those from any other Chinese source. The analysis aims to provide insights into how the plan has been implemented in practice.

DATA ANALYSIS AND SYSTEM COST INDICATION

Our analysis is based on data from the beginning of the implementation of the policy in July 2012 to April 2014. In 2013, the total cost of LTCMI was about RMB 200 million, covering four districts of the ten in the city. At the end of March 2014, the system had about 1500 patients in its institutional care beds and about 22,000 home care clients.

Members' mortality patterns, service items and the settings for unit service prices are essential to understand the expenditure structure of LTCMI. The current service items and prices are determined by the local government agency, based on its investigations and experience. What is unpredictable is the mortality rate of the programme members. The next

[15] *Information from http://www.kfxxgc.com/show-191-121810-0.html.*

section discusses the beneficiary structure, and system mortality and its impact factors. The analysis aims to provide guidance as to future cost trends.

Data

The data comprise 23,828 individual observations, covering the entire client activity of the Qingdao LTCMI from July 2012 to 15 April 2014. In this period, 4454 individuals exited the system; officials confirm that in almost all cases, this indicates death[16].

The data contains age, sex and entry ADLs[17] based on the form attached as Annex 1. It records days in the system. Each contract in that period is for one year (unless exit occurs before the contract expiry date). Disease types and comprehensive clinic reports are available but not grouped. We categorise disease type into four common groups (heart, cerebral, diabetes and hypertension) with the rest as 'others'. General statistics are reported in Annex 2.

About 61% of the LTCMI recipients are female; 62% are aged eighty or above. About 10% receive institutional care while the rest receive home care services. Of all disease types, about 36% are related to stroke. About 72% have ADLs equal to or less than thirty-five points (severely disabled) and about 10% have a zero score (totally disabled). In order to discuss the impact factors associated with exit patterns, multi-logit models are employed for further analysis.

Model Analysis

[16] *We equate mortality with exit from the system, since only a very small number of clients exit as recovered. Furthermore, from the system cost point of view, exits are equivalent to death.*

[17] *The ADL items in Qingdao's assessment form are the same as in the Barthel Index of Activity of Daily Living (BADL). Though some literature mentions that 0-20 scores out of 100 could be catalogued as "total" dependency and 21-60 as "severe dependence" (Lewis & Shaw, 2008), we group recipients in a different score scope, according to the current LTCMI demographic structures.*

Consistent with previous literature (Kane, Saslow & Brundage 1991; William, Lyons & Rowland, 1997), mortality rates tend to converge over time (the first-year odds ratio is much higher than that at three to five years). We examine the time effect by grouping the members into four duration periods: one exit between zero and nine months, a second between nine and twelve months and a third between twelve and fifteen months, with the base line being those who survive longer than fifteen months. The dependent variable is survival probability of each period and the right-hand side variables include age, sex, entry level of ADL scores, types of service received and disease recorded. Table 3 reports the results.

Table 3. Multi-logit model results for first six-month system members and their exit patterns over time

	0-9M	9-12M	12-15M
Age (base<60)			
60-69	0.1379	0.0914	0.234
70-79	0.1072	0.1259	0.1474
80-89	0.3189**	0.2217	0.3566
90+	0.7288***	0.6066**	0.8035***
Gender (female)	0.3799***	0.4444***	0.2496**
Disease (base: others)			
heart	-0.2965***	-0.0645	0.1799
cerebral	-0.4979***	-0.1282	0.0009
diabetes	-0.4837	-1.1472	-0.0975
hypertension	-0.6957***	0.0363	-0.0777
co-morbidity	-0.4720***	-0.1688	-0.1629
Care type(Institution)	-0.2224***	-0.5108***	0.0381
ADLs (base 0-10)			
15-30	-0.7620***	-0.3755***	-0.3060**
35+	-0.9113***	-0.7630***	-0.5252***
Constant	-0.8727***	-2.1989***	-3.3520***
N	**8093**	**8093**	**8093**

The exit probabilities do change over time. For those who exit before nine months, aged eighty and above shows statistical significance. Age and exit probability are positively

correlated. For those who survive nine months in the system, only those aged ninety and above reveal this correlation. Age is not a key factor in determining the length in the system, until late age.

The three periods all present significant and consistent gender trends: males are more likely to exit. In terms of disease types, although the first nine months' exit ratio is significantly related to disease, from nine months onwards disease type is not related to any significant difference in exit probability. Special disease types, other than the common heart, cerebral, diabetes and hypertension, have a higher mortality rate in the system in the first nine months.

The exit probability and the place of receiving care shows an expected pattern in the first twelve months: institutional members are more likely to exit. The twelve to fifteen months exit probability, however, shows no significant difference between institutional and residential clients, although observations are limited for these groups.

One of the only two factors which are consistent throughout all three time periods, apart from gender, is the ADL levels. More severely impaired clients are more likely to exit. Along with gender, ADL scores are probably the most important factors in determining the mortality pattern in the LTC system.

The ADL impact seems to decline over time. The co-efficient for those with twelve to fifteen months in the system compared with those with less than nine months' tenure is less than half, showing a convergence trend over time.

According to the Qingdao Bureau of Statistics Year Book 2010, the total death rate for the population aged sixty and above is 3.3%. The LTCMI system exit rate (proxy of death rate) for the same age group is about 23%, about seven times more than the ordinary population. This

is not only due to the health status but also age structure differences (there are more people aged eighty and above in the LTCMI system). The population mortality rate for age ninety and above is 22%, very similar to the LTCMI rate[18]. The multi-logit model results, together with the statistical description, carry some implications for the Qingdao LTCMI cost:

1. Since age is correlated with mortality rate after age eighty and above for LTCMI members, the average age of the recipients will influence system mortality.

2. The most important impact factor for mortality is the entry ADL scores, followed by recipients' gender, but the hazard ratio reduces with survivor time. Using different criteria standards based on ADLs and gender could generate different scenarios of LTC system cost.

CONCLUSION AND POLICY CHALLENGES

LTC has been characterised as the new frontier of public policy related to ageing. Emerging economies, with rapid ageing, internal labour migration scattering families, and nascent social protection systems, are especially vulnerable to shortfalls in LTC provision as population ageing progresses.

This paper documents and provides some initial analysis of a pilot LTC programme in China, based in the city of Qingdao, a conurbation of some nine million people covering both urban and rural districts. Qingdao has initiated a policy which targets disabled people who need LTC with medical conditions and is integrated with social care service through a means-tested system. We find that the separation of the Basic Medical Insurance delivers more effective coverage and better service to disabled elderly people at lower cost.

[18] *The population survivor probability and LTCMI recipients survivor probability at various ages are estimated by the authors using Sullivan's method, data from 6th National Census*.

The current LTCMI expenditure is not a pure add-on to the Basic Medical Insurance but should be seen as being offset by reductions in hospital health care outlays. If the current 1500 institutional recipients were in hospitals (second grade), it would cost the medical insurance about RMB 190 million more, or about 60% of the total LTC budget.

One of the challenges in the immediate future is to improve the equity of service under LTCMI. Currently, the Employee Medical Insurance members and the rural and urban resident members still have two accounts. The former receive more comprehensive benefits and face only a 10% co-payment while the latter, who are poorer, have limited access to institutional high care and face a 20 or 40% co-payment. Whether the two accounts could be merged into one and provide universal benefit to all residents is not clear. It could be achieved by an equal contribution of RMB 100 per head per annum[19].

Another challenge is how to integrate different systems run by different government agencies to provide support to frail, elderly individuals. Currently, LTCMI is mainly managed by the Health Bureau and the Social Security Bureau, while the Bureau of Civil Affairs administers social care. Another agency—the Disabled People's Committee—also supports disabled people, including elderly individuals, in various ways. LTC support to elderly people would be more efficient and effective if one government body administered all services.

Qingdao is a local jurisdiction. If further study indicates that the Qingdao design improves efficiency, service reach and equity, as indicated here, and is also sustainable, as our preliminary results suggest, then this model must be in serious contention for adoption more widely. The burgeoning numbers of the "very old" that are projected in China in coming

[19] *The current premium for Employee Medical Insurance members is RMB 156 per year, and for other rural and urban residents RMB 61; this is equivalent to RMB 100 per capita for the total population of Qingdao.*

decades indicate that an LTC delivery model embracing these characteristics is urgently needed.

Annex 1. Application Form for Qingdao LTCMI table (with ADLs scores)

Time ： YY MM DD Application Signature：					
Name		**ID**		**Occupation**	**Employee □ Retiree □**
Disease Description					

Items	**Standards**	**Score**	**Assessment**	
			Initial	**Recheck**
1、Eating	Can't do	0		
	Need Help	5		
	Can do	10		
2、Bathing	Can't do	0		
	Can do	5		
3、Grooming	Can't Do	0		
	Can do	5		
4、Clothing	Can't do	0		
	Need help	5		
	Can do	10		
5、Bowel	Can't control	0		
	Sometimes out of control (once a week)	5		
	Can control	10		
6、Urine	Can't control or do	0		
	Sometimes (<1 /24hrs ; >once a week)	5		
	Can control	10		
7、Toilet	Can't do	0		
	Need help	5		
	Can do	10		
8、From Bed to chair	Can't do	0		
	Need 2 people to help	5		
	Need 1 person to help	10		
	Can do	15		
9、Walking	Can't walk	0		
	Can handle wheelchair	5		
	Need 1 helper	10		

	Can do（with tools）		15		
10、Walking on stairs	Can’t do		0		
	Need help		5		
	Can do		10		
Total			100		
SS check	Agree □ No □	Check time		Signature	

Annex 2. General Statistics of Qingdao LTCMI data from July 2012 to March 2014

ADLs Groups	0	5 -15	20-35	40+	All
ADLs distribution	10%	19%	44%	28%	
Age <60	170	235	478	398	5%
60-69	175	315	835	701	9%
70-79	473	933	2,464	1,826	24%
80-89	1,029	2,097	5,047	3,055	47%
90+	443	861	1,595	694	15%
Male	37%	40%	38%	39%	39%
Female	63%	60%	62%	61%	61%
Institution Care	529	600	837	452	10%
Home Care	1,761	3,841	9,582	6,222	90%
Disease Types					
hypertension	439	1,050	3,087	2,223	29%
heart	298	750	2,242	1,777	21%
cerebral	1,197	2,000	3,666	1,830	36%
diabetes	154	265	776	626	8%
others	286	625	1,219	822	12%
No. of Recipients	2,290	4,441	10,419	6,674	23,824

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