



Who will care for the oldest people in our ageing society?

Jean-Marie Robine, Jean-Pierre Michel and François R Herrmann

BMJ 2007;334:570-571

doi:10.1136/bmj.39129.397373.BE

Updated information and services can be found at:
<http://bmj.com/cgi/content/full/334/7593/570>

These include:

References

This article cites 17 articles, 12 of which can be accessed free at:
<http://bmj.com/cgi/content/full/334/7593/570#BIBL>

1 online articles that cite this article can be accessed at:
<http://bmj.com/cgi/content/full/334/7593/570#otherarticles>

Rapid responses

One rapid response has been posted to this article, which you can access for free at:
<http://bmj.com/cgi/content/full/334/7593/570#responses>

You can respond to this article at:
<http://bmj.com/cgi/eletter-submit/334/7593/570>

Email alerting service

Receive free email alerts when new articles cite this article - sign up in the box at the top left of the article

Topic collections

Articles on similar topics can be found in the following collections

[Other Health Policy](#) (589 articles)
[International health](#) (317 articles)
[Organization of health care](#) (1708 articles)
[Needs assessment](#) (80 articles)
[Health Services Research](#) (596 articles)
[Long term care](#) (101 articles)
[Disability](#) (47 articles)

Notes

To order reprints follow the "Request Permissions" link in the navigation box

To subscribe to *BMJ* go to:
<http://resources.bmj.com/bmj/subscribers>

Who will care for the oldest people?

The number of informal carers for frail elderly people is set to fall steeply. **Jean-Marie Robine and colleagues** propose a way to assess the trend that should help policy makers plan for the deficit

Medical journals usually focus on the most dramatic consequences of population ageing,¹⁻⁴ such as the effect on financing of health care.⁵⁻⁶ Many people fear that population ageing will generate a demand for long term care that will outpace the supply of formal care.⁷⁻⁸ Of course, unremitting prevention of disability could reduce demand,⁹ but the effect of a decline in disability on the solvency of social security programmes is still debated.¹⁰ This debate does not consider the quality of long term care or the availability of families to care for frail elderly people.¹¹⁻¹² We describe an indicator to monitor potential informal care resources using American and Swiss data as examples.

Population ageing

Most studies of population ageing use demographic indicators based on a three age group population model—young people, those of working age, and elderly people. This model does not reflect the current population changes.¹³ Indeed, the demographic dependency ratio (the ratio of young and elderly people to working people) will start to fall steeply only around 2010, as a result of ageing of the baby boomer generation (born after the second world war).¹⁴ This indicator cannot properly reflect the large increase in the numbers of frail elderly people who may be highly dependent on others in their daily life.

The consequences of the demographic transition that occurred during the 20th century in Europe and North America were largely ignored. Population ageing is characterised by changes in the proportions of the different age groups. The sequence of changes begins with a decrease in the proportion of young people and a large increase in the working age group before leading later to an inescapable increase in the oldest age group. Within this group, younger retired people contribute increasingly to the long term care of very elderly people by providing informal care to their parents. This active retired generation, called the “sandwich” or “pivotal” generation, will have to play a greater part in the future

Jean-Marie Robine research director

Jean-Pierre Michel professor of geriatrics medicine

François R Herrmann deputy head physician
Department of Rehabilitation and Geriatrics, Geneva Medical School and University Hospitals, 1226 Thonex-Geneva, Switzerland

Correspondence to:

F Herrmann
francois.herrmann@hcuge.ch

as the oldest old are expected to make up an increasing proportion of the number of retired people.¹⁵

These significant changes in the population age structure will have a big effect on intergenerational relationships. As the three age group population model cannot reflect this, it is time to move to a four age group population model comprising young people, those of working age, younger retired people, and the oldest people.

Oldest old support ratio

Extending previous work,¹⁶⁻¹⁷ we propose to introduce the oldest old support ratio as the ratio of people aged 50-74 to those aged ≥ 85 for monitoring changes in the age structure. This ratio provides information on the number of people potentially available to care for one person aged ≥ 85 .

In practice, not all grown-up children, especially men, provide informal care for their parents. Spouses of dependent people significantly contribute as long as they are able to provide such help, but studies have shown the key role of women aged 50-74. Middle aged women not only care for their parents or in-laws but also have an important role in educating their grandchildren and supporting their children, thus having a pivotal role within the family.¹⁵ On the other hand, not all people aged ≥ 85 require help with their everyday needs. For instance, according to the US national long term care survey only about half of Americans aged 85 or older are dependent on others to perform personal care or instrumental activities of daily living.¹⁸

Since it provides information on the numerical balance between the middle aged and oldest people, the oldest old support ratio is a rough indicator of informal care resources for very elderly people, complementing the demographic dependency ratio. The main conceptual difference with the oldest old support ratio is that people aged 50-74 are not available to care for anyone except their relatives. However, this more personal relationship between care givers and receivers does not question the necessity to monitor changes at the population level. Participation in the workforce among the 50-74 age group, especially women, might be limited in the future by the necessity of providing informal long term care to relatives.

Trends in Switzerland and the United States

To illustrate the new indicator, we use data from the Human Mortality Database (www.mortality.org) and demographic forecasts from the International Data Base (www.census.gov/ipc/www/idbnew.html) for Switzerland and the United States. In Switzerland, where data on population age structure are available from 1876, the



Change over time in dependency ratio and oldest old support ratio in Switzerland and United States

Year	Dependency ratio*		Oldest old support ratio†	
	Switzerland	United States	Switzerland	United States
1890	0.90	NA	139.7	NA
1910	0.87	NA	111.8	NA
1930	0.68	NA	101.0	NA
1940	0.64	NA	96.0	NA
1950	0.67	NA	68.9	NA
1970	0.73	0.92	37.9	30.9
1990	0.62	0.70	16.2	16.8
2010‡	0.65	0.69	8.7	9.9
2030‡	0.82	0.88	6.6	8.1
2050‡	0.98	0.91	3.5	4.1

*Dependency ratio=(number of people aged 0-19+number aged ≥65)/number aged 20-64.

†Oldest old support ratio =number of people aged 50-74/number aged ≥85.

‡Forecasted values.

dependency ratio has greatly improved, although the proportion of the population aged ≥65 has increased. The decrease in the proportion of young people has not been fully compensated for by the increase in people aged ≥65. This trend, also observed in the United States over the past 40 years, masks a substantial increase in the number of very elderly people as well as large changes in the ratio of the number of younger retired people to the oldest retired group. In Switzerland, the oldest old support ratio has fallen from 139.7 in 1890 to 13.4 in 2003 (table). The same trend applies in the United States. The oldest old support ratios are expected to decrease to 3.5 in Switzerland and 4.1 in the US by 2050 (table).

These forecasts highlight the large fall in the potential pool of informal carers. Although this may lead to an increase in the use of formal care services, informal care cannot be easily replaced by the less flexible and much more expensive formal services. Such services also require a large number of qualified staff, who are currently unavailable. Gerontologists are aware of these issues but are health policy makers? Failure to anticipate the consequences of these expected trends today will be a mistake that will be heavily paid for tomorrow.

Alternative futures

Several studies suggest that disability is falling among older people.¹⁸⁻²⁰ We therefore explored the effect of an improved functioning on the demand for long term care. This exercise shows that we would need to reduce the decrease in scores for activities of daily living and instrumental activities of daily living disabilities by 1-2% a year to compensate for the deficit of younger elderly people. Improving the level of functioning of the oldest people and preventing disability is undoubtedly difficult,^{7,9} but strong public health policies providing more research and resources would help healthcare professionals to meet this challenge.

Alternative interventions include greater family involvement in long term care, particularly among husbands and sons. Is this a realistic solution? In future the oldest people, having benefited from higher education and better working and living conditions and being more wealthy, may prefer to pay for formal care rather than rely on family support. Individual strategies to maintain

independence could include home modification or moving to housing that offers high tech facilities such as safety sensors and personal helper robots. Trends in marital status among both young and very elderly people will also matter, as will the development of private and public insurance for long term care.

Starting debate

The oldest old support ratio is built on two age groups: 50-74 and ≥85 years. In essence it is arbitrary, but these age groups are the most used when defining care givers as well as the oldest age groups. The use of this new ratio should help make governments realise the implications of the substantial intergenerational changes that are occurring and aid policy makers to formulate adequate policies. Such a readily available, easy to use, indicator will also be useful in emerging countries such as China, where the same transitions are currently taking place at a much faster pace.

We thank Anne Scherrer Herrmann and Carol Jagger for editorial help.

Contributors and sources: JMR is a demographer with research experience in longevity and health expectancy, JPM is a geriatrician with a strong interest in health issues, and FRH has a wide research expertise combining geriatrics, biostatistics, and clinical computing. This article arose from the observation that families of elderly people admitted to our department are quite old themselves and subsequent discussions among the authors, who all participated in the writing of the manuscript. JMR and FRH took care of the data preparation and are the guarantors.

Competing interests: None declared.

- Evans JG. Long term care in later life. *BMJ* 1995;311:644.
- Raleigh VS. The demographic timebomb. *BMJ* 1997;315:442-3.
- Angus DC, Kelley MA, Schmitz RJ, White A, Popovich JJ, Committee on Manpower for Pulmonary and Critical Care. Current and projected workforce requirements for care of the critically ill and patients with pulmonary disease: can we meet the requirements of an aging population? *JAMA* 2000;284:2762-70.
- Public health and aging: trends in aging—United States and worldwide. *JAMA* 2003;289:1371-3.
- Cutler DM. Disability and the future of Medicare. *N Engl J Med* 2003;349:1084-5.
- Dyer O. UK is urged to rethink funding of long term care of elderly people. *BMJ* 2006;332:1052.
- Ebrahim S. Disability in older people: a mass problem requiring mass solutions. *Lancet* 1999;353:1990-2.
- The coming crisis of long-term care. *Lancet* 2003;361:1755.
- Stuck AE, Beck JC, Egger M. Preventing disability in elderly people. *Lancet* 2004;364:1641-2.
- Chernew ME, Goldman DP, Pan F, Shang B. Disability and health care spending among Medicare beneficiaries. *Health Aff (Millwood)* 2005;24(suppl 2):W5R42-52.
- Heath I. Long term care for older people. *BMJ* 2002;324:1534-5.
- Morris J, Beaumont D, Oliver D. Decent health care for older people. *BMJ* 2006;332:1166-8.
- Robine JM, Michel JP. Looking forward to a general theory on population aging. *J Gerontol A Biol Sci Med Sci* 2004;59:M590-7.
- World Health Organization. *The world health report 2006—working together for health*. Geneva: WHO, 2006.
- Spillman BC, Pezzin LE. Potential and active family caregivers: changing networks and the “sandwich generation.” *Milbank Q* 2000;78:347-74.
- Ogawa N, Kondo M, Matsukura R. Japan's transition from the demographic bonus to the demographic onus. *Asian Popul Stud* 2005;1:207-26.
- Singer BH, Manton KG. The effects of health changes on projections of health service needs for the elderly population of the United States. *Proc Natl Acad Sci USA* 1998;95:15618-22.
- Spillman BC. Changes in elderly disability rates and the implications for health care utilization and cost. *Milbank Q* 2004;82:157-94.
- Freedman VA, Martin LG, Schoeni RF. Recent trends in disability and functioning among older adults in the United States: a systematic review. *JAMA* 2002;288:3137-46.
- Manton KG, Gu X. Changes in the prevalence of chronic disability in the United States black and nonblack population above age 65 from 1982 to 1999. *Proc Natl Acad Sci USA* 2001;98:6354-9.

SUMMARY POINTS

Current demographic change projects a decrease in informal care givers

A four age group population model will better anticipate the future long term care needs

The oldest old support ratio corresponds to the number of people aged 50-74 potentially available to care for one person aged ≥85

Such an indicator will aid local, national, and supranational planning of care