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Trends in Severe Disability Among Elderly People: Assessing the Evidence in 12 OECD Countries and the Future Implications

Gaétan Lafortune,

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ABSTRACT

4. As the number and share of the population aged 65 and over will continue to grow steadily in OECD countries over the next decades, improvements in the functional status of elderly people could help mitigate the rise in the demand for, and hence expenditure on, long-term care. This paper assesses the most recent evidence on trends in disability among the population aged 65 and over in 12 OECD countries: Australia, Belgium, Canada, Denmark, Finland, France, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States. The focus is on reviewing trends in severe disability (or dependency), defined where possible as one or more limitations in basic activities of daily living (ADLs, such as eating, washing/bathing, dressing, and getting in and out of bed), given that such severe limitations tend to be closely related to demands for long-term care. One of the principal findings from this review is that there is clear evidence of a decline in disability among elderly people in only five of the twelve countries studied (Denmark, Finland, Italy, the Netherlands and the United States). Three countries (Belgium, Japan and Sweden) report an increasing rate of severe disability among people aged 65 and over during the past five to ten years, and two countries (Australia, Canada) report a stable rate. In France and the United Kingdom, data from different surveys show different trends in ADL disability rates among elderly people, making it impossible to reach any definitive conclusion on the direction of the trend. One of the main policy implications that can be drawn from the findings of this study is that it would not be prudent for policy-makers to count on future reductions in the prevalence of severe disability among elderly people to offset completely the rising demand for long-term care that will result from population ageing. Even though disability prevalence rates have declined to some extent in some countries, the ageing of the population and the greater longevity of individuals can be expected to lead to increasing numbers of people at older ages with a severe disability and in need of long-term care. The results of the projection exercise to 2030 for all countries, regardless of different trends in disability prevalence, confirm this important finding.

JEL Classification: J11, J14

Keywords: Disability; severe disability; dependency among elderly people; limitations in activities of daily living; demand for long-term care; OECD countries

RESUME

5. Alors que le nombre et la proportion de personnes âgées de 65 ans et plus vont continuer de s'accroître dans les pays de l'OCDE au cours des prochaines décennies, une amélioration de l'état fonctionnel des personnes âgées pourrait contribuer à ralentir l'augmentation de la demande et des dépenses pour les soins de longue durée. Cette étude examine les tendances les plus récentes concernant l'évolution de l'incapacité parmi la population âgée de 65 ans et plus dans 12 pays de l'OCDE : Australie, Belgique, Canada, Danemark, Finlande, France, Italie, Japon, Pays-Bas, Suède, Royaume-Uni et États-Unis. L'étude se concentre sur l'incapacité sévère (ou la dépendance), définie dans la mesure du possible comme une ou plusieurs limitations dans les activités de la vie quotidienne (AVQ, comme la capacité de se nourrir, de faire sa toilette, de s'habiller et de sortir du lit), étant donné que ce sont de telles limitations qui tendent à être associées à des demandes pour des soins de longue durée. Un des principaux résultats de cette revue est qu'il y a eu une diminution claire de la prévalence de l'incapacité sévère parmi la population âgée dans seulement cinq des douze pays étudiés (Danemark, Finlande, Italie, Pays-Bas et États-Unis). Par ailleurs, dans trois pays (Belgique, Japon, Suède), on observe une augmentation de la prévalence de l'incapacité sévère parmi les personnes âgées au cours des cinq ou dix dernières années, alors que les taux ont été stables dans deux pays (Australie, Canada). Enfin, en France et au Royaume-Uni, il n'est pas possible pour l'instant de tirer des conclusions définitives, parce que les résultats des analyses de tendance divergent selon les sources (enquêtes) utilisées. Une des principales implications politiques de ces résultats est qu'il ne serait pas prudent de la part des décideurs politiques de compter sur une réduction à venir de la prévalence de l'incapacité sévère chez les personnes âgées pour compenser l'augmentation de la demande de soins de longue durée qui résultera du vieillissement de la population. Même si la prévalence de l'incapacité sévère a diminué dans une certaine mesure dans certains pays, il est à prévoir que le vieillissement de la population et l'allongement de l'espérance de vie vont contribuer à l'augmentation du nombre de personnes âgées dépendantes. Les résultats de l'exercice de projections jusqu'en 2030 pour tous les pays, quelles que soient les tendances passées de la prévalence de l'incapacité, viennent appuyer cette conclusion.

Codes JEL: J11, J14

Mots-clés: incapacité; incapacité sévère; dépendance chez les personnes âgées; limitations dans les activités de la vie quotidienne ; demande de soins de longue durée, pays de l'OCDE

EXECUTIVE SUMMARY

6. The rapid ageing of the population in OECD countries over the next few decades is expected to increase the demand for, and hence expenditure on, long-term care services. One factor that might help mitigate this "pure" demographic effect of population ageing on the demand for long-term care would be some steady improvements in the health and functional status of people aged 65 and over, which would enable them to live independently as long as possible.

7. Using the most recent data on trends in the prevalence of severe disability among elderly people, defined where possible as people reporting one or more limitations in basic activities of daily living (ADLs, such as eating, washing and dressing), this study assesses whether there is evidence of a reduction in severe disability among elderly people in 12 OECD countries: Australia, Belgium, Canada, Denmark, Finland, France, Italy, Japan, the Netherlands, Sweden, the United Kingdom and the United States. It then uses the available data on past trends in severe disability in combination with population projections by age and sex group, to extrapolate the projected rise in the number of elderly people who might be severely disabled up to 2030, based on two scenarios: 1) a "static" scenario, whereby there would be no change in the (age and sex-specific) prevalence of severe disability among elderly people in the future (compared with the latest estimates available in each country); and 2) a "dynamic" scenario, whereby changes in the prevalence of severe disability observed in the past years would continue at the same rate in the future.

8. The study presents four types of results in relation to past trends in severe disability at older ages. First, trends in disability prevalence among all the population aged 65 and over are presented, showing where possible both trends in the non-age-standardised rate and in the age-standardised rate (thereby taking into account the gradual ageing of the elderly population itself). Second, trends in severe disability are disaggregated by sex and for at least three specific age groups (65-74, 75-84, 85+), to examine more closely disability trends for different sub-groups of the elderly population. Third, the data are also disaggregated by educational level for a sub-group of countries which provided this disaggregation, in order to yield some insights into possible socioeconomic factors that might affect changes in old-age disability rates over time. This disaggregation also provides a measure of any persisting or growing disparities in old-age disability rates by educational level. Fourth, complementary data are also provided where possible on the share of elderly people living in long-term care institutions, given that this population is often not included in the surveys from which disability prevalence estimates are derived.

9. One of the main findings from this review of the most recent evidence on old-age disability trends is that there is clear evidence of a decline in disability among elderly people in only five of the twelve countries (Denmark, Finland, Italy, the Netherlands and the United States), even though in the case of Denmark the decline is based on a less severe measure of disability (only having functional limitations). Three countries (Belgium, Japan and Sweden) report an increasing rate of severe disability among people aged 65 and over during the past five to ten years, and two countries (Australia, Canada) report a stable rate. In France and the United Kingdom, data from different surveys show different trends in ADL disability rates among elderly people, making it impossible to reach any definitive conclusion on the direction of the trend.

10. Additional data have been collected on the prevalence of some important chronic diseases and risk factors among elderly people to provide some insights on whether any decline (or increase) in severe disability in different countries is associated with a reduction (or increase) in the prevalence of certain important chronic conditions. These conditions include: arthritis, heart problems, diabetes, hypertension and obesity. The main finding from this additional data collection is that the reported prevalence of most of these potentially disabling chronic diseases and risk factors has increased in nearly all countries studied, although to varying degrees. However, this trend rise may be due partly to changes over time in medical knowledge and health service use among elderly people, thereby resulting in an increase in reporting without any real change in underlying conditions.

11. One of the main policy implications of the findings from this study is that it would not seem prudent for policy-makers to count on future reductions in the prevalence of severe disability among elderly people to offset the rising demand for long-term care that will result from population ageing. Even though disability prevalence rates have declined to some extent in recent years in some countries, the ageing of the population and the greater longevity of individuals can be expected to lead to increasing numbers of people at older ages with a severe disability.

12. The results of the projection exercise for all countries, regardless of different trends in disability prevalence, confirm this important finding. Under the "static" projection scenario, the pure demographic effect is strongest for those countries with a projected strong increase in the number of elderly people (and in particular among the very old population) between now and 2030. These include countries such as Australia, Canada and Finland, where the number of severely disabled elderly people is projected to more than double by 2030, if the age-specific prevalence of severe disability does not change. The results from the "dynamic" projections show different effects across countries, depending on the direction of the past trend that is being extrapolated in the future. In those countries where there is evidence of a general decline in severe disability among people aged 65 and over, the extrapolation of these downward trends results in a considerable reduction in the projected rise in the number of severely disabled elderly persons, compared with the "static" projection. In the United States, for instance, if severe disability continues to fall at the same rate that it has declined over the past 10 to 20 years, this would help reduce the expected increase in the number of elderly disabled people from about 90% under the "static" scenario to between 35%-50% under the "dynamic" projection.

13. In conclusion, there will be a need to expand the capacity to respond to the growing need for long-term care over the coming years in all OECD countries which will arise from population ageing. At the same time, greater policy efforts may be needed to prevent or postpone as much as possible health and disability problems among elderly people. While WHO has emphasised in recent years the importance of improving diets and increasing levels of physical activity in adults and older people to help reduce the risks of chronic diseases and associated disability or death, further work would be useful to assess with more precision what interventions are cost-effective in promoting healthy ageing.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS 3
ABSTRACT 4
RESUME 5
EXECUTIVE SUMMARY 6
1. INTRODUCTION 9
2. KEY FACTS ON POPULATION AGEING IN OECD COUNTRIES 11
2.1 Growth of the elderly population in OECD countries 11
2.2 Trends in life expectancy at birth and at age 65 12
3. TRENDS IN SEVERE DISABILITY AMONG ELDERLY PEOPLE IN 12 OECD COUNTRIES 16
3.1 Theoretical background 16
3.2 Scope of data collection, definitions, sources and methods 16
3.3 Results on trends in the prevalence of severe disability among elderly people 23
Australia 23
Belgium 25
Canada 27
Denmark 29
Finland 31
France 33
Italy 35
Japan 37
Netherlands 39
Sweden 41
United Kingdom 43
United States 45
3.4 Summary of country-specific trends in the prevalence of severe disability among elderly people 48
4. PROJECTIONS OF ELDERLY PERSONS WITH SEVERE DISABILITY 49
4.1 Projection method 49
4.2 Projection results 51
4.3 Discussion of projection results 52
5. POLICY IMPLICATIONS AND DATA NEEDS FOR THE FUTURE 56
REFERENCES 58
ANNEX 1: OVERVIEW OF DATA SOURCES TO ASSESS OLD-AGE DISABILITY TRENDS IN 12 OECD COUNTRIES 61
ANNEX 2: SURVEY QUESTIONS & RESPONSES USED TO MEASURE SEVERE DISABILITY ... 63
ANNEX 3: TRENDS IN THE PREVALENCE OF SELECTED DISEASES AND RISK FACTORS AMONG THE POPULATION AGED 65 AND OVER 66
ANNEX 4: TRENDS IN SEVERE DISABILITY AMONG ELDERLY PEOPLE BY EDUCATIONAL LEVEL, SELECTED OECD COUNTRIES 75

1. INTRODUCTION

14. In a context of population ageing, changes in the prevalence of severe disability, defined in terms of limitations in performing activities of daily living (ADL, including self-care activities such as eating, dressing and bathing), among elderly people in OECD countries could have important effects on the demand for, and hence expenditure on, long-term care.

15. Recent OECD projections, which focussed only on the public component of spending, estimated under a "central" scenario that public expenditure on long-term care might increase by more than 1 percentage point of GDP between 2005 and 2050 on average across OECD countries (from 1.1% of GDP now to 2.3% by 2050), taking into account only a "pure" demographic effect. However, under a so-called "compression-of-disability" scenario, public expenditure on long-term care could be reduced by about ½ percentage point of GDP on average across OECD countries, compared with this central scenario. An "expansion of disability" would have the opposite effect (OECD, 2006a).[1]

16. As the population aged 65 and over (and 85 and over) will continue to grow steadily in OECD countries over the next few decades, any change in severe disability and dependency rates among elderly people could therefore have a significant impact on the demand and spending for long-term care. An earlier OECD review of old-age disability trends in 9 member countries, based on data up to the early or mid-1990s, concluded that there appeared to be a reduction in *severe* disability (defined as one or more ADL limitations) in most of the countries studied (*e.g.*, in France, Japan, Sweden and the United States), but not in all (*e.g.*, not in Australia or Canada). The evidence on *light* or *moderate* disability (defined as one or more IADL limitations[2]) was more mixed (Jacobzone, Cambois and Robine, 1999).

17. The purpose of this review is to assess the most recent trends in old-age disability based on national health or disability surveys up to 2005, from 12 OECD countries. These 12 OECD countries include all those that were included in the previous OECD review (with the exception of Germany, because no data source was identified to update the previous estimates on ADL disability prevalence), and include four additional countries (Belgium, Denmark, Finland and Italy).

18. The main question that this report aims to address is whether there is evidence of a general decline in the prevalence of severe disability among elderly people across *all* OECD countries. If severe disability rates are not declining across all countries, what factors might be associated with a stabilisation or an increase in severe disability among elderly people in certain countries? This latter question is particularly difficult to address, given the difficulty of 'separating' the relative role of the wide range of non-medical and medical factors that might affect the health and disability status of people as they age. This study does not have the ambition of providing a comprehensive analysis of all the factors that might play a role in explaining trends in old-age disability rates in different countries. Nonetheless, some complementary information has been gathered on the prevalence of certain important chronic conditions and risk factors among elderly people, which provides some initial insights on whether any decline (or

[1] A recent projection exercise by the European Commission (EC/DG ECFIN, 2006), using slightly different assumptions, data and methods, obtained results that were generally consistent with those from the OECD. Under the central scenario in this EC projection exercise, public spending on long-term care would rise by 1 percentage point of GDP on average across EU countries over the period 2004-2050. This EC report also noted that these projections are very sensitive to different assumptions about trends in old-age disability.

[2] Instrumental Activities of Daily Living (IADLs) include a range of activities required to live independently (such as the ability to manage personal finances, do groceries/shopping, and prepare meals). These IADLs tend to be more complex and demanding than ADLs. They provide a measure of less severe levels of disability.

increase) in severe disability in certain countries is associated with a reduction (or increase) in the prevalence of certain important chronic conditions. This additional data collection provides some crude indication on the relative role of disease prevention versus improved disease treatment in affecting trends in old-age disability.[3]

19. This report starts by reviewing the general demographic context and outlook within which trends in old-age disability must be considered (section 2). Some key facts are presented on the growth in the number and share of the elderly population across all OECD countries over the past few decades and the projected rise over the next few decades. Section 3 presents four types of results concerning trends in disability rates among elderly people in 12 OECD countries. First, trends in disability prevalence among all the population aged 65 and over are presented. Second, trends in disability rates are disaggregated by sex and for three specific age groups (65-74, 75-84, 85+), to examine more closely disability trends for different sub-groups of the elderly population. Third, trend data are also disaggregated by educational level for half of the countries which provided this breakdown, in order to provide some insights on the role of one dimension of socioeconomic status that might affect changes in old-age disability rates over time. Fourth, complementary data are also provided where possible on the share of elderly people living in long-term care institutions, since this population is often not included in the surveys from which disability prevalence estimates are derived. This study makes the conventional assumption that all elderly people living in institutions are disabled (i.e., they are limited in at least one ADL). Section 4 combines the population projections presented in section 2 with the data on past trends in severe disability among elderly people, to extrapolate the possible rise in the number of elderly people who might be severely disabled up to 2030, based on two assumptions: 1) there would be no change in the (age and sex-specific) prevalence of severe disability in the future; and 2) past trends in severe disability would simply continue at the same rate in the future. The concluding section draws some general policy implications from the main findings of this study and discusses the need to improve data to monitor the health and disability status of elderly people over time and across countries.

20. Annex 1 provides background information on the data sources that were used to derive the disability trends in each country, while Annex 2 provides the specific survey questions and response categories used to measure severe disability. Annex 3 presents data on the changing prevalence of selected chronic conditions and risk factors. Finally, Annex 4 provides a series of tables disaggregating disability rates among elderly people by educational level for half of the countries covered under this study.

[3] This report does not try to address the complex links between disability status in old age and *health care* costs. These links are complex as they may work both ways. On the one hand, elderly people who are less disabled generally consume less health care than more disabled people. But on the other hand, one reason why elderly people may be less disabled may be due to greater health care consumption to treat different conditions, as argued for instance by Cutler (2006) in the case of the reduction in disabilities related to cardio-vascular diseases among older Americans.

2. KEY FACTS ON POPULATION AGEING IN OECD COUNTRIES

2.1 Growth of the elderly population in OECD countries

21. The assessment of disability trends among elderly people, and their impacts on long-term care systems, needs to be put in the context of population ageing in OECD countries. The number and share of the population aged 65 years and older have risen in all OECD countries since 1960. This trend is expected to continue in future decades given the ageing of the "baby-boom" generation born after World War II (who will start turning 65 years and older in 2010), further gains in life expectancy at 65 and older ages, and declining fertility rates.

22. In 1960 only one out of twelve people was aged 65 and over on average in OECD countries (Table 2.1).[4] By 2005, this proportion had increased to one out of seven. In the "oldest" countries in the OECD now (Italy and Japan), one out of five people is aged 65 and over.

23. Looking ahead to the future, current population projections at the national level and international level generally assume that: firstly, gains in life expectancy observed in the past will continue in the future[5]; secondly, patterns of declining fertility will not revert rapidly; and thirdly, future international migration will only have a limited contribution to changing current population trends. Under these assumptions, the number and share of the population 65 and older will increase rapidly between now and 2030, at a time when the post-war baby-boom generation (those born between 1946 and the mid-1960s) will start reaching that age group in many OECD countries. By 2030, more than one person in five is expected to be 65 years and older on average in OECD countries, and this share is expected to increase further to more than one out of four by 2050 (Table 2.1).

24. Although population ageing is a common feature of all OECD countries, there are large differences in the current and future population structure across countries. The current oldest countries in the OECD at present have shares of people aged 65 and over now which the youngest countries like the United States are only expected to reach by 2030.

25. As the populations of OECD countries age, the "oldest old" (people aged 85 and over) will tend to grow the fastest (Table 2.2). It is also this group of the population which has the most severe disabilities and greatest long-term care needs. In 1960, less than 0.5% of the population in OECD countries was aged 85 and over. By 2005, this proportion had tripled. By 2030, it is projected that the share of people aged 85 and above double to 3%, and increase further to more than 5% in 2050, the year when the last of the post war baby-boom generation will reach age 85. Given the steady growth in the number and share of this segment of the "oldest old" population, the demand for long-term care can be expected to grow steadily in all OECD countries in future decades, unless there are steady improvements in the health and functional

[4] All the OECD averages mentioned in this section are weighted, which means that they take into account the relative size of the population in different OECD countries.

[5] Demographers are presently divided in their views on the extent to which life expectancy will be further prolonged in the future. A recent report by the U.S. Census Bureau summarises the debate in the following terms: "The first [pessimistic view] contends that the practical limits have nearly been attained, while the second [optimistic view] says that old-age mortality will decline at a more accelerated pace in the future. Some researchers believe that the maximum average life expectancy is about 85 years and argue that the incremental improvements needed to achieve much higher levels of life expectancy are unlikely… Others believe that recent declines in mortality rates will continue, given the continued steady progress against the diseases of old age, that life expectancy could reach much higher levels in the coming century, and that medical developments will extend life expectancy to 100 years or more…" (U.S. Census Bureau, 2005)

status of elderly people in general, and in the "oldest old" age group in particular, to offset the population ageing effect.

26. In all OECD countries, there are more older women than older men, and the ratio of women to men increases with age.[6] In 2005, nearly 60% of the population aged 65 and older on average across OECD countries were women. More than 70% of people aged 85 and over are women.

2.2 Trends in life expectancy at birth and at age 65

27. Reductions in mortality rates at all ages over the past decades have led to large increases in life expectancy in most OECD countries. Most of the gains in life expectancy in the second half of the 20th century have been driven by reductions in mortality rates at older ages.

28. On average across OECD countries, life expectancy at birth increased by 10.1 years since 1960 for women, to reach 81.1 years in 2004, and by 9.4 years for men, to reach 75.4 years. The gender gap widened slightly on average across countries, from 5.0 years in 1960 to 5.7 years in 2004. However, this hides different trends between earlier and later decades. While the gender gap in life expectancy increased substantially in many countries during the 1960s and 1970s, it narrowed during the past twenty-five years in several OECD countries. This narrowing reflects, in part, a reduction in the difference in the prevalence of certain behavioural risk factors (such as smoking) between men and women, as well as a substantial reduction in mortality rates from cardio-vascular diseases among men (Max Planck Institute, 1999).

29. Focussing on trends in life expectancy at age 65, the remaining years of life at that age also increased substantially over the past few decades among women and men. This can be attributed to a large extent to declining mortality rates from cardio-vascular and cerebro-vascular diseases among both older men and older women (OECD, 2003; Moïse et al., 2003; Moon et al., 2003). In 2004, on average across OECD countries, women at age 65 could expect to live an additional 19.5 years. Men of the same age could expect to live an additional 16.1 more years (Table 2.3). Gender gaps in longevity at age 65 have narrowed in several OECD countries since the mid-1980s. In 2004, life expectancy at age 65 among women was highest in Japan (23.3 years), followed by France, Australia and Switzerland. For men, life expectancy at 65 was highest in Japan (18.2 years), followed by Iceland, Australia and Switzerland.

[6] The preponderance of women among the elderly population is due to gender differences in mortality rates at all ages, resulting in higher life expectancy for women at all ages.

Table 2.1. Number and share of the population aged 65 and over, all OECD countries, 1960 to 2050

		1960	1980	2000	2005	2030	2050
Australia	Number	874,900	1,413,277	2,379,318	2,668,299	5,674,999	7,223,037
	Share	8.5%	9.6%	12.4%	13.1%	22.2%	25.7%
Austria	Number	861,456	1,162,928	1,235,840	1,334,514	2,066,524	2,457,960
	Share	12.2%	15.4%	15.4%	16.2%	23.4%	27.4%
Belgium	Number	1,095,429	1,405,896	1,722,417	1,799,903	2,626,679	2,899,597
	Share	12.0%	14.3%	16.8%	17.3%	24.1%	26.5%
Canada	Number	1,371,742	2,305,778	3,852,966	4,218,845	8,893,571	10,314,163
	Share	7.5%	9.4%	12.6%	13.1%	23.0%	24.9%
Czech Republic	Number	911,730	1,390,284	1,421,853	1,437,465	2,296,333	2,947,591
	Share	9.4%	13.5%	13.8%	14.1%	22.7%	31.2%
Denmark	Number	485,217	738,095	790,401	804,507	1,143,124	1,141,670
	Share	10.6%	14.4%	14.8%	14.9%	21.3%	22.2%
Finland	Number	323,499	572,481	772,185	832,010	1,413,940	1,428,488
	Share	7.3%	12.0%	14.9%	15.9%	26.0%	27.1%
France	Number	5,317,383	7,503,459	9,467,982	9,964,183	16,038,961	18,695,486
	Share	11.6%	13.9%	16.1%	16.6%	25.1%	29.2%
Germany	Number	8,359,191	12,214,511	13,522,632	15,539,342	21,421,713	22,272,750
	Share	11.5%	15.6%	16.4%	18.8%	26.3%	29.6%
Greece	Number	676,307	1,267,090	1,815,793	2,030,017	2,802,041	3,448,477
	Share	8.1%	13.1%	16.6%	18.3%	24.8%	32.5%
Hungary	Number	902,200	1,438,622	1,538,023	1,585,982	2,062,911	2,348,075
	Share	9.0%	13.4%	15.1%	15.7%	21.5%	26.9%
Iceland	Number	14,215	22,505	32,541	34,551	65,953	76,336
	Share	8.1%	9.9%	11.6%	11.7%	19.2%	21.5%
Ireland	Number	315,100	364,800	424,700	460,585	939,923	1,442,193
	Share	11.1%	10.7%	11.2%	11.2%	18.5%	26.3%
Italy	Number	4,673,798	7,419,787	10,404,482	11,502,416	15,902,281	18,751,274
	Share	9.3%	13.1%	18.3%	19.7%	27.3%	33.7%
Japan	Number	5,397,980	10,647,356	22,005,152	25,760,987	36,669,836	37,640,690
	Share	5.7%	9.1%	17.3%	20.2%	31.8%	39.6%
Korea	Number	726,450	1,456,033	3,394,896	4,365,963	11,603,719	15,270,590
	Share	2.9%	3.8%	7.2%	9.0%	23.1%	34.4%
Luxembourg	Number	34,003	49,692	61,425	65,251	113,877	142,452
	Share	10.8%	13.6%	14.1%	14.2%	20.0%	22.1%
Mexico	Number	1,699,075	2,573,314	4,759,409	5,716,754	15,576,071	29,370,939
	Share	4.6%	3.8%	4.8%	5.3%	11.7%	21.1%
Netherlands	Number	1,033,703	1,628,666	2,163,471	2,301,091	3,814,315	3,682,302
	Share	9.0%	11.5%	13.6%	14.1%	22.4%	21.8%
New Zealand	Number	206,340	308,830	453,450	497,400	1,055,600	1,321,900
	Share	8.7%	9.7%	11.8%	12.1%	21.9%	26.2%
Norway	Number	395,064	602,941	680,929	679,034	1,109,214	1,359,398
	Share	11.0%	14.8%	15.2%	14.7%	20.6%	23.2%
Poland	Number	1,749,567	3,592,770	4,694,713	5,027,643	8,274,898	9,946,226
	Share	5.9%	10.1%	12.2%	13.2%	22.7%	29.6%
Portugal	Number	698,993	1,104,763	1,656,084	1,774,398	2,445,689	2,953,019
	Share	7.9%	11.3%	16.2%	16.8%	23.9%	31.6%
Slovak Republic	Number	275,369	522,174	617,516	645,274	1,153,779	1,466,923
	Share	6.9%	10.5%	11.4%	12.0%	21.6%	30.1%
Spain	Number	2,499,486	4,208,043	6,766,747	7,253,724	11,362,467	15,244,576
	Share	8.2%	11.2%	16.8%	16.8%	25.1%	35.7%
Sweden	Number	879,468	1,353,744	1,531,724	1,559,854	2,286,921	2,475,214
	Share	11.8%	16.3%	17.3%	17.3%	22.8%	23.6%
Switzerland	Number	544,886	874,913	1,101,728	1,183,533	1,967,741	2,247,538
	Share	10.2%	13.8%	15.3%	15.9%	24.2%	27.9%
Turkey	Number	973,000	2,110,544	3,736,403	3,983,138	9,516,739	17,229,962
	Share	3.4%	4.6%	5.5%	5.4%	10.1%	17.0%
United Kingdom	Number	6,135,956	8,409,155	9,307,797	9,656,233	15,064,903	17,488,785
	Share	11.7%	14.9%	15.8%	16.0%	22.5%	25.3%
United States	Number	16,675,031	25,707,456	35,080,348	36,695,904	71,453,471	86,705,637
	Share	9.2%	11.3%	12.4%	12.4%	19.6%	20.6%
OECD	Number	66,106,545	104,376,058	147,430,851	161,009,416	274,918,648	338,215,160
	Weighted avg	8.5%	10.8%	13.0%	13.8%	21.1%	25.2%

Source: OECD Demographic and Labour Force database (July 2006).

Table 2.2. Number and share of the population aged 85 and over, all OECD countries, 1960 to 2050

		1960	1980	2000	2005	2030	2050
Australia	Number	42,000	98,691	252,669	311,535	816,309	1,602,380
	Share	0.4%	0.7%	1.3%	1.5%	3.2%	5.7%
Austria	Number	36,392	68,134	144,626	133,655	297,568	524,424
	Share	0.5%	0.9%	1.8%	1.6%	3.4%	5.8%
Belgium	Number	53,532	93,729	185,548	177,689	340,963	639,683
	Share	0.6%	1.0%	1.8%	1.7%	3.1%	5.8%
Canada	Number	76,450	188,435	406,329	494,521	1,028,823	2,100,789
	Share	0.4%	0.8%	1.3%	1.5%	2.7%	5.1%
Czech Republic	Number	39,792	60,037	121,800	93,492	268,951	491,658
	Share	0.4%	0.6%	1.2%	0.9%	2.7%	5.2%
Denmark	Number	23,663	55,507	97,632	97,935	136,329	191,312
	Share	0.5%	1.1%	1.8%	1.8%	2.5%	3.7%
Finland	Number	12,183	26,825	77,726	84,042	172,260	287,939
	Share	0.3%	0.6%	1.5%	1.6%	3.2%	5.5%
France	Number	297,806	575,716	1,246,345	1,139,596	2,447,165	4,847,469
	Share	0.7%	1.1%	2.1%	1.9%	3.8%	7.6%
Germany	Number	316,586	683,132	1,623,917	1,436,055	3,196,978	4,928,100
	Share	0.4%	0.9%	2.0%	1.7%	3.9%	6.5%
Greece	Number	31,429	84,722	146,727	142,638	324,579	516,637
	Share	0.4%	0.9%	1.3%	1.3%	2.9%	4.9%
Hungary	Number	31,700	66,073	128,090	118,011	249,292	307,917
	Share	0.3%	0.6%	1.3%	1.2%	2.6%	3.5%
Iceland	Number	994	2,121	3,366	3,887	6,298	11,366
	Share	0.6%	0.9%	1.2%	1.3%	1.8%	3.2%
Ireland	Number	18,000	22,700	39,400	46,792	110,011	242,830
	Share	0.6%	0.7%	1.0%	1.1%	2.2%	4.4%
Italy	Number	261,780	465,958	1,212,076	1,214,914	2,741,040	4,420,206
	Share	0.5%	0.8%	2.1%	2.1%	4.7%	7.9%
Japan	Number	190,603	529,370	2,233,348	2,935,588	8,487,830	9,722,389
	Share	0.2%	0.5%	1.8%	2.3%	7.4%	10.2%
Korea	Number	8,930	59,231	173,273	248,949	1,250,934	3,086,085
	Share	0.0%	0.2%	0.4%	0.5%	2.5%	7.0%
Luxembourg	Number	1,341	3,164	6,505	6,133	13,954	28,903
	Share	0.4%	0.9%	1.5%	1.3%	2.5%	4.5%
Mexico	Number	75,036	203,947	362,502	431,573	1,560,076	3,842,207
	Share	0.2%	0.3%	0.4%	0.4%	1.2%	2.8%
Netherlands	Number	50,049	124,171	227,024	243,217	398,417	620,374
	Share	0.4%	0.9%	1.4%	1.5%	2.3%	3.7%
New Zealand	Number	11,255	19,720	47,800	56,900	149,500	317,400
	Share	0.5%	0.6%	1.2%	1.4%	3.1%	6.3%
Norway	Number	25,461	45,212	84,329	96,159	141,039	263,654
	Share	0.7%	1.1%	1.9%	2.1%	2.6%	4.5%
Poland	Number	71,332	163,383	354,803	339,898	840,576	1,714,522
	Share	0.2%	0.5%	0.9%	0.9%	2.3%	5.1%
Portugal	Number	35,637	54,478	146,395	143,797	275,378	429,377
	Share	0.4%	0.6%	1.4%	1.4%	2.7%	4.6%
Slovak Republic	Number	14,604	22,068	51,441	41,668	108,202	209,400
	Share	0.4%	0.4%	1.0%	0.8%	2.0%	4.3%
Spain	Number	125,159	268,636	688,037	811,499	1,687,675	2,967,259
	Share	0.4%	0.7%	1.7%	1.9%	3.7%	6.9%
Sweden	Number	45,051	98,464	203,478	222,299	350,228	466,976
	Share	0.6%	1.2%	2.3%	2.5%	3.5%	4.5%
Switzerland	Number	24,654	59,213	140,857	152,417	317,723	548,212
	Share	0.5%	0.9%	2.0%	2.0%	3.9%	6.8%
Turkey	Number	26,116	93,988	193,029	110,215	383,234	1,327,318
	Share	0.1%	0.2%	0.3%	0.2%	0.4%	1.3%
United Kingdom	Number	335,151	587,555	1,119,033	1,174,384	2,450,239	4,133,163
	Share	0.6%	1.0%	1.9%	2.0%	3.7%	6.0%
United States	Number	940,054	2,271,631	4,295,080	5,120,394	9,603,034	20,861,454
	Share	0.5%	1.0%	1.5%	1.7%	2.6%	5.0%
OECD	Number	3,222,740	7,096,293	16,016,709	17,538,440	39,055,112	70,050,151
	Weighted avg	0.4%	0.7%	1.4%	1.5%	3.0%	5.2%

Source: OECD Demographic and Labour Force database (July 2006).

Table 2.3. Life expectancy at age 65, men and women, 1960 to 2004

	Men								Women							
	1960		1980		2000		2004		1960		1980		2000		2004	
Australia	12.5		13.7		16.9		17.8		15.6		17.9		20.4		21.1	
Austria	12.0		12.9		16.0		16.9		14.7		16.3		19.4		20.3	
Belgium	12.4		13.0		15.5		15.8	2002	14.8		16.9		19.5		19.7	2002
Canada	13.5	1961	14.5		16.8		17.4	2003	16.1	1961	18.9		20.4		20.8	2003
Czech Republic	12.5		11.2		13.7		13.9	2003	14.5		14.3		17.1		17.3	2003
Denmark	13.7		13.6		15.2		15.5	2003	15.3		17.6		18.3		18.6	2003
Finland	11.5		12.5		15.5		15.8	2002	13.7		16.5		19.3		19.6	2002
France	12.5		13.6		16.7		17.1	2002	15.6		18.2		21.2		21.4	2002
Germany	12.4		13.0		15.7		16.1	2003	14.6		16.7		19.4		19.6	2003
Greece	13.4		14.6		16.3		16.8	2003	14.6		16.8		18.3		18.9	2003
Hungary	12.3		11.6		12.7		13.1		13.8		14.6		16.5		16.9	
Iceland	15.0	1963	15.8		18.1		17.9		16.8	1963	19.1		19.7		20.5	
Ireland	12.6		12.6		14.6		15.7	2003	14.4		15.7		17.8		18.9	2003
Italy	13.4	1961	13.3		16.5		16.7	2001	15.3	1961	17.1		20.4		20.7	2001
Japan	11.6		14.6		17.5		18.2		14.1		17.7		22.4		23.3	
Korea	..		10.4	1979	14.1	1989	15.1	2003	..		15.1	1979	18.0	1989	19.0	2003
Luxembourg	12.5		12.3		15.5		15.5	2003	14.5		16.0		19.7		19.0	2003
Mexico	14.2		15.4		16.8		17.1		14.6		17.0		18.3		18.6	
Netherlands	13.9		13.7		15.3		16.3		15.3		18.0		19.2		19.8	
New Zealand	13.0		13.2		16.7		17.1		15.6		17.0		20.0		20.1	
Norway	14.5		14.3		16.0		16.7	2003	16.0		18.0		19.7		20.1	2003
Poland	12.7		12.0		13.6		14.2		14.9		15.5		17.3		18.4	
Portugal	13.0		12.9		15.3		15.6	2003	15.3		16.5		18.7		18.9	2003
Slovak Republic	13.2		12.3		12.9		13.3	2003	14.6		15.4		16.5		16.9	2003
Spain	13.1		14.8		16.6		16.8	2002	15.3		17.9		20.4		20.7	2002
Sweden	13.7		14.3		16.7		17.4		15.3		17.9		20.0		20.6	
Switzerland	..		14.6	1982	16.9		17.5	2003	..		18.3	1982	20.7		21.0	2003
Turkey	11.2		11.7		12.9		13.1		12.1		12.8		14.6		14.9	
United Kingdom	11.9		12.6		15.7		16.1	2002	15.1		16.6		18.9		19.1	2002
United States	12.8		14.1		16.3		16.8	2003	15.8		18.3		19.2		19.8	2003
OECD unweighted avg	**12.9**		**13.3**		**15.6**		**16.1**		**14.9**		**16.8**		**19.0**		**19.5**	

Source: *OECD Health Data 2006*.

3. TRENDS IN SEVERE DISABILITY AMONG ELDERLY PEOPLE IN 12 OECD COUNTRIES

30. Is the health and functional status of elderly people in OECD countries improving over time as life expectancy at older ages continues to increase? First, this section briefly summarises the different theories that have been proposed on possible trends that might be observed in the health and disability status of elderly people in a context of increased longevity. Secondly, it describes the scope and approach to the data collection that has been carried out as part of this study, including a discussion on the definition of disability used for the purpose of this study and limitations in data comparability that should be kept in mind in reviewing the results. Thirdly, this section reviews the evidence on trends in severe disability among elderly people from the latest waves of national health or disability surveys, combined where possible with trends on the population aged 65 and over living in institutions.

3.1 Theoretical background

31. Three general theories have been proposed on possible trends in old-age disability in a context of rising life expectancy:

1. an "expansion of morbidity/disability", whereby increasing longevity would be linked to a prolonged period of morbidity and disability at the end of life, due to improved survival rates of sick persons and a growing prevalence of ageing-related diseases such as dementia (Gruenberg, 1977);

2. a "compression of morbidity/disability", whereby increasing longevity would be linked to a shorter period of illness and disability at the end of life, resulting from disease prevention efforts by individuals, organisations and governments (Fries, 1980);

3. a "dynamic equilibrium", whereby increasing longevity would be linked to an expansion of *light* morbidity and disability but with a reduction of *severe* morbidity and disability, due to improvements in health care and the increased use of assistive devices (Manton, 1982).

32. It is also possible to envisage other 'intermediate scenarios', whereby an increase in the prevalence of (at least certain) chronic conditions would be accompanied by a reduction in related disabilities, due to improvements in the diagnosis and treatment of diseases (a 'more sick but less disabled' scenario, as suggested by Freedman and Martin, 2000, and Robine, Mormiche and Sermet, 1998).

33. Determining which of the above theories is 'right', in which country and for which population group, is an empirical question.

3.2 Scope of data collection, definitions, sources and methods

34. The data collection for this study relied mainly on the administration of a questionnaire that was designed to collect existing trend data on disability and selected chronic conditions from consistent waves of national health or disability surveys in the group of 12 OECD countries participating in this project. Based on discussions with national experts, the questionnaire proposed a common template and some

common definitions for the data collection on disability trends and selected chronic conditions among elderly people. National experts were then asked to supply data that would be as consistent as possible with the proposed template. However, it was also recognised from the outset that flexibility would be required in order to take into account existing differences across countries/surveys in the definition and measurement of disability and chronic conditions.

Definition of disability

35. Before the endorsement of the International Classification of Functioning, Disability and Health (ICF) by the World Health Assembly in May 2001, the most commonly used general definition of disability was the one proposed in its predecessor, the International Classification of Impairments, Disabilities, and Handicaps (ICIDH, 1980): "*A disability is any restriction or lack of ability (resulting from an impairment) to perform an activity in the manner or within the range considered normal for a human being*." In the new ICF, the definition of disability has been broadened, so that the term "disability" is now used as an umbrella term covering any or all of the following components: impairment, activity limitation and participation restriction, as influenced by environmental factors (WHO, 2001).[7] A number of OECD countries are now in the process of adapting their survey instruments to reflect the new ICF framework.

36. For the purpose of this study, an operational definition was needed to collect existing data on old-age disability prevalence. Following discussion with national experts, it was agreed that the focus should be on measuring trends in *severe* disability, for two main reasons: 1) because severe disability tends to be reported more reliably by survey respondents; and 2) because more severe limitations tend to be more closely related to demands for long-term care. Given the focus on assessing trends in severe disability and long-term care needs, it was also agreed that the focus should be as much as possible on limitations in activities of daily living (ADLs).[8] Therefore, the specific definition of disability that was proposed for the collection of existing national survey-based data was:

- *People reporting one or more severe ADL limitations, defined as a core set of self-care/personal care activities (including eating, dressing, toileting, bathing, getting in/out of bed, and any other clearly defined self-care activity).*[9]

37. If, however, consistent trend data were not available based on this proposed definition, national experts were invited to provide data based on alternative measures of disability which would come as close as possible to the measurement of severe disability. This explains why some countries for instance

[7] Impairments are "problems in body function or structure such as significant deviation or loss". Activity limitations are "difficulties an individual may have in executing activities". Participation restrictions are "problems an individual may experience in involvement in life situations". Environmental factors "make up the physical, social and attitudinal environment in which people live and conduct their lives" (WHO, 2001).

[8] Limitations in instrumental activities of daily living (IADL), such as limitations in ability to manage personal finances or prepare meals, can also lead to a need for long-term care, but the initial review of data availability for this study found that IADL questions were asked less frequently and/or less consistently over time than questions about basic ADL limitations.

[9] It should be emphasised that this operational definition of 'disability' is <u>not</u> intended to be a recommendation for an international standard to measure disability in national surveys. It is rather a minimal definition adopted in the light of the advice that the OECD Secretariat received based on existing data sources in participating countries. The development of international standards to measure health and disability status in population-based surveys (or census) is being undertaken under a number of international projects, including the Budapest Initiative on health status measures, the Washington Group on disability statistics, and the development of modules on health status and disability in Europe. It is hoped that these efforts will lead to greater comparability of health and disability measures in the future.

provided disability trends data based on functional limitations (e.g., limitations in walking, seeing, hearing and speaking), which measure less severe disabilities than ADL limitations.

38. There are also important variations in the severity scales used to assess ADL limitations (and functional limitations) across countries/surveys. Given these variations, national experts were asked to use their best judgement in defining the most appropriate 'cut-off' point to measure *severe disability* (*i.e.*, choosing between 'some difficulty', 'major difficulty' or 'needing help' to perform the activity, depending on the range of choices offered by the severity scale used in the survey instrument). Annex 2 of this report provides all the details concerning the survey questions and response categories that were used to define "severe disability" in each country.

39. Because of these existing differences in survey instruments across countries (both in the set of questions and response categories), it was recognised from the beginning of this study that strict comparability of disability prevalence rates across countries would not be possible, and that the focus of the data analysis should therefore be on assessing *disability trends within countries* as opposed to variations in *disability levels across countries*.

40. The guidelines provided for the data collection also explicitly noted that in cases where survey methodologies have changed over time, shorter time series with more consistent data were preferable to longer time series which are less consistent. This explains why only relatively short time series are presented for countries such as Australia, Canada and the United Kingdom.

Age-specific rates and age-standardised rates

41. Data on disability trends were requested for people aged 65 and over, disaggregated by sex and by 10-year age group (65-74, 75-84, 85+). Countries were also asked to supply both "crude" (non-age-standardised) rates and age-standardised rates for the entire population aged 65 and over. Age-standardised rates provide a more consistent measure of trends in disability over time, because they remove the effect of the ageing of the population aged 65+ over time. Given that the focus of this study is to assemble consistent trends in old-age disability within countries (not to achieve comparability in levels across countries), the calculation of these age-standardised rates was based on national population structures (usually around 2000).

Confidence intervals of survey estimates

42. Confidence intervals around survey estimates of disability were also requested and provided by several countries. Although these confidence intervals are not shown in the tables and charts presented in this report, they are used to assess the statistical significance of changes over time where appropriate.

Disaggregation by educational level

43. A disaggregation of disability rates among elderly people by level of education was also requested, in order to obtain some indication on the extent to which rising levels of education over time might explain at least partly any reduction in old-age disability rates (see Box 1). These data are also useful to assess any persisting disparities in disability rates across educational level. Three categories of educational level were proposed for the data collection:

1. less than high-school diploma (corresponding to ISCED 0-2)

2. high-school diploma (ISCED 3)

3. post secondary/tertiary education diploma (ISCED 4-6)

Box 1 What are the links between educational level and disability?

The average educational attainment of elderly people in most OECD countries has increased significantly over the past few decades. In the United States for instance, 72% of people aged over 65 in 2003 had graduated from high school, up from 19% only in 1960. And among these high-school graduates, 17% had a university degree in 2003 compared to only 4% in 1960 (Federal Interagency Forum on Aging Related Statistics, 2006).

A large body of evidence from the United States and other countries indicates that a higher level of education tends to be associated with a lower level of disability, at all ages, including in later life (although the disparity tends to diminish at higher ages). There are many potential 'causal pathways' by which a higher level of education might translate into lower disability. A higher level of education is often associated with higher incomes, higher standards of living and a lower risk of work-related injuries or diseases. The "education" effect might therefore be a proxy for broader "socioeconomic status" effects (if these other socioeconomic variables are not controlled for). A higher level of education may also be related to the adoption of more healthy behaviours, such as a lower prevalence of smoking, less alcohol drinking, and a more healthy diet.

In the United States, Freedman and Martin (1999), using the Survey of Income and Program Participation, emphasised the role of education in accounting for declines in functional limitations among older Americans from 1984 to 1993. Of the eight demographic and socioeconomic variables considered, education was found to be the most important in accounting for declining trends. Freedman and Martin also found that the relationship between educational attainment and functioning had not changed significantly over that period, but that educational attainment had increased greatly during that 10-year period, explaining at least part of the decline. They concluded that, all else being equal, future changes in education should continue to contribute to improvements in functioning among older Americans, although at a reduced rate.

Schoeni, Freedman and Wallace (2001), using the National Health Interview Survey, found that disability rates among the U.S. elderly population fell more rapidly between 1982 and 1996 among those who are the most educated and have higher income. They concluded that gains in education appear to be an important factor behind improvements in old-age disability rates, but that further research was required to determine more precisely the underlying causal pathways.

In Canada, Martel and colleagues (2005), using longitudinal data from the National Population Health Survey, found that education level was one of the few determinants that was significantly associated with maintaining good health among both middle-aged adults and seniors. They speculated that better-educated individuals were more likely to remain healthy probably because they tend to be more aware of health risks, to adopt healthy behaviours, and to use medical services more effectively.

Population in institutions

44. In many countries, national health surveys do not cover the population living in institutions. In these cases, an attempt has been made to collect complementary data from other sources (*e.g.*, administrative sources or census) to provide information on trends in the population living in institutions, in order to have a complete coverage of the elderly population. Through this additional effort, it has been possible to collect trend data on elderly people in long-term care institutions covering similar years for which the survey data are available for a certain number of countries (*e.g.*, Canada, France, the Netherlands and the United Kingdom). This allows the combination of these two datasets to provide comprehensive estimates of trends in severe disability among elderly people over time.[10]

45. Given the lack of detailed information on the population in institutions in many countries, the assumption has been made that all elderly people living in institutions are at least as disabled as those identified as such in surveys.

[10] *OECD Health Data 2006* provides more data on elderly people living in institutions for 20 OECD countries.

Data collection on the prevalence of certain chronic conditions (diseases and risk factors)

46. Data were also requested on the prevalence of a small set of disabling chronic diseases among the population 65 years and over. These four chronic diseases are: arthritis, heart problems, dementia, and diabetes. The selection of these four diseases was based mainly on their relative importance in accounting for disability in old age, based on evidence from certain countries (see Box 2). In addition, data were requested on the prevalence of two important risk factors for a range of chronic diseases, namely hypertension and obesity (see Box 3).[11] The main purpose for collecting this information was to get some indication on the extent to which changes in old-age disability rates may be associated with changes in the prevalence of some of the main disabling chronic diseases. Although this information was only sought at an aggregate level, it provides some initial insights on whether changes in disability appear to be related more to disease prevention or to disease management/treatment.

47. Most of the data on these five chronic diseases and the two risk factors come from the same surveys that have been used for reporting disability trends data (which means that they are self-reported). It should be kept in mind that trends in the reported prevalence of different diseases may be affected by greater efforts and successes in diagnosing these diseases, which might result in an increase in reporting without any "real" change in the underlying prevalence of these conditions. In addition, survey questions may be more or less specific in asking whether the disease has been diagnosed by a health professional, resulting in possible reporting biases.

[11] Hypertension and obesity can also be considered to be chronic conditions in their own right.

Box 2 What are the main diseases associated with functional limitations and disabilities in old age?

Changes in the prevalence of chronic conditions play a dominant role in explaining changes over time in old-age disability rates. Freedman, Martin and Schoeni (2004), using a recent wave of the US National Health Interview Survey, provided a list of the top 10 conditions associated with functional limitation or disability among older people in the United States in 2001. According to this source, arthritis/rheumatism was the leading cause of disability among elderly people, accounting for 30% of older adults reporting functional or ADL limitations. Heart problems represented the second leading cause of disability, accounting for 23% of old-age disability. The other main disabling conditions included hypertension, back/neck problems, diabetes, vision problems and stroke (see table below).

Top 10 conditions associated with functional limitation or disability among US population aged 65 and older, 2001					
1	Arthritis/Rheumatism	30.0%	6	Vision problem	11.8%
2	Heart problem	23.2%	7	Lung/Breathing problem	11.1%
3	Hypertension	13.7%	8	Fracture/Bone/Joint injury	10.7%
4	Back/Neck problem	12.6%	9	Stroke	9.2%
5	Diabetes	12.1%	10	Hearing problem	7.0%

Source: Freedman, Martin, and Schoeni, 2004 (authors' analysis of the 2001 National Health Interview Survey; the survey excludes people living in institutions)
Note: The numbers add up to more than 100% because of co-morbidities

It might be surprising that no neurological or cognitive diseases (such as dementia) appear on this list of the most disabling conditions in the United States. One reason for the lower ranking of neurological/cognitive diseases is that the data source (the NHIS) does not include people in institutions. The prevalence of people with severe cognitive diseases (such as dementia) is much greater in the population in institutions than in the population in households. Another reason is that the prevalence of severe cognitive diseases increases sharply among the very old age group, while their prevalence remains fairly low among people aged 65-74.

In Australia, the 2003 Survey of Disability, Ageing and Carers, which includes the population in institutions, has been used similarly to identify the combination of the prevalence of a health condition and the extent of disability among those reporting that condition (AIHW, 2006). Arthritis was the most common health condition, affecting 50% of older people in Australia reporting a profound or severe core activity limitation. Hearing disorders, hypertension, heart disease and stroke were also common conditions among this group, a list that also included diabetes, and dementia and Alzheimer's disease.

Most common health conditions among older people with a profound or severe core activity limitation*, Australia, 2003 -- As per cent of people with a profound or severe limitation					
1	Arthritis and related disorders	50.0%	6	Vision disorders	20.7%
2	Hearing disorders	43.3%	7	Back problems	20.0%
3	Hypertension	37.5%	8	Diabetes	17.9%
4	Heart disease	29.8%	9	Dementia and Alzheimer's disease	17.4%
5	Stroke	22.5%	10	Osteoporosis	15.2%

* The technical appendix in Australia's Welfare 2005 (AIHW) provides a detailed definition of terms.
Source: AIHW analysis of ABS 2003 Survey of Disability, Ageing and Carers confidentialised unit record file.
Note: People may have more than one health condition so percentages do not sum to 100.

Box 3 What are the links between obesity and disability?

While the reduction in certain risk factors to health such as smoking might have contributed to reducing some functional limitations in old age, the rising prevalence of obesity among adults of all ages over the past two decades in OECD countries might be having the opposite effect. Obesity is a risk factor for many of the leading causes of disability (e.g., arthritis, heart disease, stroke, diabetes, respiratory problems).

Sturm and colleagues (2004), using data from the US Health and Retirement Survey for the population aged 50-69, found significant relationships between obesity and disability (measured either as people reporting at least one ADL limitation or people reporting that they were limited in their work due to health problems). Regarding ADL limitations, they found that "for men, moderate obesity [defined as a Body Mass Index between 30 and 35] is associated with a 50 percent increase in the probability of ADL limitations, and severe obesity [defined as BMI greater than 35], with a 300 percent increase [compared with people of normal weight]… Even larger effects exist for women: the probability of ADL limitations doubles with moderate obesity and quadruples with severe obesity". One of the conclusions that can be drawn from their analysis is the importance of distinguishing between moderate and more severe levels of obesity when assessing the impact on disability.

Effects of obesity on disability among men and women aged 50-69, United States				
	Normal weight	**Overweight**	**Moderately obese**	**Severely obese**
	(18.5<BMI<25)	**(25<BMI<30)**	**(30<BMI<35)**	**(BMI over 35)**
Men (50-69)				
% with any ADL limitation	6.10%	6.50%	9.3%*	18.7% *
Women (50-69)				
% with any ADL limitation	5.20%	7.1% *	10.8% *	21.4% *

Source: Sturm and colleagues (2004), based on Health and Retirement Survey pooled data, 1992-2000
* Significantly different from the normal weight at 5 percent level.

Sturm and colleagues (2004) estimated that if current trends in obesity in the United States continue through 2020, holding everything else constant (medical technology and other trends), the proportion of people aged 50-69 reporting at least one ADL limitation would increase by 17.7% for men (from 7.9% in 2000 to 9.3% in 2020) and by 21.8% for women (from 7.8% in 2000 to 9.5% in 2020), thereby potentially offsetting reductions in disability prevalence from other sources (such as improved socioeconomic status).

Focussing on trends in disability among younger population groups in the United States, Lakdawalla and colleagues (2004) found that disability rates for people aged 30-59 have increased significantly, due to some extent at least to growing rates of obesity. These increases in disability prevalence were not confined to the less educated or the poor, but occurred across all demographic and economic groups.

3.3 Results on trends in the prevalence of severe disability among elderly people

48. Keeping in mind these limitations in the comparability of data on severe disability across countries, the results on trends in the prevalence of severe disability among elderly people are presented separately for each of the 12 countries covered under this study.[12]

Australia

49. Data on disability trends in Australia are available from the 'Survey of Disability, Ageing and Carers', which has been carried out in 1981, 1988, 1993, 1998 and 2003. However, because of changes in the survey design after 1993, disability prevalence rates from the first three waves of the survey are not directly comparable with those from the two most recent waves. Hence, only data from the 1998 and 2003 surveys are used for analysing trends in this study. Severe disability in this survey is measured as people reporting at least one profound or severe core activity limitation, defined as the person sometimes or always needs assistance with at least one core activity. Core activities comprise a number of ADL and functional tasks, including: self-care (bathing and showering, dressing, eating, using the toilet, and incontinence), mobility (getting in or out of bed or chair, moving around at home and going to or getting around a place away from home) and communication (understanding and being understood by others).

50. Results from the Australian disability survey show a slight increase in the non-age-standardised rates of severe disability among people aged 65 and older between 1998 and 2003. However, after age standardisation, the prevalence of severe disability was stable between 1998 and 2003, at a rate of 22%.[13]

51. As in other countries, severe disability in Australia is more prevalent among elderly women than elderly men. The gender gap is particularly marked at older ages, with 65% of women aged 85 and over reporting being severely disabled compared with 44% of men.

52. The Australian disability survey covers *all* the elderly population, including people in institutions. Focussing only on trends in the population in institutions, administrative data from the Department of Health and Ageing indicate a slight reduction in the percentage of people aged 65 and over living in long-term care institutions during the 5-year period covered by the survey, down from 5.5% in 1998 to 5.3% in 2003 (AIHW, 2004). This reduction, however, coincided with an increase in the share of elderly people receiving formal long-term care at home (OECD, 2006b).

53. The stable prevalence of severe disability among elderly people in Australia between 1998 and 2003 has been accompanied by a relatively stable prevalence of some of the leading causes of disability in old age, including arthritis, heart problems, and dementia. On the other hand, the prevalence of some other chronic conditions, such as diabetes and hypertension, has risen among elderly people during this five-year period, while the prevalence of obesity among older Australians has also risen sharply between 1980 and 2000 (AIHW, 2004). The rising prevalence of these chronic conditions can be expected to put upward pressure on functional and activity limitations among elderly people in the years to come.

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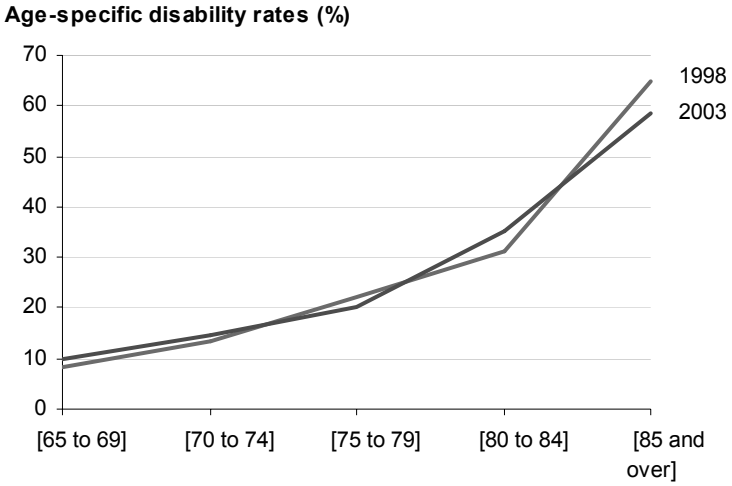
[12] Annex 3 at the end of this paper provides the tables and charts on the prevalence of chronic conditions and risk factors, which are only summarised briefly in this section.

[13] Earlier results from previous waves of the Australian Disability Survey indicated a substantial increase in the rate of severe or profound restrictions for people aged 65 and over between 1993 and 1998. But about half of this increase was attributed to changes in the survey design, while the other half was attributed to population ageing and an increase in the prevalence among people aged 85 and over (ABS: Davis *et al.*, 2001).

Table 3.1. Percentage of people aged 65 and over reporting at least one profound or severe limitation in core activities (self-care, communication, mobility), Australia

	1998	2003
Total (%)		
[65 and over, age-adj.]	**22.0**	**22.0**
[65 and over, crude]	21.2	22.5
[65 to 69]	8.5	9.9
[70 to 74]	13.5	14.5
[75 to 79]	22.3	20.3
[80 to 84]	31.3	35.2
[85 and over]	65.0	58.4
Male (%)		
[65 and over, age-adj.]	**16.9**	**16.7**
[65 and over, crude]	16.3	17.1
[65 to 69]	7.9	9.5
[70 to 74]	11.8	11.4
[75 to 79]	18.7	18.7
[80 to 84]	24.4	27.3
[85 and over]	56.1	44.1
Female (%)		
[65 and over, age-adj.]	**25.9**	**26.3**
[65 and over, crude]	24.9	26.8
[65 to 69]	9.0	10.4
[70 to 74]	15.0	17.3
[75 to 79]	24.9	21.5
[80 to 84]	35.5	40.5
[85 and over]	68.9	65.0



Source: *Survey of Disability, Ageing and Carers*.

Note:

Data includes people in households and in institutions. The age-standardised rates have been calculated based on the 2001 mid-year Australian population structure.

Belgium

54. Data on disability trends in Belgium are available from the National Health Interview Survey, which was carried out in 1997, 2001 and 2004. Disability in this survey has been assessed by asking a consistent set of questions on functional limitations and ADL limitations. Severe disability for the purpose of this study is defined as people reporting not being able to perform without help at least one basic function (*e.g.*, mobility) or ADL (*e.g.*, getting in and out of bed or of a chair, dressing, toileting, eating, incontinence). This is a broader definition of "severe disability" than the one used by most other countries, which focuses more narrowly on ADL limitations. Although the Belgian Health Interview Survey does not exclude people in institutions, in practice, people in institutions were under-represented in the 1997 and 2001 waves. In 2004, special efforts were made to correct this under-representation, by over-sampling the elderly population in general and by making a greater effort to contact people in institutions.

55. Results from the three waves of the Belgian health survey show a gradual increase in the prevalence of severe disability among people aged 65 and older between 1997 and 2004, from 18.9% in 1997, to 22.9% in 2001 and 23.8% in 2004.[14] The rise in disability prevalence between 1997 and 2004 has affected all age groups over 65, and has been reported by both men and women, although the rates have been persistently higher among women.

56. Complementary data from administrative sources on people aged 65 and over living in long-term care institutions in Belgium also indicate a small increase between 1997 and 2004, up from 6.1% in 1997 to 6.6% in 2004 (National Institute for Health and Invalidity Insurance, RIVIZ/INAMI).[15]

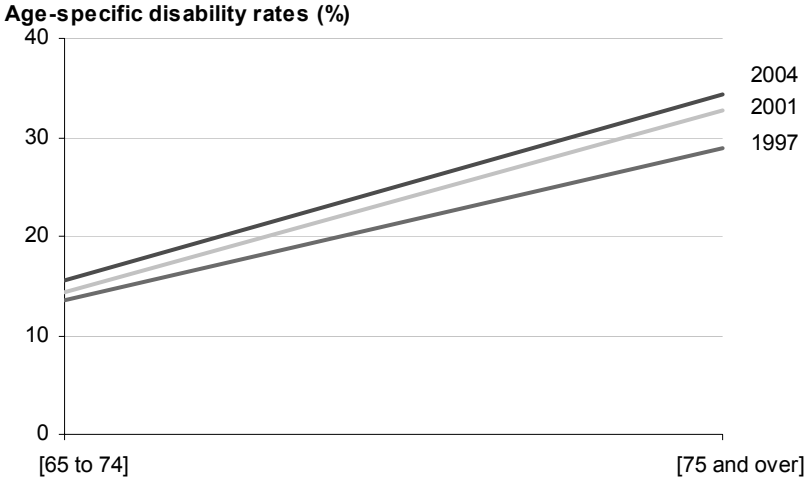
57. The increase in old-age disability prevalence in Belgium between 1997 and 2004 has been accompanied by a rising prevalence of some chronic diseases such as diabetes, as well as a rising prevalence in hypertension and obesity. On the other hand, the prevalence of other leading causes of disability among elderly people (e.g., arthritis and heart problems) has remained relatively stable during that period.

[14] The increase between 2001 and 2004 can be attributed partly, but not fully, to the greater effort to cover the population in institutions in 2004. This methodological change cannot, however, explain any of the increase between 1997 and 2001.

[15] The share of elderly people receiving formal long-term care at home also increased by nearly 1 percentage point during that period (from 6.6% in 1998 to 7.5% in 2004).

Table 3.2. Percentage of people aged 65 and over reporting at least one severe functional or ADL limitation (not able to perform without assistance), Belgium

	1997	2001	2004
Total (%)			
[65 and over, age-adj.]	..	..	..
[65 and over, crude]	18.9	22.9	23.8
[65 to 74]	13.5	14.3	15.6
[75 and over]	28.8	32.8	34.4
Male (%)			
[65 and over, age-adj.]	..	..	..
[65 and over, crude]	14.4	18.6	18.7
[65 to 74]	11.4	13.0	13.2
[75 and over]	21.8	27.1	27.0
Female (%)			
[65 and over, age-adj.]	..	..	..
[65 and over, crude]	21.9	25.8	27.5
[65 to 74]	15.1	15.5	17.3
[75 and over]	32.1	36.0	38.7



Source: *Health Interview Survey*.

Note: The population in institutions is under-represented, particularly in the 1997 and 2001 surveys.

Canada

58. Disability trends among elderly people in Canada can be measured by combining data from the National Population Health Survey (conducted in 1994, 1996 and 1998, although changes in the data collection mode between 1994 and 1996 limit data consistency) and the Canadian Community Health Survey (conducted in 2001 and 2003). The definition of severe disability follows the definition proposed for this study, that is, people reporting to need help for at least one ADL (personal care activity).[16] People living in institutions are excluded from the disability estimates derived from these surveys.

59. Results from these two Canadian health surveys show a stable prevalence of people over 65 requiring help for at least one basic ADL between 1996 and 2003, with around 6% of elderly people living in households reporting to require such help.[17] As in other countries, the prevalence of such severe disability is much higher among the population aged 85 and over (20% in 2003), compared with people between 65-74 (3%).

60. Looking at disability rates by educational level, the rates of ADL limitations among people aged 65 and over with less than high-school education have consistently been nearly twice as large as those with some post-secondary education. In 2003, 7.4% of people with lower level of education reported being limited in their personal care activities, compared with 4% for people with higher level of education. The gap in disability rates by educational level has been relatively stable since 1996.

61. Complementary data on people living in institutions in Canada also indicate a relatively stable share of people aged 65 and over in long-term care institutions between 1996 and 2003. In 2003, 4.2% of people aged 65 and over were living in institutions, compared with 4.3% in 1996.[18]

62. The stable rate in severe disability among elderly people in Canada between 1996 and 2003 has been accompanied by a rise in the prevalence of a number of potentially disabling diseases, such as arthritis, heart problems, and diabetes. In the case of arthritis and heart problems, this is a reversal from the earlier trend of a slight reduction in the prevalence of these diseases among elderly people between the late 1970s and 1996 (Chen and Millar, 2000). Between 1996 and 2003, the prevalence of obesity and hypertension among people aged 65 and over has also increased significantly in Canada. So far, the growing prevalence of these conditions does not appear to have led to higher rates of severe disability among elderly people, possibly resulting only in moderate disability or being offset by more positive trends in the prevalence of other diseases.

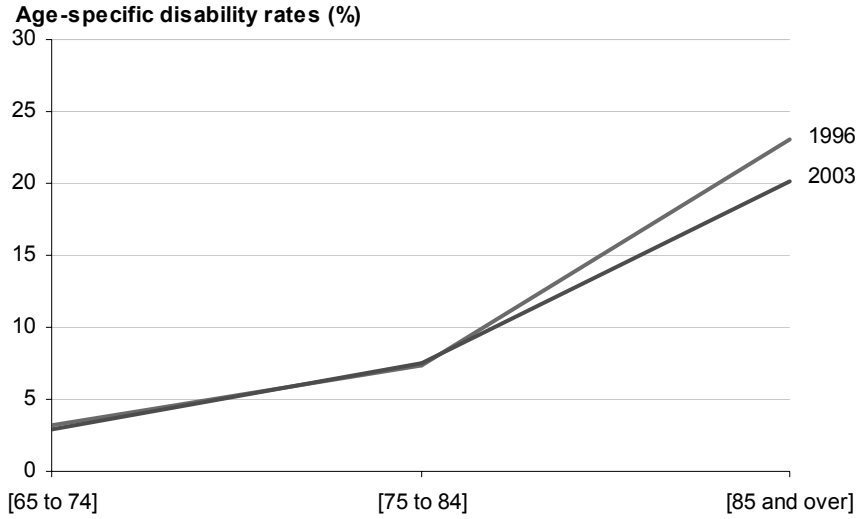
[16] This definition is closer to the notion of "dependency" which is more frequently used to describe this type of ADL limitations in Canada.

[17] Confidence intervals around the estimates (not shown in this report) indicate that the slight variations over time are not statistically significant.

[18] These data are based on Statistics Canada's Residential Care Facilities Survey. Data based on the census carried out every five years in Canada indicate also a relatively stable rate, with 6.8% of elderly people living in institutions in 2001, compared with 6.7% in 1996.

Table 3.3. Percentage of people aged 65 and over reporting to need assistance for at least one ADL (personal care), Canada

	1996	1998	2001	2003
Total population in households (%)				
[65 and over, age-adj.]	..	..	..	..
[65 and over, crude]	6.0	6.1	6.2	5.8
[65 to 74]	3.2	2.9	3.2	2.9
[75 to 84]	7.4	8.7	8.3	7.5
[85 and over]	23.0	18.0	20.5	20.2
Male (%)				
[65 and over, age-adj.]	..	..	..	..
[65 and over, crude]	5.8	6.0	5.8	5.2
[65 to 74]	3.9	4.5	3.1	2.9
[75 to 84]	8.2	6.5	8.0	7.3
[85 and over]	12.5	F(1)	20.9	18.1
Female (%)				
[65 and over, age-adj.]	..	..	..	..
[65 and over, crude]	6.2	6.1	6.6	6.3
[65 to 74]	2.7	1.5	3.2	3.0
[75 to 84]	6.8	10.2	8.5	7.6
[85 and over]	29.5	19.3	20.3	21.1
Total population in institutions (%)				
[65 and over, crude]	4.3	4.2	4.1	4.2
Total population, households and institutions (%)				
[65 and over, crude]	10.4	10.2	10.4	10.0



Sources:

Households: *National Population Health Survey*, 1996/1997 and 1998/1999; *Canadian Community Health Survey*, 2000/2001 and 2003.
Institutions: *Residential Care Facilities Survey*, Statistics Canada.

Notes:

1) Data with a coefficient of variation (CV) greater than 33.3% were suppressed (F) due to extreme sampling variability.

Denmark

63. Data on disability trends among older people in Denmark are available from the 'Health and Morbidity Survey', which was carried out in 1987, 1994, 2000 and 2005 (Ekholm *et al.*, 2006). Severe disability is defined as people reporting 'major difficulty' or 'not being able' to perform at least one physical or sensory function (e.g., walking, climbing stairs, carrying a bag, seeing, hearing and speaking). This definition based on functional limitations measures less severe levels of disability than the ADL (personal care) limitations proposed for this study.[19] The survey does not exclude people living in institutions, although the response rate for people in institutions is lower than for the population in households.

64. Results from different waves of the Danish Health and Morbidity Survey show an overall decline in the percentage of people aged 65 and older reporting a functional limitation. The non-age-adjusted disability prevalence rate fell from 41% in 1987 to 30% in 2005. The decline in functional limitations has been widespread across all population subgroups over age 65, although it has been consistently higher among women than men. The reduction in functional limitations among elderly people in Denmark may be attributed to some extent at least to the growing use of assistive devices to compensate, for instance, for hearing or (eye)sight limitations.[20]

65. The reduction in the prevalence of functional limitations in Denmark has been greater for elderly people with a higher level of education than for those with a lower level of education, thereby widening the gap in functional limitations by educational level (see Annex 4).

66. Complementary data from the 5-yearly census can be used to assess trends in the number of people living in institutions in Denmark. Between 1990 and 2000, the percentage of people aged 65 and over who were living in institutions (including nursing homes, sheltered dwellings, and dwellings for elderly people who often do not require any assistance with ADL) increased from 8.7% in 1990 to 9.8% in 2000. This increase may, however, have more to do with changes in housing policies for elderly people in Denmark than with any increase in the share of dependent elderly people requiring care in institutions.[21]

67. As in most other countries, the prevalence of diabetes, hypertension and obesity has increased over time among elderly people in Denmark, although any functional limitations arising from these health problems appear to have been more than offset by other factors affecting positively their health and functional status, including the growing use of assistive devices.

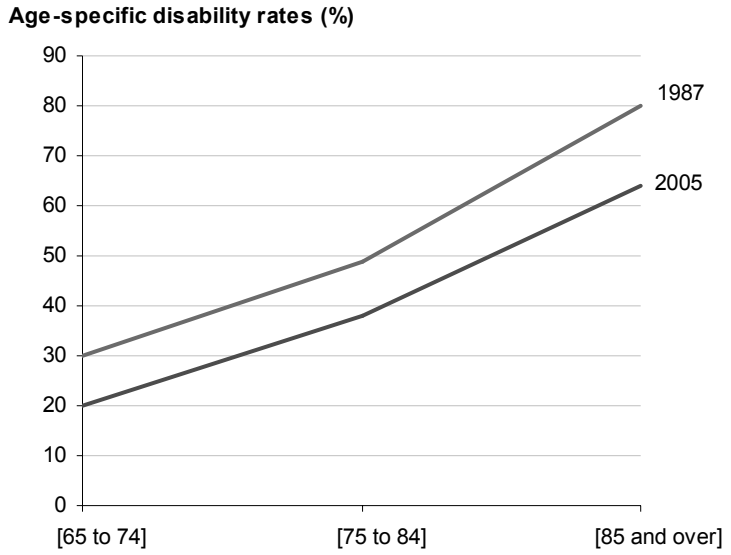
[19] This explains why the disability prevalence rates in Denmark are higher than those reported by other countries.

[20] The questions in the Danish survey measure functional limitations with the use of any assisting devices, therefore not accounting for the growing use of these aids.

[21] In 2003, 60% of elderly Danes living in "long-term care" institutions were living in residential places for elderly people where admission is not based on any disability criteria.

Table 3.4. Percentage of people aged 65 and over reporting at least one functional limitation (major difficulty or not able to perform), Denmark

	1987	1994	2000	2005
Total (%)				
[65 and over, age adj.]	**43.0**	**39.6**	**33.5**	**31.8**
[65 and over, crude]	40.6	36.8	32.6	30.0
[65 to 74]	30.1	25.1	19.8	20.0
[75 to 84]	49.0	50.4	40.1	38.0
[85 and over]	80.0	69.8	72.2	64.0
Male (%)				
[65 and over, age adj.]	**37.6**	**30.4**	**25.5**	**24.8**
[65 and over, crude]	36.6	28.4	25.1	24.0
[65 to 74]	28.6	19.1	17.2	17.0
[75 to 84]	45.4	39.8	31.0	30.0
[85 and over]	68.2	70.0	60.1	57.0
Female (%)				
[65 and over, age adj.]	**47.2**	**46.5**	**39.9**	**37.5**
[65 and over, crude]	43.8	43.4	38.8	35.0
[65 to 74]	31.5	30.3	22.3	23.0
[75 to 84]	51.7	58.0	47.3	44.0
[85 and over]	86.1	69.8	77.8	68.0



Source: *Health and Morbidity Survey*.

Notes:

1. Data includes people in households and in institutions.
2. The age-standardised disability rates have been calculated by the OECD Secretariat, based on the 2000 Danish population structure by age and sex (Source: Eurostat).

Finland

68. Trends in old-age disability in Finland can be measured by using the 2000 Health Survey which is generally consistent with the Mini-Finland Health Survey conducted in 1980. This allows the assessment of trends in disability prevalence over a 20-year period, without however any intervening year. Severe disability is defined as people reporting having major difficulties or not being able to perform at least one ADLs (including getting in and out of bed, dressing, and moving within the home).

69. Results from these 1980 and 2000 Finnish surveys indicate an overall decline in the percentage of people aged 65 and older in Finland reporting severe disability. The non-age-standardised rate fell from 13.0% in 1980 to 10.1% in 2000 (the decline in the age-standardised rate was even larger).

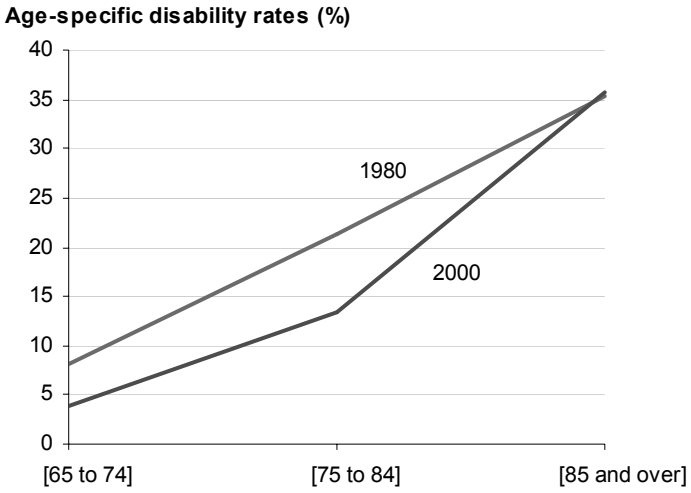
70. The decline in severe disability over this period was particularly marked for the younger age groups (people aged 65-74 and 75-84). On the other hand, no reduction in disability prevalence among the oldest age group (85 and over) was reported. The stable rate among the population aged 85 and over was the result of the offsetting effect of a reduction in disability rates among men combined with an increase among women. As in other countries, disability rates among women aged 65 and over in Finland have been steadily higher than for men. In 2000, the gender gap was particularly marked among people aged 85 and over, given the diverging trends since 1980.

71. Both surveys included people living in institutions, thereby providing a complete coverage of the elderly population. According to other administrative data, between 4% and 5% of the elderly population in Finland were living in long-term care institutions between 1995 and 2003, and this rate has been relatively stable during that period (STAKES, 2005).

72. Some of the chronic diseases that limit the functional ability of older people such as arthritis have become less common in Finland between 1980 and 2000. On the other hand, the prevalence of other chronic diseases and risk factors, such as diabetes, hypertension and obesity, has increased among elderly people over this period. This raises a question mark on whether improvements in the functional status of elderly people in Finland will be sustained in the long-run.

Table 3.5. Percentage of people aged 65 and over reporting at least one ADL limitation (major difficulty or not able to perform), Finland

	1980	2000
Total (%)		
[65 and over, age adj.]	**15.3**	**10.2**
[65 and over, crude]	13.0	10.1
[65 to 74]	8.2	3.8
[75 to 84]	21.3	13.4
[85 and over]	35.4	35.8
Male (%)		
[65 and over, age adj.]	**13.4**	**8.5**
[65 and over, crude]	12.2	8.5
[65 to 74]	9.5	3.6
[75 to 84]	17.3	15.1
[85 and over]	35.2	28.7
Female (%)		
[65 and over, age adj.]	**16.5**	**11.3**
[65 and over, crude]	13.5	11.2
[65 to 74]	7.3	3.9
[75 to 84]	23.0	12.6
[85 and over]	35.4	38.1



Sources: *Mini-Finland Health Survey* (1978-80); *Health 2000 Survey* (2000-01)

Notes:

1. Data includes people in households and in institutions.
2. The age-standardised disability rates have been calculated by the OECD Secretariat, based on the 2000 Finnish population structure by age and sex (Source: Eurostat).

France

73. Different surveys provide some indication on the evolution in ADL disability among elderly people in France, but none of the sources (or combination of sources) presently available provide fully consistent time series on this measure of disability.

74. In 2002, the French Ministry of Health combined data from a number of surveys available at that time to obtain an estimate of trends in severe physical dependency among elderly people during the 1990s, for the purpose of making projections on the number of elderly dependent people up to 2040 (Bontout, Colin and Kerjosse, 2002). The definition of "severe physical dependency" used in this study was people reporting needing help to get in and out of bed, to dress or to wash/bath (corresponding to "groupes Colvez 1 et 2"). The estimates for the early 1990s combined data from the 1991-92 'Enquête décennale sur la santé et les soins médicaux' (referred to here as the "Health Survey") which covered only the population in households, with data from the 1990 "Enquête sur les établissements d'hébergement pour personnes âgées" (EHPA) which covered the population in institutions. The estimates for the late 1990s combined data from the 1998 survey "Handicap-Incapacité-Dépendance" (HID) which covered the population in institutions and the 1999 wave of this same HID survey which covered the population in households. Although the questions selected from these different surveys were the same, differences in survey methodologies limit the comparability of data across these different sources (although the precise effect is not known). Keeping this limitation in mind, this 2002 study found a decline in the percentage of elderly people reporting to be severely dependent during the 1990s, from 7.6% in the early 1990s to 6.5% in the late 1990s. The reduction in severe dependency was found to be most pronounced among the oldest age group (people aged 85 and over).

75. Since then, data from the most recent French Health Survey (carried out in 2002-03) have become available. However, changes in the mode of administration of the survey compared with earlier waves limit to a certain extent the comparability of disability estimates over time (Cambois *et al.*, 2006).[22] Bearing this limitation in mind, the results from the last two waves of the Health Survey indicate that the prevalence of ADL disability (defined as people reporting having major difficulties or needing help to wash, dress, use the toilet or eat) did not decrease between 1991-92 and 2002-03 for the population in households aged 65 and over. While ADL disability declined among people aged 65-74, this was offset by an increase among people aged 85 and over. (This latter result contrasts sharply with the results mentioned above from the earlier study on trends in old-age dependency in the 1990s.) Taking into account the population in institutions, the results from the 1990 and 2003 waves of the EHPA survey indicate that the share of people aged 65 and over living in institutions remained stable during that period, at 6.3%.

76. Given the data consistency limitations noted above, it is not possible at this time to reach any definitive conclusion on the direction of trends in ADL disability among elderly people in France since the early 1990s, although the most recent evidence suggests that the prevalence has not decreased. The next wave of the French disability survey, to be carried out in 2008, should help clarify trends in disability rates among elderly people, provided that no significant change is made in the survey methodology compared with the previous health or disability surveys.

[22] With respect to the measurement of ADL disability, some slight changes in the formulation of the response categories may have affected the results (although the precise effect of these changes is not known).

Table 3.6 Percentage of people aged 65 and over severely disabled (dependent), based on different definitions and sources, France

People reporting needing help for getting in and out of bed, dressing or washing (groupes Colvez 1 et 2)			People reporting major difficulty or needing help for dressing, washing, using the toilet or eating (all people in institutions are assumed to be dependent)		
	Early 1990s	Late 1990s		1991/92	2002/03
Total population, households and institutions (%)			**Population in households (%)**		
[65 and over, crude]	7.6	6.5	[65 and over, crude]	9.2	9.5
[65 to 74]	2.3	2.5	[65 to 74]	5.8	4.4
[75 to 84]	8.6	6.6	[75 to 84]	11.0	12.1
[85 and over]	29.5	23.1	[85 and over]	27.2	35.4
Male (%)			***Male (%)***		
[65 and over, crude]	5.6	5.1	[65 and over, crude]	8.4	8.0
[65 to 74]	2.6	2.8	[65 to 74]	6.8	4.7
[75 to 84]	7.0	6.0	[75 to 84]	9.7	9.4
[85 and over]	22.9	18.4	[85 and over]	19.6	32.1
Female (%)			***Female (%)***		
[65 and over, crude]	9.0	7.4	[65 and over, crude]	9.7	10.6
[65 to 74]	2.0	2.2	[65 to 74]	5.0	4.1
[75 to 84]	9.6	7.0	[75 to 84]	11.8	13.8
[85 and over]	31.9	24.9	[85 and over]	29.9	37.3
			Population in institutions (%)		
			[65 and over, crude][1]	6.3	6.3
Total population, households and institutions (%)			**Total population, households and institutions (%)**		
[65 and over, crude]	7.6	6.5	[65 and over, crude]	15.5	15.8

Sources: "*Etablissements d'hébergement pour personnes âgées*" (EHPA) Survey, 1990; *Health and Health Care Survey*, 1991-1992; "*Handicap-Incapacité-Dépendance*" (HID) Survey, 1998 and 1999.

Note: The data between the early 1990s and the late 1990s are not fully comparable because they are based on different surveys using different methodologies.

Sources: Households: *Health and Health Care Survey*. Institutions: "*Etablissements d'hébergement pour personnes âgées*" (EHPA) Survey, 1990 and 2003.

[1] Data for 1991/1992 refers to 1990.

Note: The data between 1991/92 and 2002/03 are not fully comparable due to changes in the methodology of the Health Survey.

Italy

77. Data on disability trends in Italy are available from the survey of 'Health Conditions and the Use of Health Services', which was carried out in 1991, 1994 and 1999-2000. Severe disability in the survey is measured by asking respondents if they require assistance in carrying out a number of ADLs (including getting in and out of bed, dressing, bathing, and eating). The survey excludes people living in institutions.

78. Based on results from the various waves of this survey, the non-age-standardised rate of elderly people reporting at least one ADL limitation in Italy declined slightly between 1991 and 1999-2000, from 13.7% in 1991 to 13.2% in 1999-2000. The prevalence of ADL disability fell significantly among men, but not among women, and the decline among both men and women appears to have been particularly concentrated among people aged 85 and over (although the prevalence of ADL disability remains much higher for this older age group than for younger age groups).

79. Once the changes in population structure are taken into account through age standardisation, the reduction in ADL disability among all people aged 65 and over in Italy is much more pronounced, reflecting the rise during the 1990s in the proportion of people aged 85 and over compared with the "youngest old" groups.

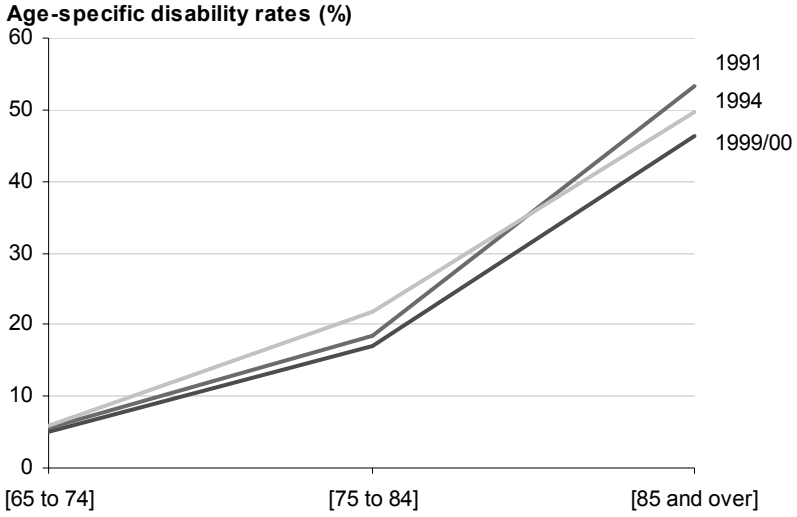
80. As in other countries, there is a strong correlation in Italy between higher education level and lower disability prevalence among elderly people. This trend has persisted throughout the 1990s (see Annex 4).

81. Data from administrative sources on people living in long-term care institutions in Italy are available only for recent years (from 1999 to 2003). During that period, the rate of elderly people living in institutions was low and remained stable, with a share of 1.4% of people over 65 years of age in institutions.

82. The slight decline in reported ADL disability among people living in households in Italy between 1991 and 2000 has been associated with an increase in the reported prevalence of a number of chronic diseases (including arthritis, heart problems, diabetes), as well as a rise in the prevalence of hypertension and obesity. As is the case for many other countries, the trend rise in these chronic conditions among elderly people in Italy raises concerns as to whether the prevalence of ADL and other types of disabilities at older ages will continue to decline in the future.

Table 3.7 Percentage of people aged 65 and over requiring assistance in at least one ADL, Italy

	1991	1994	1999/00
Total population in households (%)			
[65 and over, age-adj.][1, 2]	15.6	16.2	13.9
[65 and over, crude]	13.7	13.7	13.2
[65 to 74]	5.6	5.8	5.0
[75 to 84]	18.3	21.6	17.0
[85 and over]	53.2	49.7	46.5
Male (%)			
[65 and over, age-adj.][1]	15.0	14.2	10.9
[65 and over, crude]	12.2	11.2	9.3
[65 to 74]	5.5	5.7	4.2
[75 to 84]	17.7	17.3	12.4
[85 and over]	49.8	44.1	37.5
Female (%)			
[65 and over, age-adj.][1]	15.9	17.4	15.7
[65 and over, crude]	14.9	15.4	16.0
[65 to 74]	5.6	5.9	5.7
[75 to 84]	18.7	24.5	19.8
[85 and over]	54.7	52.3	50.5
Total population in institutions (%)			
[65 and over, crude]	..	..	1.4



Sources:

Households: *Health Conditions and the Use of Health Services Survey*.
Institutions: *State Residential Home survey*.

Notes:

1) The age-standardised rates are based on the population structure of the 2001 census.
2) The age-standardised rate is higher in 1994 than in 1991 because the share of the population aged 65-74 was slightly greater in 1994 than in 1991 while the share of the population 75+ was slightly lower.

Japan

83. Different sources can be used to monitor trends in severe disability among elderly people in Japan. The Comprehensive Survey of Living Conditions (CSLC) provides estimates of trends in ADL disability for the period 1989 and 1998, and then for the period 2001 and 2004. An important limitation, however, is that the data on ADL disability from the CSLC for this latter period are not directly comparable with the data up to 1998, because of changes in survey methodologies introduced in 2001.[23] Another source can be used to obtain estimates on the prevalence of different levels of ADL and IADL limitations among elderly people in Japan, which is the survey instrument that has been used since 2000 to assess needs for care under the universal long-term care insurance scheme.[24]

84. Results from different waves of the CSLC survey indicate that, following a rise in the share of elderly people reporting at least one ADL limitation between 1989 and 1992, the prevalence rate declined between 1992 and 1998, coming down close to its 1989 level.[25] Following the changes in methodology introduced in 2001, only two data points are available presently to assess the most recent trends in ADL disability based on the CSLC survey. Based on these limited data, it seems that there has been a rise in the percentage of elderly people reporting one or more ADL limitations in Japan between 2001 and 2004, with the non-age-standardised rates rising from 6.9% in 2001 to 7.8% in 2004.[26]

85. Data available from the needs assessment instrument under the long-term care insurance scheme also indicate an increase over the past few years in the share of elderly people in Japan assessed as needing some form of care due to ADL and IADL limitations. The percentage of people aged 65 and over assessed as needing care increased from 11% of all elderly people in 2000 to 16.1% in 2005.[27] While this rise has affected all categories of care needs, it has been particularly strong for lower levels of care needs.[28]

86. It is difficult to reach any definitive conclusion on the evolution of ADL disability among elderly people in Japan, given that consistent survey data are only available for the past few years. Data on the prevalence of a number of important chronic conditions are available over a longer time period. These data indicate that there has been a rise in the prevalence of arthritis, heart problems, dementia, diabetes and hypertension among elderly people in Japan between 1989 and 2004 (see Annex 3).

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[23] The questions and response categories to assess ADL disability in the CSLC were substantially modified in the 2001 survey, and there were also changes in the population coverage, thereby limiting the consistency of disability prevalence rates.

[24] All residents aged 40 and over in Japan are insured under the long-term care insurance scheme introduced in 2000. Insured people in need of care are assessed on application and classified into one of the six care levels according to their care need. Decision on the care level of each beneficiary is agreed by a municipal long-term care council, but the needs assessment and collection of data on individual cases is usually delegated to service providers. A fee schedule is set nationally according to the level of care need (OECD, 2005).

[25] Another potential source of data on ADL limitations in Japan, the JAHEAD survey, also indicates a downward trend in ADL disability between 1993 and 1999, which continued up to 2002 (Schoeni *et al.*, 2005).

[26] The rise is statistically significant, when taking into account confidence intervals around survey estimates (not shown).

[27] It is unclear to what extent this increase might be due to the gradual take-up of this new long-term care insurance scheme. It can be noted that the percentage of people assessed as needing care has continued to increase in 2004 and 2005, albeit at a slightly lower rate than in the first few years of the programme implementation.

[28] The percentage of people over age 65 actually receiving long-term care at home increased since the introduction of the universal long-term care insurance, from 5.3% in 2000 to 9.8% in 2005, while the share of elderly people receiving long-term care in institutions also increased but at a slower rate, from 2.7% of all people aged 65 and over in 2000 to 3.1% in 2005.

Table 3.8a. Percentage of people aged 65 and over with at least one limitation in their ADL, Japan

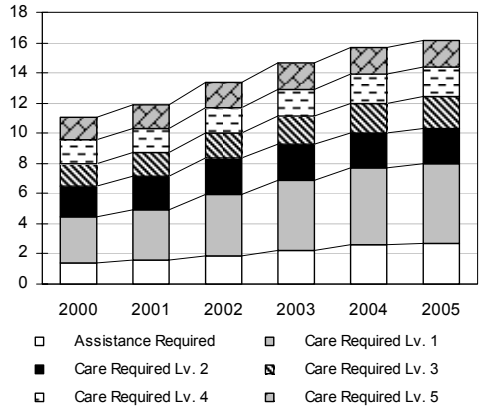
	1989	1992	1995	1998	2001	2004
Total population in households (%)						
[65 and over, age-adj.]	4.4	5.2	4.8	4.6	6.6	7.3
[65 and over, crude]	4.4	5.2	4.9	4.9	6.9	7.8
[65 to 69]	1.4	1.8	1.5	1.5	1.8	1.9
[70 to 79]	3.6	4.1	3.5	3.3	4.6	4.8
[80 and over]	12.4	14.3	14.4	14.1	20.8	24.0
Male (%)						
[65 and over, age-adj.]	4.3	5.2	4.8	4.4	5.5	6.2
[65 and over, crude]	4.3	5.1	4.7	4.3	5.4	6.2
[65 to 69]	1.6	2.0	1.9	1.8	1.9	2.0
[70 to 79]	4.1	4.8	4.1	3.5	4.4	4.8
[80 and over]	10.6	12.8	12.8	12.3	16.3	19.3
Female (%)						
[65 and over, age-adj.]	4.5	5.2	4.8	4.8	7.2	8.0
[65 and over, crude]	4.5	5.3	5.1	5.3	8.0	9.0
[65 to 69]	1.2	1.6	1.2	1.3	1.6	1.7
[70 to 79]	3.2	3.6	3.1	3.1	4.7	4.9
[80 and over]	13.6	15.1	15.4	15.0	23.1	26.7
Total population in institutions (%)						
[65 and over, crude]	..	..	..	..	2.8	3.0
Total population, households and institutions (%)						
[65 and over, crude]	..	..	..	..	9.7	10.8

Sources: Households: *Comprehensive Survey of Living Conditions* (CSLC).
Institutions: Estimates based on *Monthly Operational Report on the LTC insurance* (MHLW).

Notes: Data for 2001 and 2004 are not directly comparable with those up to 1998, because of changes in survey methodology introduced in 2001. The age-standardization is based on the Japanese population age structure in 1989.

Table and Chart 3.8b. Percentage of people 65 and over who are eligible for the LTC services (the 6 categories are assessed by level of ADL/IADL limitations), Japan

	2000	2001	2002	2003	2004	2005
Total (%)	11.0	11.9	13.4	14.7	15.7	16.1
Assistance Required	1.4	1.5	1.9	2.2	2.6	2.7
Care Required Lv. 1	3.0	3.4	4.0	4.7	5.1	5.3
Care Required Lv. 2	2.1	2.2	2.4	2.4	2.3	2.4
Care Required Lv. 3	1.5	1.6	1.7	1.8	2.0	2.0
Care Required Lv. 4	1.6	1.6	1.7	1.8	1.9	2.0
Care Required Lv. 5	1.4	1.5	1.6	1.7	1.8	1.8



Source: Estimates based on *Monthly Operational Report on the LTC insurance* (MHLW).

Note: Data include the population in households and in institutions.

Netherlands

87. Data on disability trends in the Netherlands are available from the national 'Health Interview Survey', which has been carried out annually since 1990. Data from this survey is available on a yearly basis, but the sample size of elderly people is relatively small. Hence, the data have been pooled over a 3-year period to increase the degree of precision of estimates, and to allow a meaningful disaggregation by sex and age, as well as by education level. Estimates of severe disability from this survey refer to people who report having "a lot of difficulty" or "being unable to do without help" a number of ADLs (including eating or drinking, getting in and out of bed, dressing, washing hands and face, and bathing). The survey excludes people living in institutions.

88. Based on the pooled data over a 3-year period, results from the Dutch Health Interview Survey indicate an overall decline in the prevalence of severe disability among the population aged 65 to 84 between 1991-93 and 2001-03. On the other hand, there has been no decline among the population aged 85 and over.[29] Among all the population aged 65 and over in the Netherlands, the non-age-standardised rate of severe disability fell from 8.8% in 1991-93, to 7.5% in 1996-98 and 7.1% in 2001-03.[30] Most of the decline took place in the first half of the 1990s, followed by a slowdown in the reduction of disability rates in more recent years.

89. Data from administrative sources on people living in long-term care institutions in the Netherlands are available from 1995 to 2004. During that period, the percentage of people aged 65 years and over who were living in institutions gradually fell from 7.1% on average during 1996-98 to 5.9% during 2001-03.

90. Combining both the survey data on people in households and administrative data on people living in institutions, it is possible to conclude that the prevalence of severe (ADL-based) disability among elderly people in the Netherlands declined in the order of 1.5 percentage point between 1996-98 and 2001-03 (which translates into an average decline of about 2% per year).

91. The reduction in severe disability among elderly people in the Netherlands over the 1990s has been accompanied by a stable prevalence of arthritis, and by a slight increase in the prevalence of heart problems and diabetes as well as an increase in the prevalence of hypertension and obesity among elderly people, according to self-reported data from the national Health Interview Survey. These findings differ, however, from those of a recent Dutch study, which used different data sources to assess trends in the prevalence of a number of chronic diseases (e.g., GP registries). This Dutch study reported more positive trends in the prevalence of at least some of these chronic diseases, including a reduction in the prevalence of arthritis, heart disease and stroke among elderly people between 1987 and 2001, while it confirmed a growing prevalence of diabetes (De Hollander *et al.*, 2006). Hence, it is not clear at this stage whether the reduction in severe disability among elderly people in the Netherlands in the 1990s has been associated mainly with a reduction in the prevalence of some of the main disabling conditions, or whether it may have been associated with a reduction in the disabling effects of these diseases (for instance, through the growing use of assistive devices or through better medical care).

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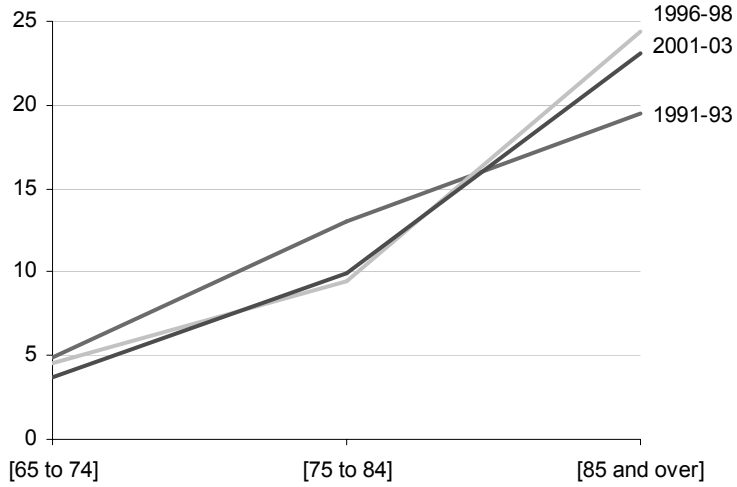
[29] The results for the population 85 and over depend, however, on the specific selection of years for pooling the data (e.g., the 1990-92 estimates are quite different from the 1991-93 estimates). Hence, there is a need to be cautious in using these pooled data for assessing disability trends among the 'oldest old' group.

[30] These results are consistent with findings from Perenboom *et al.* (2004) who found that between 1989 and 2000, there had been a decrease in severe disability among men and women aged 65 years and over in the Netherlands, which was accompanied by a rise in less severe disability (therefore providing support for the theory of a "dynamic equilibrium", as proposed by Manton, 1982).

Table 3.9. Percentage of people aged 65 and over reporting at least one ADL limitation (major difficulty or needing assistance to perform the activity), Netherlands

	1991-93	1996-98	2001-03
Total population in households (%)			
[65 and over, age adj.]	..	..	..
[65 and over, crude]	8.8	7.5	7.1
[65 to 74]	4.9	4.5	3.7
[75 to 84]	13.1	9.4	9.9
[85 and over]	19.5	24.4	23.1
Male (%)			
[65 and over, age adj.]	..	..	..
[65 and over, crude]	7.0	5.2	5.5
[65 to 74]	4.0	3.0	3.8
[75 to 84]	11.2	7.3	6.8
[85 and over]	20.5	19.6	16.6
Female (%)			
[65 and over, age adj.]	..	..	..
[65 and over, crude]	9.9	9.2	8.4
[65 to 74]	5.7	5.7	3.7
[75 to 84]	14.0	10.6	11.8
[85 and over]	19.0	27.0	27.2
Total population in institutions (%)			
[65 and over, crude] (1)	..	7.1	5.9
Total population, households and institutions (%)			
[65 and over, crude]	..	14.6	13.1

Age-specific disability rates (%)



Sources:

Households: *Health Interview Survey*.
Institutions: *Centraal Buereau voor de Statistiek* (CBS).

Note:

1) Data refers to 1997 and 2002.

Sweden

92. Data on old-age disability trends in Sweden are available from the Survey of Living Conditions (ULF), which has been conducted by Statistics Sweden every second year since 1980 (except in 1992). Severe disability is defined as people reporting needing assistance with at least one ADL. The survey includes people in institutions. However, except for the 1988, 2002 and 2004 waves of the survey, it has not included people 85 years and over. Therefore, in order to facilitate comparisons, disability trends are presented in two versions: 1) prevalence for people aged 65-84 (with data available every second year); and 2) disability prevalence including people 85 years and over (with three data points available only, for 1988, 2002 and 2004).

93. Looking first at trends in disability prevalence among people aged 65 to 84 in Sweden between 1980 and 2004, the age-standardised rates of severe disability *declined* steadily between 1980 and 1996, from 12.4% to 4.0%. But the trend reversed in the mid-1990s, with rates *increasing* since then, from 4.0% in 1996 to 7.1% in 2004. Since 1996, reported rates of ADL disability among elderly people in Sweden has increased among both men and women. It has particularly increased among people aged 75-84, more than for the population aged 65-74. It has increased sharply among elderly people with no more than high-school education, but not among elderly people with some post-secondary education.

94. If one only looks at the years when the survey has covered the population aged 85 and over, the rate of severe disability among all people aged 65 and over declined slightly in Sweden between 1988 and 2004, from 12.6% in 1988 to 11.0% in 2004 (although the rate has been rising as well between 2002 and 2004).

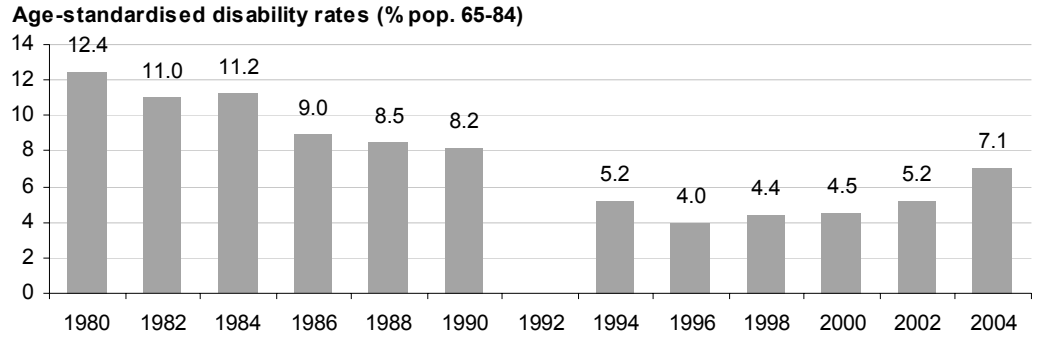
95. The reasons for the reversal of the trend in survey-based estimates of old-age disability in Sweden in recent years are not clear and deserve closer examination. It is interesting to note that the rise in self-reported rate of severe disability has been accompanied by an increase in the prevalence of a number of disabling chronic diseases (such as dementia and diabetes) and risk factors (such as hypertension and obesity) among elderly people in Sweden since the late 1980s.

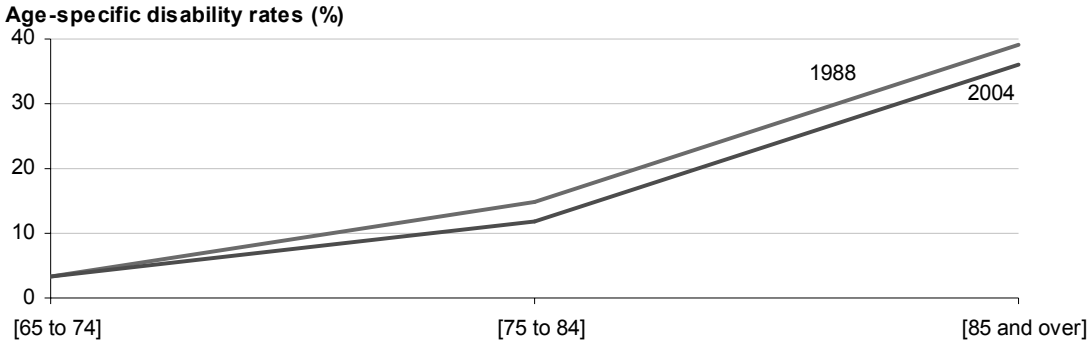
96. A separate Swedish study – the SWEOLD survey – has also found an unexpected deterioration in the health status of people aged 77 years and older in Sweden between 1992 and 2002, based on measures of symptoms (fatigue and pain), functional limitations (hearing and mobility) and objective tests of functioning (physical and cognitive tests). On the other hand, neither the prevalence of ADL limitations or of certain diseases (e.g., stroke and heart disease) changed during that 10-year period, based on this SWEOLD survey (Parker *et al.*, 2005). While this separate study was not able to come up either with any clear explanation for the apparent deterioration in the health and functional status of very old people in Sweden, it concluded that it cannot be attributed to any changes in the survey methodology nor to reporting biases (given the use of objective physical and cognitive tests).

97. Focussing only on the population in institutions, administrative data indicate that the share of elderly people living in long-term care institutions in Sweden has declined by 1 percentage point since 1996, from 8.5% in 1996 to 7.5% in 2004 (National Board on Health and Welfare, based on estimations from the OECD Secretariat). On the other hand, the share of people aged 65 and over receiving formal care at home has increased by slightly more than 1 percentage point over the same period, from 8.4% to 9.5% in 2004 (OECD, 2006b). These trend indicate a growing policy emphasis on supporting the provision of long-term care at home in Sweden, as is the case in many other OECD countries (OECD, 2005).

Table 3.10. Percentage of people aged 65 and over requiring assistance in at least one ADL, Sweden

	1980	1982	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2004
Total (%)													
[65 and over, age-adj.]	..	..	..	..	12.6	..	..	..	..	..	..	8.9	11.0
[65 and over, crude]	..	..	..	..	10.9	..	..	..	..	..	..	9.1	11.0
[65 to 84, age-adj.]	12.4	11.0	11.2	9.0	8.5	8.2	..	5.2	4.0	4.4	4.5	5.2	7.1
[65 to 84, crude]	11.1	10.1	10.4	8.4	7.8	7.6	..	5.0	3.9	4.4	4.5	5.2	7.0
[65 to 74]	5.7	5.6	5.7	5.7	3.4	3.1	..	2.3	1.9	1.9	1.9	1.9	3.3
[75 to 84]	20.9	17.8	18.2	13.1	14.9	14.6	..	8.9	6.6	7.5	7.9	9.4	11.9
[85 and over]	..	..	..	..	39.0	..	..	..	..	..	..	32.4	36.0
Male (%)													
[65 and over, age-adj.]	..	..	..	..	11.2	..	..	..	..	..	..	6.9	7.7
[65 and over, crude]	..	..	..	..	9.8	..	..	..	..	..	..	7.1	7.6
[65 to 84, age-adj.]	12.0	9.7	10.4	9.2	8.3	7.0	..	4.3	3.5	4.0	5.0	4.9	5.4
[65 to 84, crude]	10.8	8.8	9.5	8.7	7.7	6.4	..	4.1	3.5	4.0	5.0	4.9	5.3
[65 to 74]	6.3	4.8	5.5	5.5	3.8	2.0	..	1.5	2.5	1.8	2.6	2.0	3.8
[75 to 84]	20.1	16.7	17.4	14.5	14.8	14.2	..	8.3	5.0	7.1	8.4	9.1	7.6
[85 and over]	..	..	..	..	37.6	..	..	..	..	..	..	25.8	29.6
Female (%)													
[65 and over, age-adj.]	..	..	..	..	13.6	..	..	..	..	..	..	10.3	13.4
[65 and over, crude]	..	..	..	..	11.6	..	..	..	..	..	..	10.6	13.6
[65 to 84, age-adj.]	12.8	12.0	12.0	8.7	8.5	9.1	..	6.0	4.4	4.7	4.2	5.4	8.5
[65 to 84, crude]	11.3	11.1	11.1	8.2	7.9	8.6	..	5.7	4.3	4.7	4.2	5.5	8.5
[65 to 74]	5.3	6.3	6.0	5.7	3.0	4.0	..	3.0	1.5	2.0	1.3	1.8	2.8
[75 to 84]	21.4	18.6	18.8	12.1	14.9	14.9	..	9.4	7.7	7.8	7.5	9.6	15.1
[85 and over]	..	..	..	..	39.7	..	..	..	..	..	..	35.4	39.0





Source: *Survey of Living Conditions*.

Note: Data includes people in households and in institutions.

United Kingdom

98. Different data sources can be used to monitor trends in old-age disability in the United Kingdom. Two of the most suitable sources for the purpose of this study are:

1) the General Household Survey (GHS), covering the population of Great Britain, which has been conducted every three to six years since 1976. However, there have been changes in the survey design over time, which limit the availability of consistent time series. In particular, data from the 1991 survey cannot be compared with previous data or data afterwards because of differences in survey methodologies. Furthermore, the 2004 wave of the survey did not include a module to measure disability among elderly people. Hence, only data for the period 1994/95-2001 are presented in this report.

2) the Health Survey for England (HSE), covering the population of England, which has been carried out on an annual basis since 1991. A special module on disability in old-age was only included in the 1995 and 2000-01 waves of the survey.

99. The GHS assesses severe disability by asking respondents if they have difficulty or are unable to perform without help a number of basic ADLs. Results from the GHS show a *decline* in severe disability rates among people aged 65 and over, from 21% in 1994-95 to 18% in 2001-02.

100. By contrast, based on a similar definition of disability (difficulty or needing help to perform a similar set of ADLs), the results from the 1995 and 2000-01 waves of the Health Survey for England indicate a *rising* rate of severe disability among the population 65 and over, up from 13.5% in 1995 to 15.3% in 2000-01.[31] A more thorough analysis of HSE data found different trends in the prevalence of *moderate* and *severe* disability among elderly people during that period (Bajekal and Prescott, 2003). While *moderate* disability fell, *severe* disability related to personal care (and to mobility) increased.

101. Complementary data from administrative sources on the share of people over age 65 living in institutions in England indicate a decline between 1995 and 2001, from 5.0% of all people aged over 65 in 1995 to 4.5% in 2001.[32] Hence, the increasing rate of severe disability reported by the population living in households based on the HSE was partly offset by a reduction in the share of elderly people in institutions.

102. The reasons for the diverging results in the prevalence of severe disability among elderly people between the HSE and the GHS are not clear. It is unlikely that the difference in geographical coverage (England for the HSE and Great Britain for the GHS) can account for the difference in the direction of the trend. These diverging results therefore preclude any definite conclusion on the direction of the trend based on these two sources.

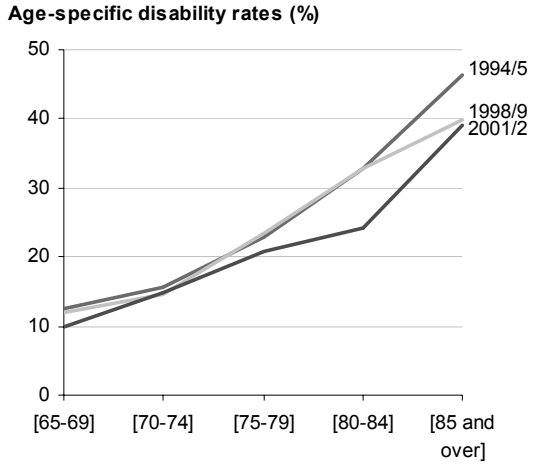
103. Turning to the prevalence of some important chronic diseases, based on the HSE, the self-reported prevalence of heart diseases has remained stable in England between 1994 and 2003, while the prevalence of other diseases (such as stroke and diabetes) has increased. The prevalence of (measured) obesity among elderly people has also increased markedly over that period. The rising prevalence of these chronic conditions among elderly people in England may put upward pressure on old-age disability in the future.

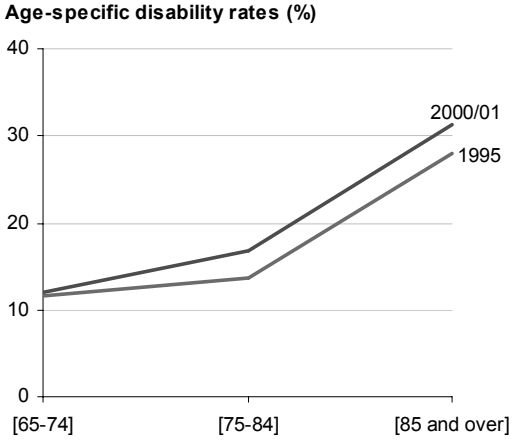
[31] The age-standardised rates increased in the same magnitude as the non-standardised rates, based on calculations by the Secretariat (not shown).

[32] Data on people in long-term care institutions were provided by the Department of Health in England. They include data from local authorities, the NHS and estimates on privately funded care in institutions.

Table 3.11. Percentage of people aged 65 and over reporting difficulty or requiring assistance in at least one ADL, United Kingdom (Great Britain or England)

Great Britain (GHS)	1994/95	1998/99	2001/02	England (HSE)	1995	2000/01
Total population in households (%)				**Total population in households (%)**		
[65 and over, crude]	21.0	19.8	18.0	[65 and over, crude]	13.5	15.3
[65-69]	12.6	11.9	10.0	[65-74]	11.5	12.0
[70-74]	15.7	14.6	14.8	[75-84]	13.6	16.8
[75-79]	22.8	23.5	20.8	[85 and over]	28.0	31.3
[80-84]	32.9	32.9	24.2			
[85 and over]	46.4	39.7	39.0			
Males (%)				***Males (%)***		
[65 and over, crude]	17.3	15.0	14.1	[65 and over, crude]	11.7	14.1
[65-69]	12.4	10.3	8.9	[65-74]	11.0	12.0
[70-74]	13.5	11.4	11.1	[75-84]	10.0	15.0
[75-79]	16.4	16.0	16.8	[85 and over]	28.0	30.0
[80-84]	30.6	27.8	17.6			
[85 and over]	38.7	32.6	39.4			
Females (%)				***Females (%)***		
[65 and over, crude]	23.6	23.5	21.0	[65 and over, crude]	15.0	16.1
[65-69]	12.8	13.3	11.0	[65-74]	12.0	12.0
[70-74]	17.3	17.2	18.1	[75-84]	16.0	18.0
[75-79]	26.9	28.5	23.4	[85 and over]	28.0	32.0
[80-84]	34.4	36.3	28.4			
[85 and over]	49.5	43.4	38.8			
Total population in institutions (%) (1)				**Total population in institutions (%) (1)**		
[65 and over, crude]	5.0	4.8	4.5	[65 and over, crude]	5.0	4.5
Total population in households and institutions (%)				**Total pop. in households and institutions (%)**		
[65 and over, crude]	26.0	24.6	22.5	[65 and over, crude]	18.5	19.8





Source: *General Household Survey* (Great Britain).

Source: *Health Survey for England*.

Note:

1) Data on people in institutions come from the Department of Health (England). They include data from local authorities, the NHS and estimates on privately funded services. The rates for Great Britain are assumed to be the same as those for England only.

United States

104. Data on disability trends among people aged 65 and older in the United States are available from a number of different sources. Two of the most suitable sources for the purpose of obtaining consistent time series on severe disability among older Americans are the National Long-Term Care Survey (NLTCS) and the Medicare Current Beneficiary Survey (MCBS).

105. The NLTCS is a nationally representative survey of the elderly population in the United States (aged 65 and over), which has been carried out in 1982, 1984, 1989, 1994, 1999 and 2004-05. It includes both people in the community and in institutions. Disability is assessed by asking respondents if they are limited and require assistance for a number of ADLs (e.g., eating, getting in/out of bed, dressing, bathing, using the toilet) and IADLs (e.g., grocery shopping, preparing meals, managing personal finances).

106. Taking together all people reporting at least one ADL or IADL limitation and people in institutions, results from the NLTCS indicate that there has been a significant decline in the age-standardised prevalence of disability between 1982 and 2004 (Manton, Gu and Lamb, 2006). This result is mainly attributed to a substantial reduction in the share of elderly people reporting only some IADL limitations (less severe levels of disability than ADL limitations) combined with a substantial reduction in the share of people in institutions (presumably the most severely disabled). On the other hand, there was only a slight reduction in the prevalence of ADL disability among elderly people in households.[33]

107. The second source, the MCBS, is a nationally representative sample of the Medicare population (people aged 65 and over and disabled people under age 65), which has been conducted annually since 1992. It includes Medicare enrolees in both the community and institutions. Severe disability for the purpose of this study is defined as people reporting difficulties or receiving help for at least one ADL.

108. As for the NLTCS, results from the MCBS show a decline in the age-standardised rates of people aged 65 and older reporting difficulties or needing help with at least one basic ADL between 1992 and 2004. However, nearly all the decline occurred between 1992 and 1997, with little (if any) improvements reported between 1997 and 2004. The prevalence of ADL disability declined more rapidly between 1992 and 2004 among elderly people with at least high school education, compared with those with less than high school, thereby widening disparities in the prevalence of severe disability by education level (see Annex 4).

109. Data from the MCBS has also been collected on the (self-reported or diagnosed) prevalence of a number of chronic conditions that might be associated with functional and activity limitations among elderly people. These data indicate a relatively stable prevalence of heart problems between 1992 and 2002, while the prevalence of other chronic conditions, such as arthritis, diabetes, hypertension and obesity, increased among elderly Americans (Annex 3).

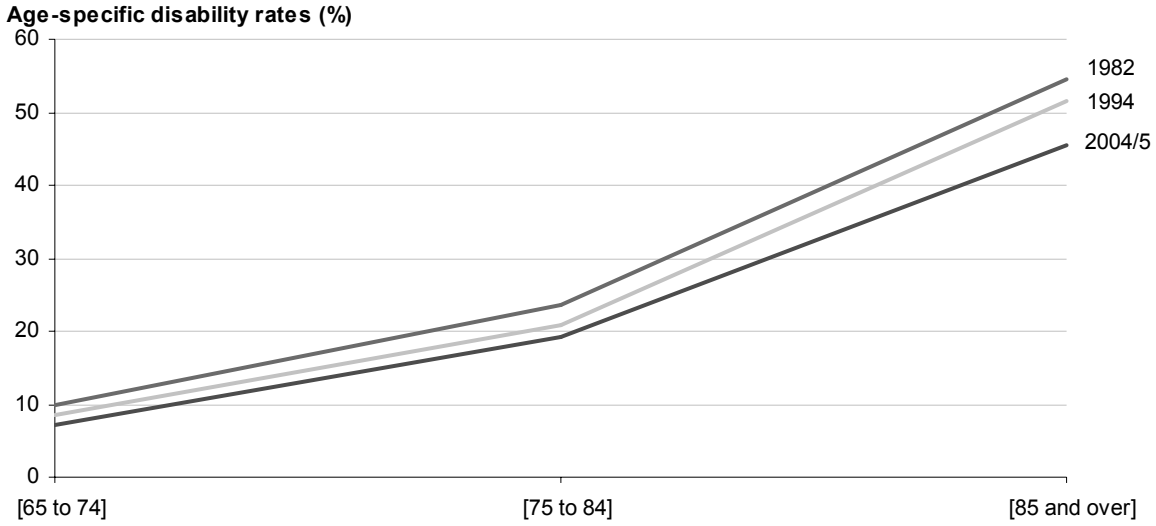
110. Using the NLTCS, Cutler *et al.* (2006) found that reduced disability associated with cardiovascular disease accounted for between 14 and 22 percent of the overall reduction in ADL/IADL limitations among elderly people in the United States during the period 1984-1999. A significant part of this decline in disability was attributed to improvements in medical care for cardiovascular disease, including both increased use of pharmaceuticals and invasive procedures.

[33] The reduction in the share of the elderly people in institutions based on the NLTCS (in the order of 2-3 percentage points between the mid-1990s and 2004) is much greater than the reduction found in the National Nursing Home Survey, which only reports a reduction of about 1/2 percentage point between 1995 and 2004, from 4.2% in 1995 to 3.6% in 2004. Further work is needed to clarify this discrepancy (which may be due to differences in the definition of "long-term care institutions").

Table 3.12a. Percentage of people aged 65 and older reporting at least one ADL limitation, United States (NLTCS)

	1982	1984	1989	1994	1999	2004/05
Population in households (%)						
[65 and over, age-adj.]	**13.2**	**13.2**	**13.4**	**12.4**	**13.0**	**12.6**
[65 to 74]	7.9	7.5	7.0	7.0	6.8	6.2
[75 to 84]	15.5	15.2	16.6	14.6	15.6	15.2
[85 and over]	27.3	29.8	28.5	26.9	30.6	29.9
Population in institutions (all assumed to have an ADL limitation) (%)						
[65 and over, age-adj.]	**7.5**	**7.0**	**6.9**	**6.3**	**4.9**	**4.0**
[65 to 74]	2.0	1.7	1.9	1.6	1.4	0.9
[75 to 84]	8.1	7.1	7.0	6.3	4.3	4.1
[85 and over]	27.2	26.6	26.1	24.6	19.5	15.6
Total population in households and in institutions (%)						
[65 and over, age-adj.]	**20.7**	**20.2**	**20.3**	**18.7**	**17.9**	**16.6**
[65 to 74]	9.9	9.2	8.9	8.6	8.2	7.1
[75 to 84]	23.6	22.3	23.6	20.9	19.9	19.3
[85 and over]	54.5	56.4	54.6	51.5	50.1	45.5

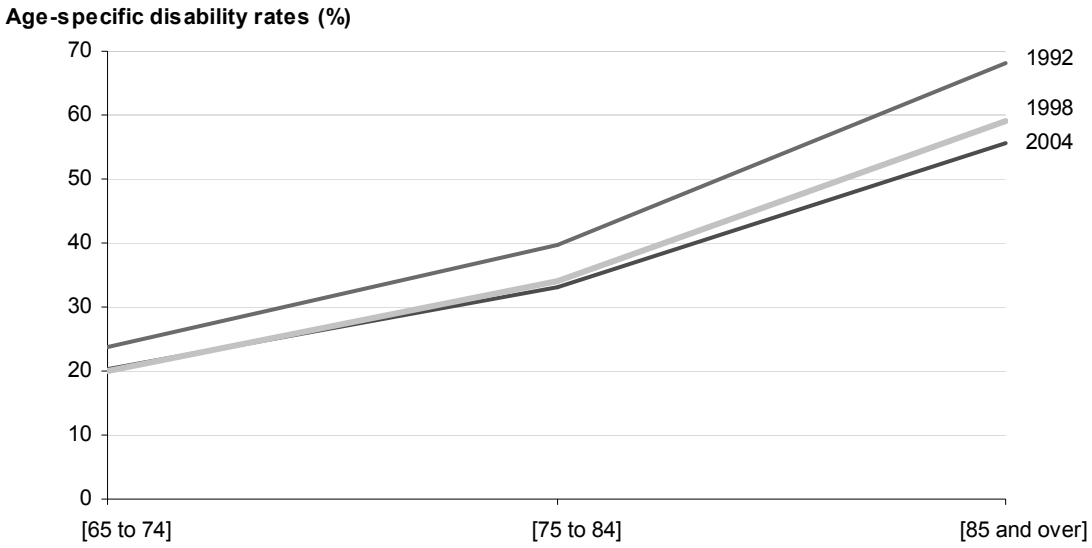
Percentage of elderly people reporting at least one ADL limitation, by age groups, in households and institutions



Source: *National Long Term Care Survey* (reported in Manton et al., forthcoming).

Table 3.12b. Percentage of people aged 65 and over reporting at least one functional limitation (major difficulty or not able to perform), United States (MCBS)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Total (%)													
[65 and over, age adj.]	**34.7**	**33.0**	**32.3**	**31.8**	**30.2**	**29.5**	**29.7**	**30.7**	**30.5**	**29.8**	**30.5**	**30.0**	**29.2**
[65 and over (crude)]	33.5	32.7	32.1	31.8	30.1	29.7	30.0	31.2	31.0	30.4	31.2	30.7	30.0
[65 to 74]	23.7	22.2	21.6	21.2	19.5	19.3	19.9	21.4	21.3	21.1	21.2	21.8	20.4
[75 to 84]	39.6	37.4	36.7	35.6	34.2	33.6	34.1	34.0	33.9	32.8	34.5	33.0	33.0
[85 and over]	68.2	66.8	65.7	65.7	63.9	60.7	59.1	60.8	59.8	58.4	58.8	56.5	55.6
Male (%)													
[65 and over, age adj.]	**29.7**	**29.0**	**27.4**	**27.2**	**25.4**	**25.8**	**25.1**	**26.1**	**26.3**	**25.4**	**26.2**	**25.7**	**24.9**
[65 and over (crude)]	27.1	27.1	25.8	25.7	23.9	24.4	23.9	25.0	25.5	24.6	25.6	25.2	24.3
[65 to 74]	20.7	20.2	18.5	18.0	16.4	17.2	17.2	19.0	19.3	18.3	18.8	18.6	16.7
[75 to 84]	33.1	32.0	30.4	31.7	29.9	29.6	28.3	28.4	28.8	27.7	29.4	28.9	29.0
[85 and over]	58.3	57.4	56.7	53.7	51.5	50.7	49.1	50.1	49.1	49.1	48.5	46.4	47.6
Female (%)													
[65 and over, age adj.]	**37.7**	**35.5**	**35.5**	**34.7**	**33.2**	**31.9**	**32.7**	**33.6**	**33.1**	**32.7**	**33.4**	**33.0**	**32.3**
[65 and over (crude)]	37.7	36.4	36.5	36.1	34.5	33.3	34.4	35.4	34.8	34.4	35.2	34.6	34.2
[65 to 74]	25.9	23.8	23.9	23.9	22.2	21.1	22.1	23.4	23.1	23.4	23.2	24.5	23.6
[75 to 84]	43.5	40.7	40.8	38.3	37.0	36.2	37.8	37.8	37.2	36.2	38.1	35.8	35.8
[85 and over]	71.8	70.5	69.3	70.3	69.0	64.9	62.9	65.1	64.2	62.3	63.4	60.9	59.1



Source: *Medicare Current Beneficiary Survey*.

Note: Data includes people in households and in institutions.

3.4 Summary of country-specific trends in the prevalence of severe disability among elderly people

111. The review of past trends in severe disability among elderly people indicates that the countries studied fall into four groups (Table 3.13):

1) a first group (Denmark, Finland, Italy, the Netherlands and the United States) reports a falling prevalence in disability among the population 65 and over during the past 10 to 20 years, although this reduction may be due to a decline in less severe levels of disability in some of these countries (e.g., only a reduction in functional limitations). The average decline over the period is in the order of 1%-2% per year;

2) a second group (Australia and Canada) reports a relatively stable prevalence of severe disability over the past five 5 to 10 years;

3) a third group (Belgium, Japan and Sweden) reports a rising prevalence of severe disability in the past 5 to 10 years, although in Sweden this recent rise follows a steady decline from 1980 to the mid-1990s (meaning that the prevalence fell between 1980 and 2004). The average annual growth rate in recent years in these three countries is in the order of 2.5%-3.5%; and

4) finally, in a fourth group (France and the United Kingdom), it is not possible to draw any definitive conclusion on the direction of the trends in severe disability among elderly people since the early or mid-1990s, because different sources provide diverging results.

Table 3.13. Summary of trends in severe disability[1] among the population aged 65+, selected OECD countries, average annual growth rate (age-standardised rates unless otherwise stated)

	Period covered	Population in households and in institutions			Population in households			Population in institutions
		All	Male	Female	All	Male	Female	All
Australia	98-03	+0.1%	-0.2%	+0.3%				
Belgium [2]	97-04	+3.4%	+3.8%	+3.3%				
Canada [2]	96-03	-0.5%			-0.5%	-1.5%	+0.3%	-0.5%
Denmark	87-05	-1.7%	-2.3%	-1.3%				
Finland	80-00	-2.0%	-2.2%	-1.9%				
France (a)	90/91 - 98/99	-2.0%	-1.1%	-2.3%				
France (b)	91/92 - 02/03	+0.2%			+0.3%	-0.4%	+0.8%	0.0%
Italy	91 - 99/00				-1.3%	-3.5%	-0.2%	
Japan	04-05	+2.7%						
Netherlands [2]	96/98 - 01/03	-2.2%			-1.1%	+0.9%	-1.8%	-3.5%
Sweden [3]	80-04	-2.3%	-3.3%	-1.7%				
Sweden [3]	94-04	+3.1%	+2.2%	+3.6%				
UK (GHS) [2]	94/95 - 01/02	-2.1%			-2.2%	-2.8%	-1.7%	-1.5%
UK (HSE) [2]	95 - 00/01	+1.1%			+2.0%	+3.2%	+1.3%	-1.7%
USA (MCBS)	92-04	-1.4%	-1.5%	-1.3%				
USA (NLTCS)	82 - 04/05	-1.0%			-0.2%			-2.7%

Notes:
1) The definition of "severe disability" varies from one country/survey to the other.
2) The average annual growth rates refer to the age-standardised rates, except for Belgium, Canada, France, the Netherlands and the UK.
3) Regarding Sweden, the data relate only to the population aged 65 to 84.

4. PROJECTIONS OF ELDERLY PERSONS WITH SEVERE DISABILITY

112. This section combines the population projections presented in section 2 with the data on past trends in severe disability among elderly people presented in section 3, to provide some hypothetical calculations of the possible rise in the number of elderly people who might be severely disabled and require some form of long-term care. These projections are based on two different assumptions: 1) there would be no change in the (age and sex-specific) prevalence of severe disability among elderly people in the future (compared with the latest estimates available in each country); and 2) the trends in severe disability observed in the past years would simply continue at the same rate in the future.

113. The results from these projections should certainly not be regarded as forecasts for a number of reasons, including: the mechanical nature of the calculations, the fact that past trends for certain countries are based only a fairly short time period which is then extrapolated for up to 30 years (up to 2030), and more generally the many uncertainties surrounding the data. Rather, these projections are only intended to provide an illustration of possible scenarios and pressures that countries might be facing, depending on the evolution of life expectancy and the prevalence of severe disability among elderly people. Regardless of past trends, the results of this projection exercise indicate that in all countries, the ageing of the population can be expected to lead to increasing numbers of elderly people with severe disability, although changes in disability rates (downward or upward) can make a significant difference by either mitigating or exacerbating the potential numbers of severely disabled elderly people in the future.

4.1 Projection method

114. The projection method is essentially the same one that was used for the earlier OECD study on disability trends (Jacobzone *et al.*, 1999). This method has also been applied, at the national level, in a number of countries (see Lagergren and Batljan, 2000, for Sweden; and Martelin, Sainio and Koskinen, 2004, for Finland). It takes into account the two main factors that will affect the number of elderly disabled people in the future, that is: 1) the projected total number of people aged 65 and over, disaggregated by age and sex; and 2) the prevalence rates of severe disability among these people aged 65 and over, also disaggregated by age and sex (wherever possible).

115. As noted in section 2 above, the central scenario that is most frequently used to make population projections at the national level and in cross-country studies generally assumes that gains in life expectancy that have been observed in the past will continue in the future. This is also the assumption that lies behind the population projection figures used in the present projection exercise.

116. Using the data presented in section 3 of this report, two basic assumptions are made regarding the future prevalence rates of severe disability:

1) A "static" (no change) scenario, whereby it is assumed that the prevalence rates of severe disability by age and sex would remain unchanged compared with the prevalence rates for the latest year available in each country. The same assumption is made for the rate of elderly people living in institutions (when this population group is not covered in the surveys from which the disability rates are derived), which is assumed to remain constant over time. Under this scenario, the future rise in the number of severely disabled people is driven solely by pure demographic changes.

2) A "dynamic" scenario, whereby it is assumed that past trends in the prevalence of severe disability among elderly people (downward or upward) would continue at the same rate in the future. In this scenario, both changes in the population structure and in the disability prevalence rates over time affect the calculation of the projected number of people over 65 with severe disability.

117. Table 4.1 summarises the data points that have been used to make the calculations under the "dynamic" projections in relation to past trends in disability rates for the population in households and for the population in institutions (when data for this population group come from another source than the survey data covering the population in households). For those countries where population-based surveys include both the population in households and the population in institutions, the "dynamic" projections generally use the first year and the last year available to calculate the annual changes in severe disability among people aged 65 and over. This is the case for Australia, Belgium, Denmark, Finland, and the two surveys from the United States. For those countries where population surveys do not include the population in institutions, the "dynamic" projections use where possible the complementary data that have been gathered from other sources on trends in the share of elderly people living in institutions. To the extent possible, the same years have been used to calculate annual changes in the percentage of people living in institutions as those used to measure severe disability among the people living in households (e.g., in the case of the Netherlands). For those countries where sufficiently long time series on the population in institutions are not available (e.g., Italy), it has been assumed that the institutionalisation rate would remain constant (in the case of Italy, this rate is very low and can probably not be expected to decline in future years). No "dynamic" projection has been calculated for France and the United Kingdom, given the current uncertainties concerning the direction of past trends.[34]

118. It is important to keep in mind that the selection of the start year to estimate trends over time in disability prevalence under the "dynamic" projections can have an important effect on the projection results. This is the case notably for Sweden, where the results from the "dynamic" projections are very different depending on whether they are based on taking the first year and last year available (1980 to 2004-05) or whether they are based only on data for the past decade (1994 to 2004-05), given the reversal of the trend in disability during the latter period. Although less dramatic, a different selection of the initial year to calculate trends over time in severe disability rates would also have a significant effect on the results from the "dynamic" projections for all those countries where there is evidence of a slowdown in the reduction in old-age disability in recent years.[35]

119. In the case of Japan, there is great uncertainty as to whether the strong rise in the prevalence of severe disability among elderly people (as measured by the needs assessment instrument used to determine eligibility for benefits under the long-term care insurance scheme) that has been observed between 2000 and 2005 will continue at the same pace in the future, given that the strong rise might have been affected by a "take-up" effect following the introduction of the long-term care insurance scheme in 2000. To avoid as much as possible taking into account any such (temporary) "take-up" effect in the long-term projections, only the growth rate for the most recent year available has been taken into account for the purpose of the "dynamic" projection exercise.

[34] For the United Kingdom, the results from the "static" projection are based on the disability prevalence estimates from the GHS, but very similar results would have been obtained by using prevalence estimates from the HSE.

[35] The reverse is also true: a different selection of the initial year for the "dynamic" projections in countries like Belgium where there has been a slowdown in the *increase* in severe disability among elderly people would have resulted in a more moderate increase in the projected number of severely disabled people.

Table 4.1. Data used for the "dynamic" projections

	Survey data	Complementary data on population in institutions (when needed)	Comments
Australia	1998, 2003	-	Survey data include both people in households and in institutions.
Belgium	1997, 2004	-	Survey data include partially people in institutions (under-represented, particularly in earlier waves).
Canada	1996, 2003	1996, 2003	
Denmark	1987, 2005	-	Survey data include partially people in institutions (under-represented).
Finland	1980, 2000	-	Survey data include both people in households and in institutions.
Italy	1991, 1999/00	2000	The share of people in institutions has been kept constant over time, given the lack of time series.
Japan	2004, 2005	-	Data from the needs assessment instrument under the LTC insurance scheme include people in households and in institutions.
Netherlands	1996-98, 2001-03	1997, 2002	The initial year to measure disability trends for the population in households has been selected to be consistent with the additional data on the population in institutions.
Sweden	1980, 2004 1994, 2004	- -	Survey data include both people in households and in institutions. Two "initial" years have been selected to illustrate differences in results, depending on whether all the years are taken into account or only the most recent decade.
USA (MCBS)	1992, 2004	-	Survey data include both people in households and in institutions.
(NLTCS)	1982, 2004/05	-	Survey data include both people in households and in institutions.

120. The projections use the population projections data and extrapolate the disability prevalence rates up to 2030, a year when practically all of the baby-boom generation will have reached the age of 65 and over. Projection results are also presented for 2015. The baseline year differs slightly across countries, since it is based on the most recent year for which disability prevalence rates are available.

4.2 Projection results

121. Chart 4.1 shows the results from this projection exercise for each country.

122. Under the "static" projection scenario, the pure demographic effect is strongest for countries with a projected strong increase among the elderly population (and in particular among the very old population)

between now and 2030. These include Australia, Canada and Finland, where the number of elderly people with severe disability would more than double by 2030, under the assumption that current rates of severe disability would remain constant. In most of the other countries covered under this study, the number of severely disabled elderly people would grow by 40% to 75% by 2030, taking into account only the population ageing effect.

123. The results from the "dynamic" projections show different effects across countries, depending on the direction of the trend that is extrapolated in the future. In those countries where there is evidence of a general decline in severe disability among people aged 65 and over (e.g., Denmark, Finland, Italy, the Netherlands and the United States), the simple extrapolation of these downward trends leads to a considerable reduction in the projected rise in the number of elderly disabled persons, compared with the "static" projection which only takes into account changes in the population structure. For instance, in the United States, if severe disability continues to decline at the same rate that it has declined over the past 22 years in the case of the NLTCS, or the past 12 years based on the MCBS, this would help reduce the expected increase in the number of elderly disabled people from about 90% based on the "static" scenario to 35%-50% (depending on which survey is used to make the projection calculations). In Finland, if severe disability among elderly people continues to decline at the same rate between 2000 and 2030 as it has between 1980 and 2000, this would help mitigate the growth in the number of severely disabled elderly people from over 100% under the "static" scenario to 45%-50% under the "dynamic" scenario.

124. On the other hand, reflecting the "mechanical" nature of the calculations, the "dynamic" projections for countries reporting an *upward* trend in the prevalence of severe disability among elderly people result in a rise in the number of severely disabled people that is greater than under the "static" scenario. In Belgium, the "dynamic" projection (which assumes that severe disability would increase at the same rate between 2004 and 2030 as it has between 1997 and 2004) results in a tripling in the number of severely disabled older persons, compared to an increase of about 50% under the "static" scenario. In Australia, the fairly sharp increase in the number of elderly people with severe disability under the "dynamic" scenario (compared with the "static" scenario) is due to the fact that many of the age and sex groups for which there has been a rising trend in disability rates between 1998 and 2003 are those groups that are expected to grow the fastest over the next 25 years (thereby more than offsetting the downward effect of other age and sex groups for which disability rates have declined).

125. In Sweden, the results from the "dynamic" projections are very different depending on whether the past trend is calculated on the basis of the trend between 1980 and 2004, or whether it only takes into account the trend in the most recent decade. In the former case, the *downward* trend in the prevalence of severe disability among elderly people mitigates the effect of population ageing on the projected increase in the number of elderly disabled persons. In the latter case, the *upward* trend has the opposite effect and contributes to a strong rise in the number of elderly disabled people.

4.3 Discussion of projection results

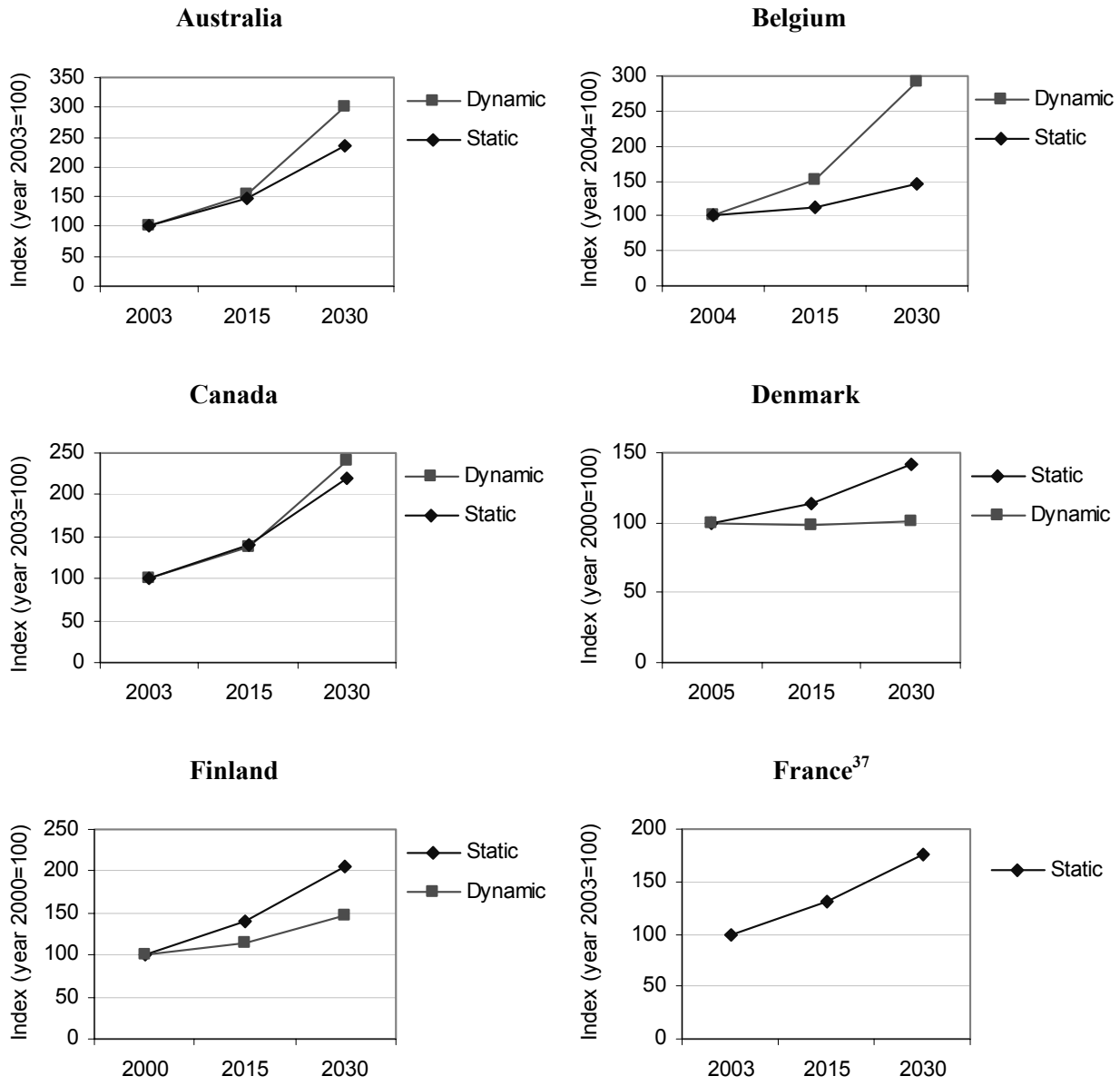
126. The results from both the "static" and "dynamic" projections, regardless of the simplicity of the assumptions and the uncertainties surrounding the data, indicate that the number of severely disabled elderly people can be expected to rise over the next few decades in all countries due to population ageing. But the extent of the rise will be strongly influenced by the evolution in the prevalence of severe disability at older ages.

127. Recent OECD projections of public spending on long-term care highlight the importance of future developments in disability rates among elderly people, from the point of view of public finances (OECD, 2006a). These projections provided some estimates of public spending on long-term care up to 2050, based on three different scenarios: 1) a "central" scenario assumed that the age-specific disability

rates would decrease over time at a rate that would be equal to half of the expected gains in life expectancy (a "dynamic equilibrium" between gains in life expectancy and improvements in functional autonomy); 2) a "compression-of-disability" scenario assumed that all of the gains in life expectancy would be accompanied by an equivalent reduction in severe disability; and 3) an "expansion-of-disability" scenario assumed that the age-specific rates of severe disability would remain constant over time (which is equivalent to the assumption made under the "static" projections in this report). Taking all the OECD countries together, the central scenario from this earlier OECD work projected a rise of the share of GDP allocated to public spending for long-term care from 1.1% in 2005 to 2.3% in 2050. By comparison, under the "compression-of-disability" scenario, public spending for long-term care would only rise to 1.9% of GDP by 2050, while under the "expansion-of-disability" scenario, public spending would increase to 2.8% of GDP on average across OECD countries.

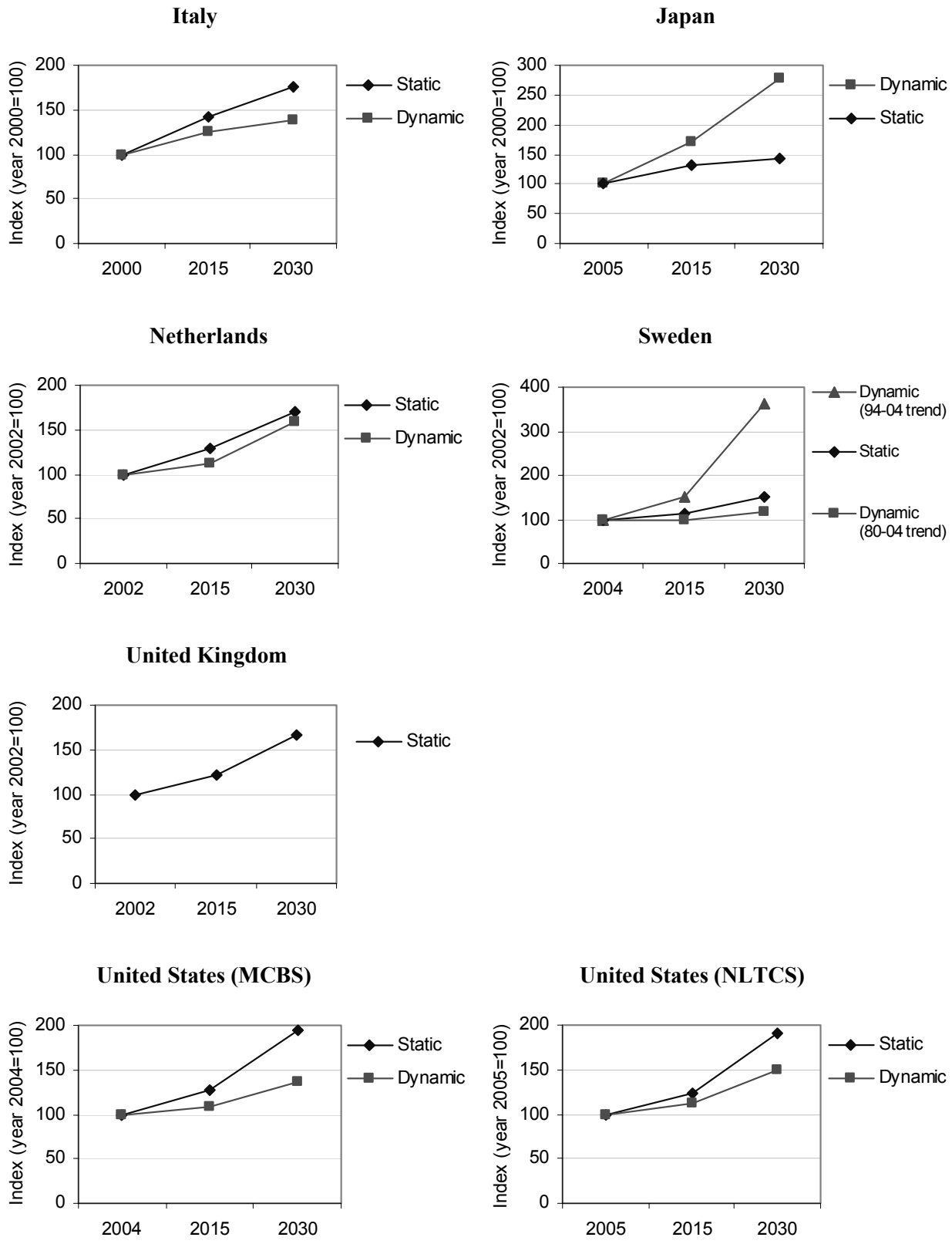
128. The results from both these earlier cost projections and the current projections of the number of severely disabled elderly persons should not be regarded as forecasts, given the high level of uncertainty surrounding future trends in longevity and in severe disability among elderly people (and the associated long-term care needs). Future developments in the prevalence of severe disability among elderly people are difficult to predict not only because of the diversity of past trends across OECD countries, which precludes any generalisation, but also because a number of factors may be affecting either positively or negatively old-age disability rates in the future. On the positive side, further improvements in the socioeconomic status of new generations of elderly people (including rising levels of education and rising income and living conditions) can be expected to play a positive role in improving the health and functional status of elderly people. The gradual reduction in some risk factors to health, such as smoking, can also be expected to play a positive role. On the negative side, the rising prevalence of certain chronic conditions, such as arthritis and diabetes, and of important risk factors, such as hypertension and obesity, can be expected to increase related functional and activity limitations among elderly people, unless greater efforts are made to either prevent or treat these conditions.

Chart 4.1 Projected number of people aged 65 and over with severe disability[36], based on assumptions of constant disability rates ("static") and continuation of past trends ("dynamic"), all OECD countries covered under this study



[36] The definition of "severe disability" varies across countries (see Annex 2 for more information on the measurement of severe disability in each country). Complementary data on elderly people living in institutions have been added for those countries where survey data do not include them (see Table 4.1).

[37] In France, a recent projection exercise by INSEE-DREES assumed that life expectancy without severe disability would increase at the same rate as life expectancy, which implies a gradual reduction in the age-specific prevalence of severe disability. Based on this "dynamic" assumption, the number of elderly dependent persons in France would increase by 25%-30% between 2003 and 2030 (INSEE, 2006).



Source: Secretariat's calculations (based on population projections presented in section 2 and disability trends data presented in section 3)

5. POLICY IMPLICATIONS AND DATA NEEDS FOR THE FUTURE

129. One of the main policy implications from this study is that it would not be prudent for policy-makers to count on future reductions in the prevalence of severe disability among elderly people to offset the rising demand for long-term care that will result from the ageing of the population. Even though disability prevalence rates have declined in recent years in some countries, the ageing of the population and the greater longevity of individuals can be expected to lead to increasing numbers of people at older ages with a severe disability, as illustrated by the results from the projection exercise. In most OECD countries, there will be a need therefore to expand the capacity to respond to this growing need for long-term care.

130. While some factors could contribute to a reduction in old-age disability rates in the years to come, other factors could have the opposite effect. On the positive side, further improvements in the socioeconomic status of new generations of elderly people (including rising levels of education, and rising incomes and living conditions) can be expected to play a positive role in improving the health and functional status of elderly people. The gradual reduction in some risk factors to health, such as smoking, can also be expected to play a positive role. On the negative side, the rising prevalence of certain chronic conditions, such as arthritis and diabetes, and of certain risk factors, such as hypertension and obesity, can be expected to increase related functional and ADL limitations among elderly people. In fact, the rising prevalence of these chronic conditions may already have started to neutralise the positive effect of other factors on the prevalence of disability at older ages in some countries.

131. Greater policy emphasis is needed therefore to prevent or postpone as much as possible the onset of chronic diseases and disabilities among elderly people in OECD countries, in order to reduce the demand for long-term care. Health education campaigns, targeting high-risk groups, might play a useful role in promoting healthy nutrition and physical activity, thereby reducing the risk of a deterioration of their health and functional status. In Japan, for instance, the 2005 revisions to the long-term care insurance system have introduced some support services focussing on prevention to improve physical exercise and nutrition for elderly people who have been assessed as being at risk of requiring long-term care or whose condition is likely to be maintained or improved through such services even if they require long-term care. Based on the available evidence, WHO concluded that improving diets and increasing levels of physical activity among adults and older people can help reduce the risks of chronic diseases and associated disability or death (WHO, 2003).

132. Continued improvements in medical care, in rehabilitation and in the efficacy of pharmaceutical drugs in treating/managing disabling conditions can also be expected to contribute to reducing old-age disability and the related demand for long-term care. In the United States, Cutler *et al.* (2006) found that a significant part of the decline in disability among elderly people over the past two decades can be attributed to improvements in medical care for cardiovascular disease, including both the increased use of pharmaceuticals and of invasive procedures. Further biomedical advances in the prevention and treatment of ageing-related diseases, such as dementia and Alzheimer's disease, also hold a lot of promise to improve health and reduce disability in old-age.

133. It will be important for countries to continue to monitor closely trends in disability at older ages, given the evidence that trends in severe disability may be reversing in some countries (or at least that the decline may be slowing down), while there remain uncertainties about the direction of the trends in others. This study showed that it is difficult as it stands not only to collect comparable data on old-age disability *across* countries (which was expected), but also it is hard for a number of countries to obtain sufficiently long and consistent time series on old-age disability to assess trends with any certainty.

134. One of the main challenges in the measurement of disability, in a context of worldwide population ageing, will be to reconcile two potentially conflicting objectives: 1) the need to maintain consistent time series on disability prevalence rates at the national level to assess trends, by continuing to use the same survey methodology and questionnaire; and 2) the need to improve the comparability of data across countries by adopting questions recommended at the international level. Different approaches can be used to reconcile these two potentially conflicting objectives. For instance, some countries have divided the sample of respondents to their health or disability surveys, with one sub-sample group being asked the "old" questions that have been used in previous waves of the survey, while another group responds to the "new" questions recommended for international comparisons. Other countries have decided rather to add the "new" questions proposed for international comparisons to the "old" questions which have been traditionally used in their health or disability surveys.

135. A number of projects have been undertaken in recent years to harmonise survey questionnaires and methodologies to collect more comparable data on disability across countries. These projects, which are based in most cases on the International Classification of Functioning, Disability and Health (WHO, 2001), include the Budapest Initiative on Health Status Measures, the Washington Group on Disability Statistics, as well as other international activities. Proper co-ordination amongst these developmental efforts will be important to ensure that there is a consistent set of international standards that will be recommended to countries in relation to survey questions and other aspects of survey methodologies.

136. Probably the surest way to obtain internationally comparable data on disability is through the development and administration of a common health or disability survey across countries. The Survey on Health, Ageing and Retirement in Europe (SHARE) provides a good example of such a multi-country survey which offers new opportunities to compare disability levels among the group of countries participating in this survey. To the extent that such multi-country surveys will be pursued and extended to more countries in the future (and that their questionnaires and methodologies will not change significantly), they should eventually provide consistent trend data, allowing opportunities for examining both variations across countries and over time in old-age disability prevalence.

137. Finally, a thorough assessment of levels and trends in disability among the elderly population requires the inclusion of people living in institutions, who are often excluded (or under-represented) in national or multi-country health surveys. The OECD, working in collaboration with national authorities, intends to pursue a regular data collection on elderly people living in long-term care institutions, to monitor the evolution in the number and share of this population group who tend to be the most severely disabled.

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ANNEX 1: OVERVIEW OF DATA SOURCES TO ASSESS OLD-AGE DISABILITY TRENDS IN 12 OECD COUNTRIES

Country	Survey(s)	Years	Age limits	Include population in institutions	Cross-sectional or longitudinal	Sample size (latest year)	Non-response rate (latest year)
Australia	Survey of Disability, Ageing and Carers	2003 and 1998 (earlier waves not used because of methodological changes)	No restriction	Yes	Cross-sectional	41,385	10.7% for households 4.7% for institutions
Belgium	National Health Interview Survey	2004, 2001, 1997	15+	Yes, but in practice sampling methods under-represent people in institutions	Cross-sectional	Over 10,000 (including an over-sampling of people 65+; sample size of about 3,000)	
Canada	Canadian Community Health Survey National Population Health Survey	2003, 2001 1998, 1996	12+ No restriction	No Yes	Cross-sectional Longitudinal	Over 130,000	15% for households
Denmark	Health and Morbidity Survey	2005, 2000, 1994, 1987	16+	Yes	Cross-sectional	16,690 (2000)	26% (2000)
Finland	Health 2000 Survey Mini-Finland Survey	2000-01 1978-80	18+ 30+	Yes Yes	Cross-sectional	9,922	8%
France (1)	Health and Health Care Interview Survey	2002-03, 1991-92	No restriction	No	Cross-sectional	40,832	14.1%
France (2)	Handicap-Incapacité-Dépendance (HID) Survey	1998-1999	No restriction	Yes (in 1998)	Cross-sectional & longitudinal	21,760 for households	22.2% for households

Italy	Health Conditions and the Use of Health Services	1999-2000, 1994, 1990-91	No restriction	No	Cross-sectional	140,000	13.4%
Japan	Comprehensive Survey of Living Conditions (CSLC)	2004, 2001, 1998, 1995, 1992, 1989 (but break in series between 1998 and 2001 in measure of ADL disability due to methodological changes)	No restriction	No	Cross-sectional	247,195 (2001)	12.6% (2001)
Netherlands	Health Interview Survey (annual, but data pooled over three years)	2001-03, 1996-98, 1991-93	No restriction	No	Cross-sectional	App. 10,000 per year	45%
Sweden	Survey of Living Conditions (biennial)	2004, 2002 …, 1980	16-84 (except in 1988, 2002 and 2004 when pop. 85+ included)	Yes	Cross-sectional	App. 5,800 per year	23% (2002)
UK (1)	General Household Survey	2001-02, 1998-99, 1994-95, 1991, 1985, 1980 (but data for 1991 not comparable with more recent years)	No restriction	No	Cross-sectional	12,223 (ADL asked only to 65+; app. 3,300)	28%
UK (2)	Health Survey for England	2001, 1995	No restriction	No	Cross-sectional	13,680 households	26%
US (1)	National Long Term Care Survey	2004, 1999, 1994, 1989, 1984, 1982	65+	Yes	Longitudinal	App. 20,000	9%
US (2)	Medicare Current Beneficiary Survey (annual)	2004, 2003, 2002, …, 1992	65+	Yes	Cross-sectional & Longitudinal (respondents in sample for 3.5 years)	App. 13,000	App. 30% (average across different panels in the annual cross-section)

ANNEX 2: SURVEY QUESTIONS & RESPONSES USED TO MEASURE SEVERE DISABILITY

Countries	Questions used to measure severe disability	Cut-off points to measure severe disability (eg. 'Need someone's help…' or 'Has difficulty…')
Australia (Survey of Disability, Ageing and Carers)	Disability defined as one or more profound or severe core activity limitation among the following activities: Self care – bathing or showering, dressing, eating, using the toilet and managing incontinence Mobility – getting in or out of bed or chair, moving around at home and going to or getting around a place away from home; Communication – understanding and being understood by others: strangers, family and friends.	sometimes or always needs help
Belgium (National Health Interview Survey)	At least one severe limitation in one among 10 physical functions and ADLs, including: getting in and out of bed, getting in and out of a chair, dressing/undressing, washing hands and face, eating and cutting up food, going to the toilet, losing control of bladder, walking, hearing and seeing. Specific questions are worded in the following way: Can you get in and out of bed on your own? Can you dress and undress yourself on your own? Etc.	Not able to perform without help
Canada (NPHS and CCHS)	Because of any condition or health problem, do you need the help of another person in personal care such as washing, dressing or eating?	Needing help
Denmark (Health and Morbidity Survey)	Are you normally able to do the following with no difficulty, with minor difficulty, with major difficulty or not at all? 1. walking 2. climbing stairs 3. carrying a bag 4. seeing 5. hearing 6. speaking	Major difficulty or not able to perform at all
Finland (Health 2000, Mini-Finland Survey 1978-80)	How do you nowadays manage the following: (temporary problems not included): Getting in and out of bed? Dressing and undressing? Moving from one room to another?	Major difficulty or unable to perform
France (Health and Care	Can you usually feed yourself alone, unaided? Do you usually get dressed/undressed alone without difficulty? Do you usually use the toilet alone without difficulty? Do you usually wash alone without difficulty?	Major difficulty or unable to do without help (2002-03) Major difficulty or unable to do (1991-92)

Interview Survey)	Do you usually take a bath or shower alone without difficulty?	
France (HID, Household questionnaire)	Can s/he go to bed and get out of bed without help? Can s/he sit down in and get up from a chair without help? Can s/he get dressed and undressed without help? Can s/he wash her/himself without help?	Needing help
Italy (Health Conditions and Use of Health Services)	Can s/he go to bed and get out of bed without help? Can s/he sit down in and get up from a chair without help? Can s/he get dressed and undressed without help? Can s/he bathe or shower without help? Can s/he wash his/her hands and face without help? Can s/he eat without help, even cutting the food without help?	Needing help
Japan (CSLC)	Do you (or does X): Have some impairment, but can take care of yourself/oneself at home and can go out alone. Can take care of yourself/oneself at home, but cannot go out without someone's help. Need someone's help at home, stay usually in bed, but can sit on the bed. Usually in bed for the whole day, and need help to eat, dress and to go to the toilet.	Difficulty performing any ADL without help of another person
Netherlands (NHIS)	Can you indicate whether you can carry these activities without difficulty, with difficulty or only with the help of others? Eating and drinking? Sitting down and getting up from a chair? Getting in and out of bed? Dressing and undressing? Washing face and hands? Washing completely?	Major difficulty or unable to perform without help
Sweden (Survey of Living Conditions)	Do you need help with the following activities? Taking a bath or a shower? Getting in and out of bed? Dressing or undressing? Eating?	Needing help
UK (GHS)	Self care: bathing, dressing, washing, feeding, etc.	Difficulty or unable to perform without help
UK (HSE)	Can you get in and out of bed on your own? Can you get in and out of a chair on your own? Can you dress and undress yourself on your own? Can you wash your hands and face on your own? Can you feed yourself, including cutting up food? Can you get to and use the toilet on your own?	Difficulty or needing help
US (NLTCS)	<u>ADL limitations</u> During the past week, did any person help you to eat? Did any person help you to get in or out of bed (or didn't you get out of bed at all for any reason)? Did any person help you to get around inside or didn't you get	Needing help

	around inside at all? Did any person usually help you to get dressed or didn't you get dressed at all? Did any person help you to bathe or were you unable to bathe at all? Did any person help you to get to the bathroom or use the toilet, or didn't you use the toilet at all?	
US (MCBS)	Because of a health or physical problem, do you have any difficulty with the following? Bathing or showering? Dressing? Eating? Getting in or out of bed or chairs? Using the toilet? (Do you/does X) receive help from another person with? Bathing or showering? Dressing? Eating? Getting in or out of bed or chairs? Using the toilet?	Difficulty or receiving help

ANNEX 3: TRENDS IN THE PREVALENCE OF SELECTED DISEASES AND RISK FACTORS AMONG THE POPULATION AGED 65 AND OVER

Background on data collection of selected chronic diseases

138. Complementary data have been gathered from most of countries covered under this study on trends in the prevalence of a small set of disabling chronic diseases and important risk factors to health and disability among the population aged 65 years and over. The selection of this small set of chronic diseases was based mainly on their relative importance in accounting for disability in old age, based on evidence from certain countries (such as the United States and Australia). These four chronic diseases are: arthritis, heart problems, dementia, and diabetes.

Arthritis

139. There are two main types of arthritis: 1) rheumatoid arthritis, which is an inflammatory disease that causes pain, swelling, stiffness and loss of function in the joints. It generally begins in middle age and occurs with increased frequency in older people; and 2) osteoarthritis, which is a joint disease that mostly affects the cartilage, thereby allowing bones to rub together, causing pain, swelling and loss of motion of the joint. Osteoarthritis is the most common type of arthritis, especially among older people, and one of the most frequent causes of disability (NIAMS, 2002, cited in Canaves and Fogel, 2005). Unless otherwise stated, data on arthritis prevalence refer to all types of arthritis.

Heart problems

140. Heart problems cover a range of diseases, including ischaemic heart disease (heart attack), pulmonary heart disease (embolism) and cardiac arrythmia. Unless otherwise stated, data on the prevalence of heart disease includes all types of heart problems.

Dementia (including Alzheimer's disease)

141. Dementia is an acquired syndrome of decline in memory and other cognitive functions sufficient to affect daily life (American Psychiatric Association, 2000). Alzheimer's disease is the most common form of dementia (accounting for about 75% of dementia cases).

Diabetes

142. There are different types of diabetes which have the common elements of hyperglicemia and glucose intolerance due to insulin deficiency. Type 2 diabetes is the most common form of diabetes, representing more than 90% of all cases. It usually occurs after the age of 40, but can remain asymptomatic (and therefore not diagnosed) for many years. Data on diabetes prevalence include all types of diabetes.

Overview of results on trends in the prevalence of selected chronic conditions

143. As is the case for measures of severe disability, the comparability of data on the prevalence of selected chronic conditions is limited by the fact that different surveys/countries use different

methodologies to collect these data. There are also important differences in the coverage of the population, with some surveys covering the elderly population in institutions, while most surveys do not include this population. The aim in this study was to collect disease prevalence data that would be as consistent as possible *within* countries.

144. Research has shown that self-reported morbidity tends to *underestimate* the true prevalence of a number of conditions compared with morbidity that is diagnosed by a health professional, for at least two possible factors: 1) reporting biases or errors (e.g., in the case of obesity); 2) lack of knowledge of the respondent that he/she has a condition (e.g., in the case of hypertension and diabetes) (IRDES, 2006).[38] This second factor is particularly important to keep in mind in interpreting trends over time in the self-reported prevalence of different diseases, since these trends may be affected by changes over time in medical knowledge and health service use. This might result in an increase in the *reporting* of different conditions without any change in the underlying prevalence of these conditions.

145. Keeping these limitations in mind, the reported prevalence of most of the disabling chronic diseases (arthritis, heart problems and diabetes) and risk factors (hypertension and obesity) selected under this study has increased among people aged 65 and over in nearly all countries (Table A3.1). Trend data on the prevalence of dementia have only been reported by a few countries, often covering a shorter time period than for other conditions. Based on the limited data available, the prevalence of dementia has increased in some countries (Japan and Sweden), while it has decreased in Australia between 1998 and 2003.

Table A3.1. Summary of trends in the prevalence of selected diseases and risk factors among the population aged 65+, average annual growth rate, selected OECD countries,

	Period Covered	Arthritis	Heart Problem	Dementia	Diabetes	Hyper-tension	Obesity
Australia	98-03	+0.3%	+0.9%	-1.4%	+6.8%	+3.3%	..
Belgium	97-04	+0.1%	+0.3%	..	+5.1%	+3.2%	+1.1%
Canada	96-03	+1.6%	+3.0%	..	+3.7%	+3.9%	+2.9%
Denmark	87-05	..	..	..	+3.3%	..	+1.6%
Finland	80-00	-0.6%	..	..	+0.4%	+0.7%	+1.4%
Italy	91-00	+2.3%	+1.1%	..	+0.6%	+6.3%	+3.0%
Japan	89-04	+1.4%	+2.4%	+5.4%	+5.3%	+1.0%	..
Netherlands	90-00	+1.8%	+3.0%	..	+1.2%	+1.8%	+3.8%
Sweden	80-04	..	..	+1.3%	+0.9%	+0.9%	+2.0%
United Kingdom	94-03	..	0.0%	..	+7.4%	..	+3.2%
United States	92-02	+0.6%	-0.3%	..	+2.2%	+1.5%	+3.5%

Sources: See the following set of tables and charts for each country

Notes:
- Regarding dementia, the growth rates for Japan and Sweden relate to shorter time periods, 1998-2004 and 1988-2003 respectively.
- The trend for obesity in Canada relates to the population aged 75 and over.

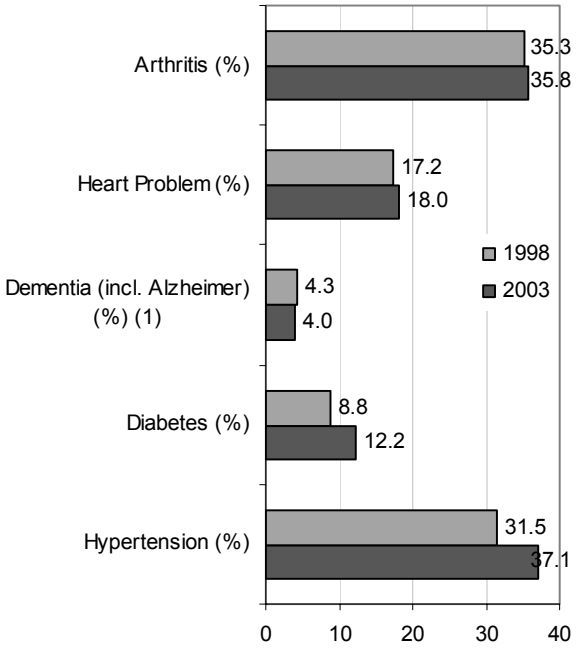
146. The remainder of this Annex present more detailed results on the prevalence of these chronic conditions on a country-by-country basis.

[38] It is also possible, if for instance the survey question is worded in very general terms, that some respondents might report some conditions which may not been diagnosed as such, although this is likely less of a problem.

Table A3.2. Country-specific trends in the prevalence of selected chronic conditions, selected OECD countries

Australia

	1998	2003
Arthritis (%)		
Male	29.6	29.1
Female	39.7	41.1
Total	35.3	35.8
Heart Problem (%)		
Male	18.1	19.4
Female	16.5	16.9
Total	17.2	18.0
Dementia (incl. Alzheimer) (%) (1)		
Male	3.3	2.4
Female	5.1	5.2
Total	4.3	4.0
Diabetes (%)		
Male	10.1	12.4
Female	7.8	12.0
Total	8.8	12.2
Hypertension (%)		
Male	28.0	33.2
Female	34.3	40.3
Total	31.5	37.1

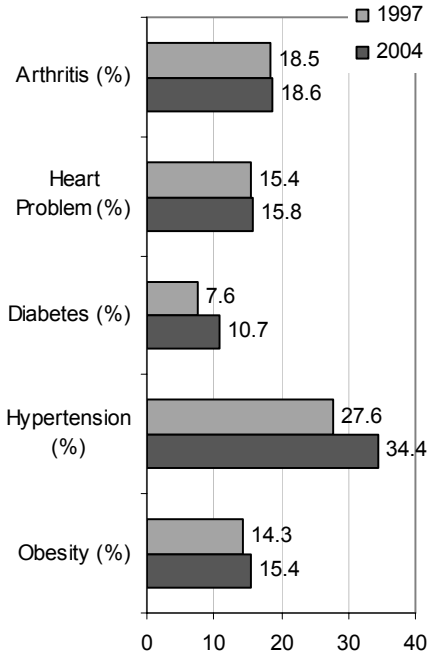


Source: *Survey of Disability, Ageing and Carers* (includes the population in institutions).

1) Looking more specifically at the population aged 85 and over, the prevalence of dementia (including Alzheimer's diseases) decreased from 21.9% 1998 to 17.5% in 2003, based on data from this survey.

Belgium

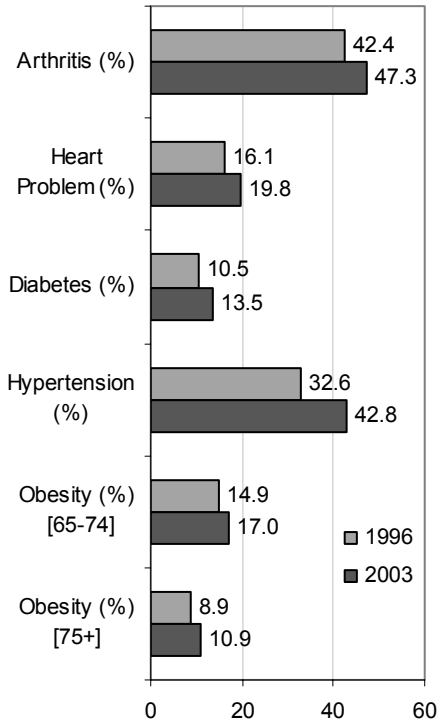
	1997	2001	2004
Arthritis (%)			
Male	12.8	11.8	12.4
Female	22.2	24.7	22.9
Total	18.5	19.5	18.6
Heart Problem (%)			
Male	18.8	16.9	20.1
Female	13.3	11.0	12.9
Total	15.4	13.5	15.8
Diabetes (%)			
Male	9.5	10.7	10.7
Female	6.5	9.1	10.7
Total	7.6	9.7	10.7
Hypertension (%)			
Male	20.7	27.3	30.0
Female	32.0	37.4	37.6
Total	27.6	33.2	34.4
Obesity (%)			
Male	13.9	14.0	13.7
Female	14.4	19.3	16.5
Total	14.3	17.1	15.4



Source: *Health Interview Survey*.

Canada

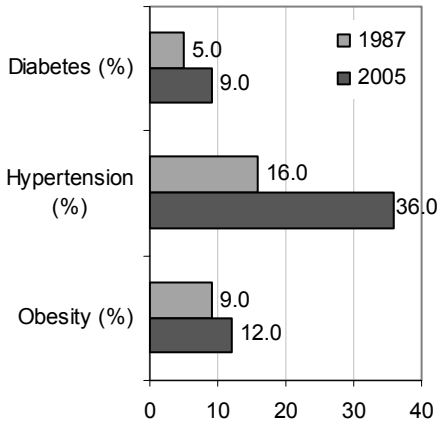
	1996	1998	2001	2003
Arthritis (%)				
Male	34.1	35.5	33.1	37.7
Female	48.7	52.1	50.7	54.7
Total	42.4	44.9	43.0	47.3
Heart Problem (%)				
Male	18.1	19.2	24.0	21.8
Female	14.5	15.9	18.4	18.1
Total	16.1	17.3	20.9	19.8
Diabetes (%)				
Male	12.4	13.8	14.7	15.6
Female	9.0	9.7	11.1	11.9
Total	10.5	11.5	12.7	13.5
Hypertension (%)				
Male	27.5	29.2	33.9	37.3
Female	36.5	42.0	42.4	47.1
Total	32.6	36.5	38.7	42.8
Obesity (%)				
Total [65 to 74]	14.9	17.4	16.7	17.0
Male	15.5	16.9	16.2	16.2
Female	14.5	17.9	17.2	17.8
Total [75+]	8.9	11.3	10.8	10.9
Male	7.5	10.3	8.7	10.4
Female	9.9	12.0	12.1	11.1



Sources: *National Population Health Survey*, 1996/1997 and 1998/1999; *Canadian Community Health Survey*, 2000/2001 and 2003.

Denmark

	1987	1994	2000	2005
Diabetes (%)				
Male	5	6	8	10
Female	6	7	6	8
Total	5	7	7	9
Hypertension (%)				
Male	10	14	18	32
Female	20	21	26	39
Total	16	18	23	36
Obesity (%)				
Male	9	10	10	14
Female	9	11	11	11
Total	9	11	11	12

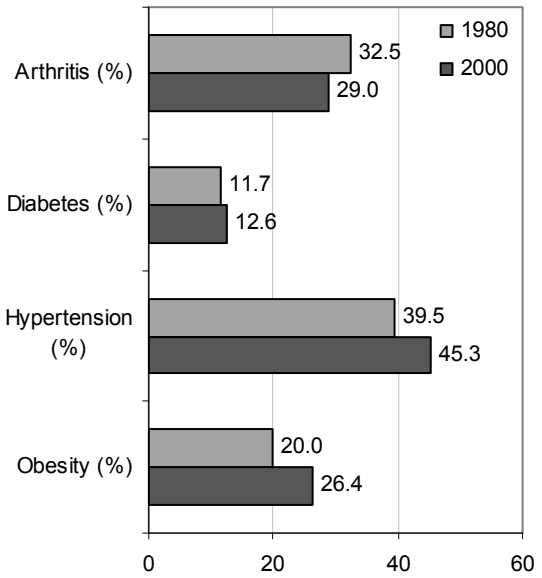


Source: *Health and Morbidity Survey*.

Note: The sharp increase in the prevalence of hypertension between 2000 and 2005 might be explained by the fact that a growing number of elderly people have been to a preventive physical examination since 2000. Hence, more cases are detected. Another explanation may be that the methodology of the survey has been slightly modified in 2005 (while in previous waves of the survey the respondents got a checklist of different conditions including hypertension and diabetes, in the 2005 survey the interviewers also read the list of conditions out to the respondents).

Finland

	1980	2000
Arthritis (%) [1]		
Male	21.3	25
Female	39.2	31.7
Total	32.5	29
Diabetes (%) [2]		
Male	9.3	11.6
Female	13.1	13.3
Total	11.7	12.6
Hypertension (%) [3]		
Male	29.3	39.4
Female	45.6	49.2
Total	39.5	45.3
Obesity (%) [4]		
Male	13.6	21
Female	23.8	29.8
Total	20	26.4

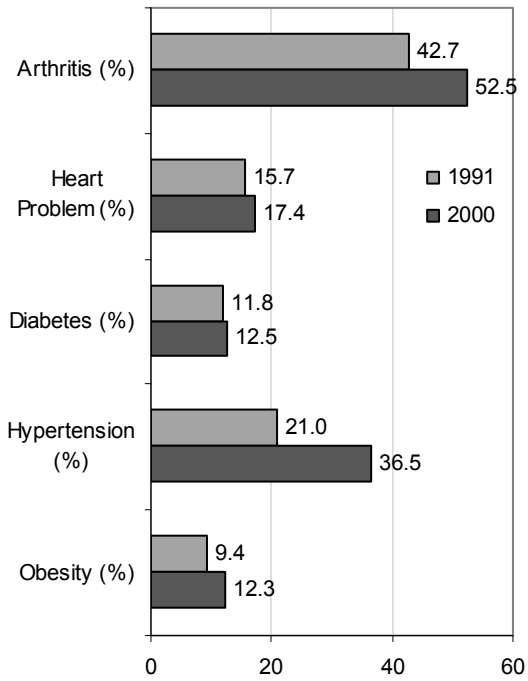


Sources: *Mini-Finland Health Survey* (1978-80); *Health 2000 Survey*.

1) Arthritis: Hip or knee osteoarthritis, based on clinical diagnosis made by field physician at health examination.
2) Diabetes: self-reported.
3) Hypertension: systolic blood pressure 160 or over and diastolic BP 95 and over (based on measurements at health examination), or uses medication for hypertension.
4) Obesity: based on height and weight measurements at health examination.

Italy

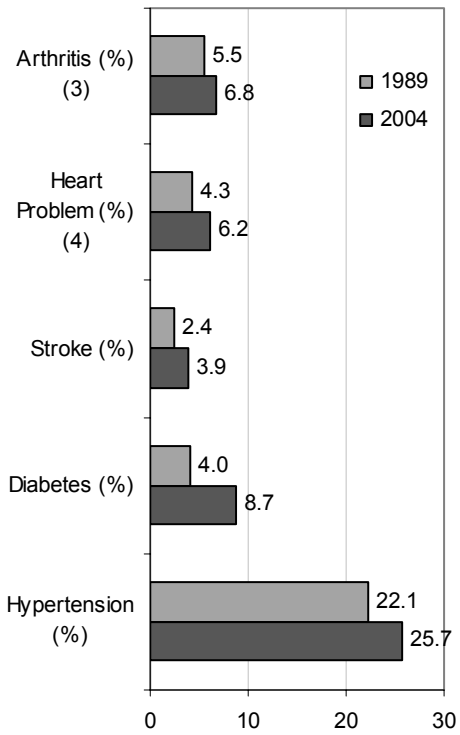
	1991	1994	2000
Arthritis (%)			
Male	35.1	44.4	41.7
Female	47.8	59.7	60.0
Total	42.7	53.4	52.5
Heart Problem (%)			
Male	15.6	21.9	17.4
Female	15.9	20.1	17.4
Total	15.7	20.8	17.4
Diabetes (%)			
Male	9.6	12.9	11.6
Female	12.3	14.7	13.1
Total	11.8	13.9	12.5
Hypertension (%)			
Male	18.6	30.0	32.3
Female	22.7	36.7	39.5
Total	21.0	33.9	36.5
Obesity (%)			
Male	8.5	9.7	11.1
Female	10.1	9.9	13.2
Total	9.4	9.9	12.3



Source: *Health Conditions and the Use of Health Services Survey*.

Japan [1, 2]

	1989	1992	1995	1998	2001	2004
Arthritis (%) [3]						
Male	3.3	2.9	2.5	3.9	3.7	4.0
Female	7.1	7.0	5.7	8.1	8.1	9.0
Total	5.5	5.3	4.3	6.3	6.2	6.8
Heart Problem (%) [4]						
Male	5.0	5.3	5.3	6.6	6.5	7.4
Female	3.9	4.2	4.2	4.8	4.8	5.2
Total	4.3	4.6	4.7	5.6	5.5	6.2
Stroke (%)						
Male	3.5	3.8	4.5	5.2	5.6	5.3
Female	1.6	1.9	2.3	2.8	3.0	2.8
Total	2.4	2.7	3.2	3.8	4.1	3.9
Dementia (%)						
Male	..	..	..	0.7	0.8	0.9
Female	..	..	..	1.1	1.1	1.6
Total	..	..	..	0.9	1.0	1.3
Diabetes (%)						
Male	4.4	4.5	5.0	7.5	8.2	10.6
Female	3.7	4.0	4.2	5.5	5.8	7.2
Total	4.0	4.2	4.6	6.3	6.8	8.7
Hypertension (%)						
Male	19.9	19.5	20.1	20.2	20.6	24.2
Female	23.7	23.0	24.6	23.7	23.8	26.9
Total	22.1	21.6	22.8	22.2	22.4	25.7

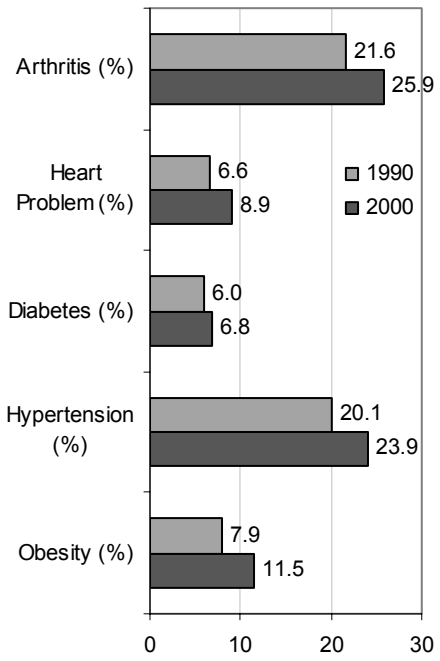


Source: *Comprehensive Survey of Living Conditions* (CSLC).

1) Percentage of persons reporting having gone to hospitals because of each disease (excluding inpatient).
2) Question is multiple answer. For example, if a 70 years old man goes to the hospital because of hypertension and diabetes, he will answer "yes" for each disease.
3) Data from 1989 to 1995 include Rheumatism, while it is excluded afterwards.
4) Heart Problems relate to Angina and Myocardial Infarction.

Netherlands

	1990	1996	2000
Arthritis (%)			
Male	13.0	13.9	16.2
Female	28.1	32.6	35.0
Total	21.6	24.4	25.9
Heart Problem (%)			
Male	8.3	9.5	11.2
Female	5.4	5.7	6.8
Total	6.6	7.4	8.9
Diabetes (%)			
Male	4.4	6.3	6.2
Female	7.2	7.0	7.3
Total	6.0	6.7	6.8
Hypertension (%)			
Male	14.4	18.9	21.4
Female	24.5	26.2	26.3
Total	20.1	23.0	23.9
Obesity (%)			
Male	7.2	6.7	10.1
Female	8.5	10.9	12.7
Total	7.9	9.0	11.5

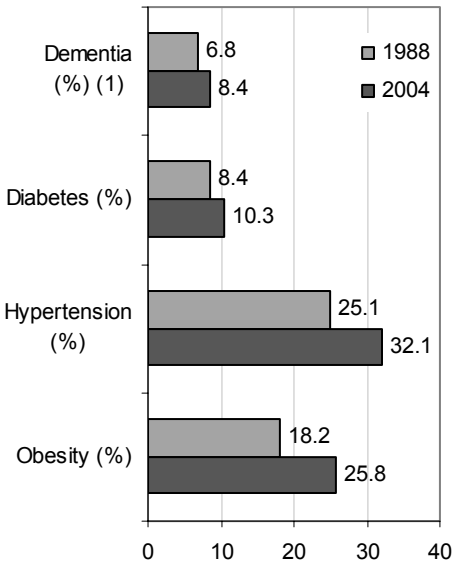


Source: *Health Interview Survey*.

Note: Data are only provided up to 2000, because there is a break in the series in 2001 due to changes in the data collection method for most of these conditions.

Sweden

	1980	1988	1996	2002	2004
Dementia (%) (1)					
Male	..	5.9	6.7	7.2	7.2
Female	..	7.5	8.5	9.2	9.3
Total	..	6.8	7.8	8.4	8.4
Diabetes (%)					
Male	8.1	9.2	9.5	11.1	12.6
Female	6.9	7.8	8.3	9.2	8.4
Total	8.4	8.4	8.8	10.1	10.3
Hypertension (%)					
Male	18.1	21.1	21.5	27.6	28.4
Female	27.3	28.2	30.3	34.3	35.0
Total	25.8	25.1	26.4	31.3	32.1
Obesity (%)					
Male	11.7	14.3	16.2	..	20.1
Female	17.0	21.2	24.9	..	30.4
Total	15.9	18.2	21.1	..	25.8

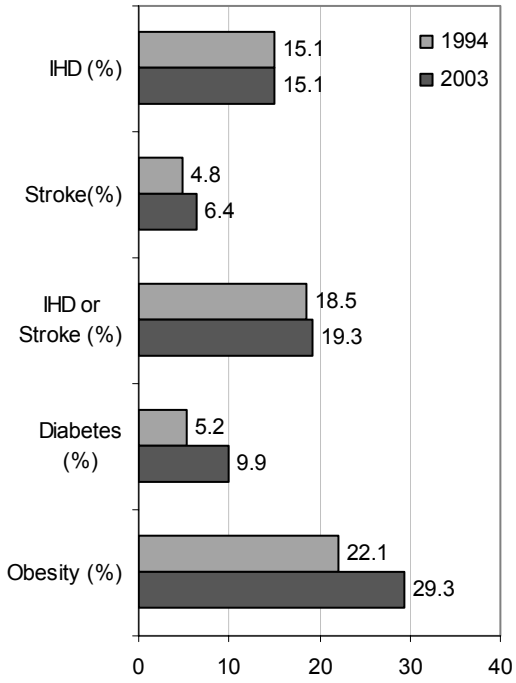


Sources: *Survey of Living Conditions* (for diabetes, hypertension and obesity). For dementia: Demographic statistics from Statistics Sweden combined with age class dementia prevalence; calculations by A. Wimo, Karolinska Institutet.

1) 2004 data for dementia refers to 2003.

United Kingdom (England)

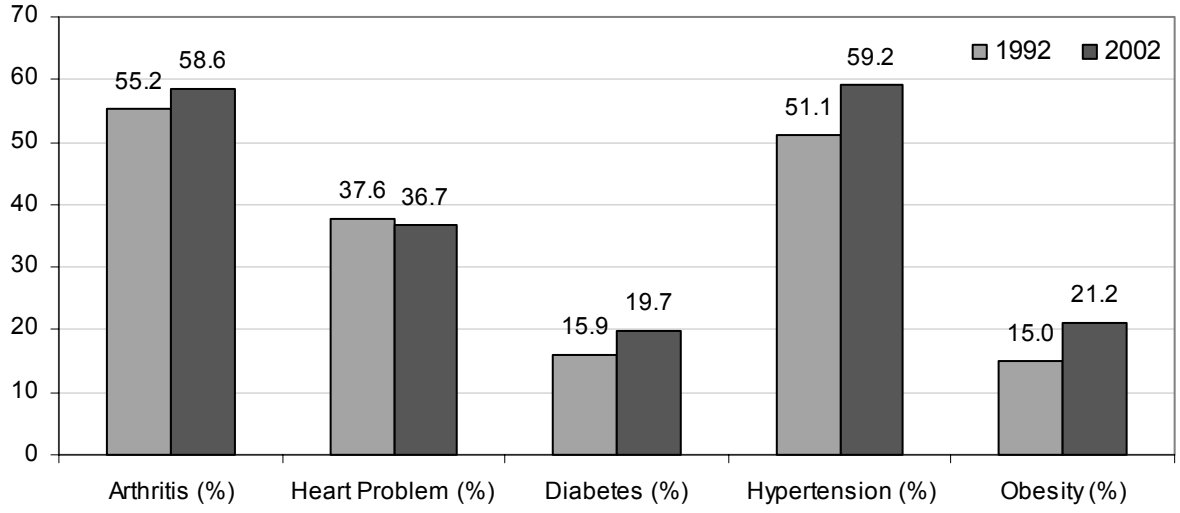
	1994	1998	2003
IHD (%)			
Male	21.0	20.2	21.5
Female	10.5	12.5	9.7
Total	15.1	16.1	15.1
Stroke(%)			
Male	6.5	6.2	7.6
Female	3.5	5.0	5.4
Total	4.8	5.6	6.4
IHD or Stroke (%)			
Male	25.0	24.2	25.7
Female	13.4	15.6	13.9
Total	18.5	19.6	19.3
Diabetes (%)			
Male	5.8	7.0	11.8
Female	4.8	6.6	8.3
Total	5.2	6.8	9.9
Obesity (%)			
Male	17.9	21.2	28.7
Female	25.3	29.0	29.9
Total	22.1	25.4	29.3



Source: *Health Survey for England*.

United States

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Arthritis (%)													
Male	46.1	48.8	52.0	52.1	50.1	48.7	50.1	52.9	50.7	50.7	50.9	..	..
Female	61.5	63.6	65.1	64.5	63.0	61.6	62.4	64.6	62.9	63.1	64.3	..	..
Total	55.2	57.5	59.7	59.4	57.6	56.2	57.2	59.7	57.8	58.0	58.6	..	..
Heart Problem (%)													
Male	39.1	40.3	40.9	41.0	40.3	39.7	40.7	43.4	..	41.4	43.7	..	..
Female	36.6	38.1	38.7	38.9	36.9	35.3	35.3	39.4	..	35.5	36.7	..	..
Total	37.6	39.0	39.6	39.8	38.3	37.1	37.6	41.1	..	38.0	36.7	..	..
Diabetes (%)													
Male	16.4	18.1	18.8	18.2	18.0	16.6	16.7	17.7	18.9	19.7	20.7	..	..
Female	15.6	16.1	16.7	16.4	15.2	14.7	15.5	15.9	17.1	18.1	19.0	..	..
Total	15.9	17.0	17.6	17.2	16.4	15.5	16.0	16.6	17.9	18.8	19.7	..	..
Hypertension (%)													
Male	46.2	48.2	49.3	49.7	49.5	49.4	51.1	54.5	53.6	54.1	55.6	..	..
Female	54.5	55.9	57.5	56.9	56.2	55.4	56.8	60.8	60.1	60.9	61.8	..	..
Total	51.1	52.7	54.1	53.9	53.4	52.9	54.4	58.2	57.4	58.0	59.2	..	..
Obesity (%)													
Male	11.9	13.0	13.8	14.1	14.2	14.8	16.5	17.7	18.0	19.1	20.1	20.3	21.2
Female	17.1	17.8	17.9	17.2	17.9	17.3	17.9	19.0	19.7	21.6	22.1	22.8	22.4
Total	15.0	15.9	16.2	16.0	16.4	16.3	17.3	18.5	19.0	20.6	21.2	21.7	21.9



Source: *Medicare Current Beneficiary Survey*.

ANNEX 4: TRENDS IN SEVERE DISABILITY AMONG ELDERLY PEOPLE BY EDUCATIONAL LEVEL, SELECTED OECD COUNTRIES

Canada

% of elderly people (65+) disabled

	1996	1998	2001	2003
Less than High School				
Male	6.3	6.6	7.3	6.9
Female	8.0	7.0	8.0	7.7
Total	7.2	6.8	7.7	7.4
High School				
Male	5.6	F (1)	4.7	4.5
Female	4.6	F (1)	5.5	5.5
Total	5.0	3.7	5.2	5.2
More than High School				
Male	4.7	5.4	4.2	3.3
Female	3.9	5.8	4.5	4.7
Total	4.2	5.7	4.4	4.0

Sources: *National Population Health Survey*, 1996/1997 and 1998/1999; *Canadian Community Health Survey*, 2000/2001 and 2003.

1) Data with a coefficient of variation (CV) greater than 33.3% were suppressed (F) due to extreme sampling variability.

Denmark

% of elderly people (65+) disabled

	1987	1994	2000	2005
Low (<10 years)				
Male	38	33	31	30
Female	46	51	45	41
Total	43	45	40	37
Medium (10-12 years)				
Male	36	27	24	26
Female	40	35	34	35
Total	38	30	29	30
High (13+ years)				
Male	33	22	19	16
Female	34	27	27	26
Total	33	24	23	20

Source: *Health and Morbidity Survey*.

Italy

% of elderly people (65+) disabled

	1991	1994	2000
Less than High School			
Male	13.0	13.2	10.1
Female	15.3	17.0	16.8
Total	14.4	15.5	14.2
High School			
Male	6.3	6.6	4.0
Female	9.5	8.3	7.5
Total	7.9	7.4	5.6
More than High School			
Male	2.3	5.5	6.6
Female	4.0	6.2	8.2
Total	2.8	5.8	7.2

Source: *Health Conditions and the Use of Health Services Survey*.

Netherlands

% of elderly people (65+) disabled

	1991-93	1996-98	2001-03
Less than High School			
Male	9.1	6.3	7.4
Female	10.9	9.6	9.6
Total	10.3	8.5	8.9
High School			
Male	4.4	3.8	3.5
Female	7.0	10.5	5.0
Total	5.4	6.4	4.1
More than High School			
Male	2.5	3.7	3.5
Female	3.7	1.8	2.2
Total	3.1	2.9	3.0

Source: *Health Interview Survey*.

Sweden

% of elderly people (65+) disabled

	1988	2002	2004
Less than High School			
Male	11.7	9.2	10.9
Female	13.4	14.3	18.5
Total	12.8	12.3	15.4
High School			
Male	8.0	5.5	4.9
Female	6.5	5.4	8.7
Total	7.2	5.4	7.0
More than High School			
Male	3.1	4.6	4.2
Female	10.5	6.3	5.1
Total	6.7	5.5	4.8

Source: *Survey of Living Conditions*.

United States

% of elderly people (65+) disabled, age-adjusted to the 2000 population

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Less than High School												
Male	34.3	32.9	32.1	32.0	30.6	29.8	28.8	32.0	32.8	31.7	32.6	32.7
Female	43.2	39.5	41.4	40.4	39.7	37.9	37.0	41.5	40.5	40.1	42.8	41.5
Total	39.7	36.9	37.7	37.1	36.0	34.6	33.7	37.8	37.4	36.6	38.5	37.9
High School												
Male	26.1	26.8	24.3	24.7	23.0	23.2	23.1	22.6	24.3	24.4	25.8	23.7
Female	33.9	32.7	30.7	29.9	28.3	26.8	28.7	29.3	30.8	30.4	29.1	28.9
Total	31.4	31.0	28.6	28.2	26.5	25.6	26.7	27.0	28.6	28.4	28.1	27.1
More than High School												
Male	23.3	23.1	22.3	20.9	19.5	19.7	19.6	21.6	21.8	20.5	21.3	21.6
Female	30.3	30.0	29.1	28.8	27.4	24.4	26.7	26.8	27.5	27.3	28.4	28.7
Total	27.4	27.0	26.1	25.3	23.9	22.3	23.5	24.5	25.1	24.2	25.2	25.4

Source: *Medicare Current Beneficiary Survey*.

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