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When people live with multiple chronic diseases:
a collaborative approach to an emerging global challenge

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Socioeconomic implications

This chapter is continuously evolving at www.opimec.org

Vignette: How it could be

Laura felt very pleased during the ceremony in which she handed the reins of the Ministry of Health and Wellbeing to her successor. She could not believe that so much had changed in just under a decade in the job. As a seasoned politician, economist and general practitioner, she was particularly proud to report how the joint effort of tens of thousands of committed people from all over the country and the world, had resulted in the elimination of most of the problems associated with the management of polypathologies, which had remained intractable for generations. She could remember with great satisfaction the day when the daring and detailed plan that she and her team had prepared was met with unconditional support from the head of state, legislators, the media, corporations, academic organizations and community agencies. With their support, it was dream-like to witness how bold policies and swift reallocation of internal resources had led to the implementation of a comprehensive and generous system of incentives that aligned the interests of all groups of stakeholders with the health needs of people living with multiple chronic diseases. Exceeding all of her own expectations, she had seen how this collective effort resulted in a significant improvement in all health indicators at a progressively lower cost! It was particularly joyful to remember the extraordinary support given by other members of cabinet to tackling disparities in health determinants; the enthusiasm with which the public had promoted the implementation of evidence-based secondary, tertiary and quaternary preventive interventions; how all the media and academic institutions had made patient education and self-management programs available to all those who needed them; how frontline clinicians, managers and caregivers had proposed, developed and introduced new health services; how clinicians with such a diverse background had embraced Integrative Medicine at all levels; and how many young people had pursued new health professions

that now made supportive and palliative care services available to anyone, anywhere. With over 99% of health care services provided to those with multiple chronic diseases in the community, her country had become a beacon for others to follow.

Laura was now ready to embark on the next phase of her career. She had accepted an offer from the World Health Organization to head a global task force supported by her existing network of collaborators, and leading political, academic, clinical, community and corporate organizations, to promote the transformation of the management of multiple chronic diseases in all inhabited continents of the globe.

Summary

- Care for people with chronic diseases currently consumes the largest share of the healthcare budget in most countries, regardless of their level of income, and its overall share is expected to rise significantly in the decades to come. Care for people with multiple chronic diseases accounts for the greatest consumption of resources.
- There is a dearth of data on the economic, social and political impacts of multiple chronic diseases.
- Close integration and coordination of social and health services appear to be essential for the successful management of multiple chronic diseases. However, most policy, economic and management models seem to be anchored in the past by excessive compartmentalization and a lack of dialogue across levels of care, sectors and geographic regions.
- Given the potential political, societal, and economic challenge presented by inappropriate handling of multiple chronic diseases and the failure of market forces to contain them, political intervention, ideally backed by a global network of influential political, academic, clinical, corporate and community organizations, is justified.

Why is this topic important?

It is now obvious that the demand for health services is outstripping available resources in every society in the world, threatening not only the sustainability of the health system, but that of the economy as a whole. The prolongation of life expectancy is one of the

factors most closely associated with this challenge. In the United States, for instance, the cost of healthcare for people over the age of 85 is six times greater than in people aged 50 to 54 and twice as much as in the 75-79 age group (1).

There are different theories about how the increase in life expectancy relates to the burden of disease and its associated cost. *The expansion of morbidity* theory holds that the number of years humans will live with disease will increase (2), while the *compression of morbidity* theory (3) describes a scenario in which a gain in years of healthy life will lead to a postponement in disease and cost to more advanced life stages (i.e. they are compressed into that age segment). These different views have important social, political and economic implications. If, as a society, we invest resources to prolong the life of patients, this will expand their morbidity, while if we target risk and lifestyle habits we will probably delay and contract morbidity (4).

Regardless of how societies decide to meet the challenges associated with chronic diseases, any political or economic measure would need to take into account the fact that most of the costs are not associated with clinical services but with productivity losses (5, 6), and that expenditure on long-term care will represent an increasing proportion of healthcare costs in every economy, even in the most optimistic forecast models of cost containment (7). This will likely be compounded as the number of chronic diseases in the same person increases (8).

Despite the seriousness of the situation, neither organizations nor governments are decisively adopting measures to fight the chronic disease epidemic. Some consumer organizations do focus on the medical treatment of specific diseases, sometimes acting as pressure groups to increase investment in treatment, neglecting health promotion and disease prevention. Global donors are spending most of their funds on countering infectious disease and improving maternal and child health: very few resources are dedicated to countering chronic disease, and even fewer to tackling the challenges associated with polypathology.

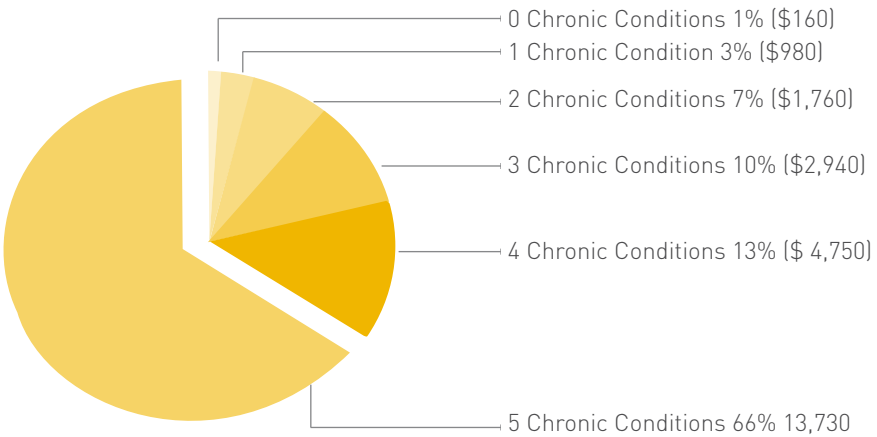
What do we know?

Patients with five or more chronic conditions account for two thirds of the Medicare spend in the US (Figure 1). It has not been possible to find similar data from other countries, but it seems likely that the picture would be similar in other developed countries. In other

words, caring for patients with complex chronic disease is increasingly the main activity and the main cost for health services. As patients have more chronic conditions they are more likely to be admitted to hospital (Figure 2), often unnecessarily and incurring considerable cost. In the UK, a small number of patients, most of them frail elderly individuals with polypathology, accounts for a high proportion of unplanned hospital admissions (Figure 3). These admissions entail a considerable cost.

Figure 1

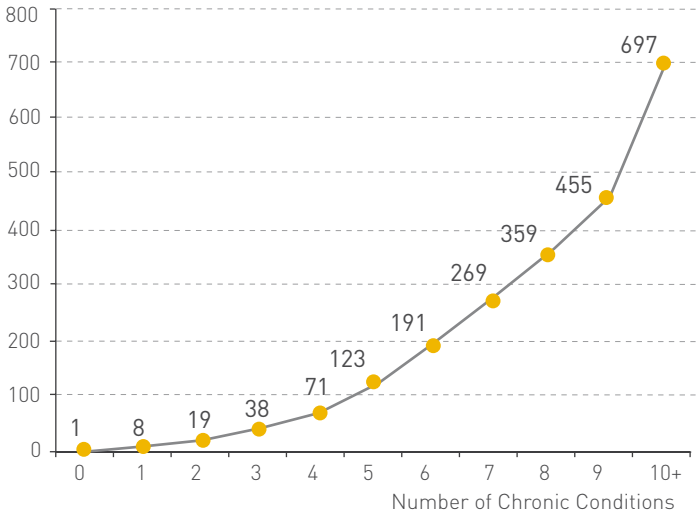
Percent of medicare spending per person by number of Chronic Conditions (Average annual expenditure)



Source: *Medicare Standard Analytic File. (9).*

Figure 2

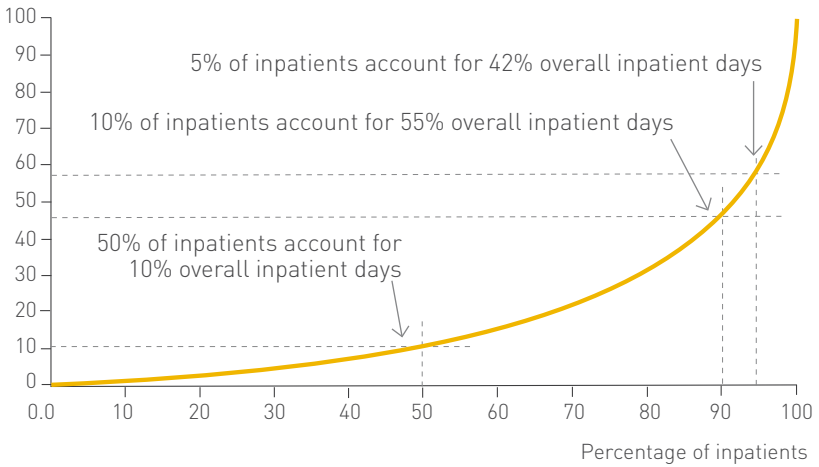
Unnecessary hospital admissions related to the number of conditions coexisting in a person



Source: *Medicare Standard Analytic File (2001) (9).*

Figure 3

A small percentage of patients account for many hospital bed days



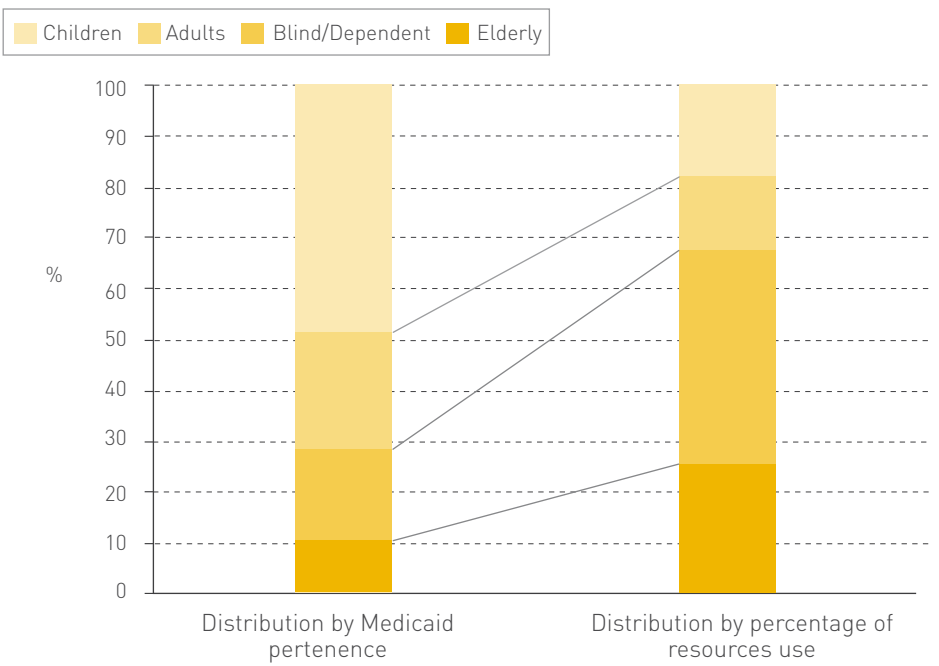
Source: *Analysis of British Household Panel Survey (2001) (10).*

Few studies are available on the cost of chronic illnesses for developing countries, and to our knowledge none evaluating costs associated with the management of patients with multiple chronic diseases (11).

In the United States care for people with chronic disease represents 70% of healthcare expenditure (12), but the associated loss of productivity due to disability, unscheduled sick leave, a decrease in effectiveness in the workplace, an increase in occupational accidents or negative impacts on work quality and customer care represent an even higher financial cost to countries than those related to healthcare services.

Figure 4

Distribution of Medicare Cover and Expenditure in Different Sectors of the Population



Source: *Medicaid (13).*

Dependence associated with chronic diseases

In 2006 the WHO estimated that there were 650 million people with disabilities worldwide, representing 10% of the population (14). In the US it has been shown that disabled people account for most of the Medicaid budget despite representing a minority of cases (Figure 4) (13).

Most polypathologies are associated with a high level of dependence, a concept which goes beyond disability in as much as it implies a person's need for support in order to perform ordinary everyday activities (as a result of physical, psychological, intellectual or sensory limitations). It has been estimated that people who are dependent as a result of chronic diseases represent about 2.5% of the total population (15).

A recent report by the Organization for Economic Co-operation and Development (OECD) highlights important levels of disparity among countries in terms of the amount of resources available to support dependent individuals, and a dearth of data on the economic scale of the services provided by family caregivers (16). The latter places a serious limitation on estimates of the costs associated with chronic diseases as it is widely recognized that most of the cost of caring for dependent people is assumed by family members (17). As the proportion of dependent people increases and fertility rates decrease, it is reasonable to expect a shift in this burden and its related costs from family members to the traditional system of health and social services (18, 19).

Influence of lifestyles and disease risk factors on healthcare costs

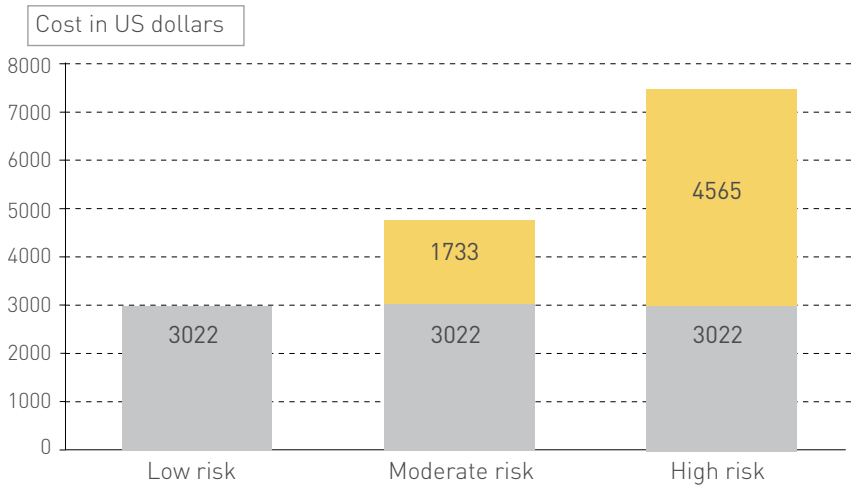
The prevalence of chronic diseases is closely related to unhealthy lifestyle habits (see Chapter 3). In the United States, the estimated cost represented by these habits in 2000 was (20):

- Smoking: 75.5 billion dollars in medical costs and 92 billion dollars associated with productivity losses (21).
- Obesity and excess weight (2002): 132 billion dollars (92 billion in direct costs and 40 billion in indirect costs) (22).
- Poor nutrition: 33 billion dollars derived from medical costs and 9 billion dollars of lost productivity as a result of cancer, cerebrovascular accidents and diabetes which can be attributed to bad nutrition (www.cdc.gov/nccdphp).

One study found that these risk factors increase expenditure by 25% (23). Altogether, smoking, alcoholism, obesity and hypertension consume 1.5% of GDP in China and 2.1% in India (24). The cost increases with the number of health risk factors (Figure 5).

Figure 5

Estimated 2008 US Healthcare Cost per person by extent of risk factors (figures in US dollars)



Source: *PricewaterhouseCoopers 2008 - World Economic Forum - Working Towards Wellness: The Business Rationale (25).*

Healthcare costs are higher in people who are sedentary without being overweight than in obese people who are physically active (26). In Spain, two out of three children of school age and 38% of young people appear to be sedentary in their free time (27).

Interventions over lifestyles could have a big impact on expenditure on chronic diseases, essentially through weight reduction, improved nutrition, regular exercise, giving up smoking and early diagnosis and treatment (Chapter 3). Unfortunately, most countries around the world, and even organizations such as the WHO, allocate insufficient resources to health promotion and disease prevention. The latter, for instance, invested less than 8% of its budget in activities related to these two areas, and to mental health,

substance abuse and the management of chronic diseases (28). The early targeting of risk factors, whether through pharmacological or behavioral interventions, has many potentially positive effects (Table 1).

Table 1

Cost per Group of Countries per Quality-adjusted Life-year of Cholesterol and Hypertension Level Control Measures

INTERVENTION	Cost DALY saved (dollars) per group of countries		
	Very Low Income	Low Income	Average Income
Education and Mass-scale Measures	50-57	19-92	12-54
Voluntary reduction of salt	26-30	10-92	6-27
Compulsory salt reduction	34-78	14-114	9-15
Combination of education and compulsory salt reduction	31-48	31-48	7-23

Source: *Murray et al. (2003) (29) Centers for Disease Control and Prevention. (2004) (30).*

What do we need to know?

Most of the questions related to the economic, social and political implications of multiple chronic diseases remain unaddressed (31).

Economic implications

What are the total costs associated with the management of complex chronic diseases? The estimates must include data on healthcare costs, costs associated with productivity loss and disability, and to family care-giving for different combinations of diseases.

- What are the economic implications of different strategies for the provision of coordinated services (health and social) to people living with multiple chronic diseases?
- What is the most appropriate model of resource allocation across health promotion, disease prevention, healthcare and social service activities to minimize the economic and social impact of multiple chronic diseases?
- What interventions could reduce the productivity loss associated with multiple chronic diseases?
- What technological innovations could offer real, cost-effective alternatives to current care models?
- What is the impact of multiple chronic diseases on the lives of caregivers?
- What policies could lead to a reduction in the prevalence and the economic consequences of multiple chronic diseases?

Social and political implications

- What is the impact of multiple chronic diseases on the lives of caregivers? What new roles, workflows and supportive services are needed to relieve their burden?
- What policies could lead to a large enough reduction in the prevalence and the economic consequences of multiple chronic diseases?
- Could key regions be transformed into living laboratories with the conditions necessary for the development, refinement, implementation and evaluation of innovative ways to optimize the management of polypathology?
- What strategies are needed to position the management of polypathology among the top priorities for leading political, academic, clinical, community and corporate organizations interested in the sustainability of the health system?

What innovative strategies could fill the gaps?

Given the potentially devastating effects that multiple chronic diseases could have on the economy and on society at large, bold policies would need to be developed and implemented to facilitate the transformation of existing health and social services. Such

policies should at the least make it easier to fill most of the gaps identified in all of the preceding chapters, with an emphasis on:

- Efficient monitoring of the incidence, prevalence and impact of multiple chronic diseases (Chapters 1 and 2).
- Bold health promotion and disease prevention efforts at all levels (Chapter 3).
- The implementation of innovative models for complex chronic disease management, fostering leadership at the front line and bottom-up innovation (Chapter 4).
- The adaptation of existing health and social services to promote optimal integration and coordination of roles, workflows and processes at all levels (Chapter 6).
- The minimization of unnecessary suffering and the optimization of supportive care services throughout the entire natural history of multiple chronic diseases, and particularly at the end of life, for patients and their caregivers (Chapter 7).
- Strategies to engage people living with multiple chronic diseases and their caregivers in effective self-management programs (Chapter 5), demedicalizing their care as much as possible (Chapter 8).

Achieving this will not be easy. In fact, it could be argued that the slow nature of the policy-making process and the resistance to change that pervades all levels of the health system will hinder our ability to introduce the radical changes that are required to ensure that people living with multiple chronic diseases can achieve optimal quality of life without bankrupting the economy.

The jury is out. Let us hope that we have the foresight and courage necessary to bring about the creative partnerships among the government, academic institutions, the public and industry; the rigorous trans-disciplinary research and development work; the effective knowledge mobilization and management; and the level of political will needed to meet the unprecedented challenges created when we live long enough to accumulate multiple chronic diseases.

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References

1. Fogel RW. NBER Working Paper Series. Forecasting the cost of U.S. Health Care in 2040. Working Paper 1436. National Bureau of Economic Research. September 2008 Working Paper 14361. Available at: http://www.nber.org/papers/w14361

2. Grunenberg EM. The Failure of Success. Milbank Memorial Fund Q Health Soc. 1977;55:3-24.

3. Fries JF. Ageing, Natural Death, and the Compression of Morbidity. N Engl J Med. 1980;303(3):130-135.

4. Michel JP, Robine JM. A New General Theory of Population Ageing. The Geneva Papers on Risk and Insurance. 2004;29(4):667678.

5. Devol R, Bedriussian A, Charuworn A, Chatterjee A, Kyu Kim Um Kim S, Klowden K. An Unhealthy America: The Economic Burden of Chronic Disease: Charting a New Course to Save Lives and Increase Productivity and Economic Growth. Santa Monica: Milken Institute; 2007. Available at: http://www.milkeninstitute.org/publications/publications.taf?function=detail&ID;=38801018&cat;=ResRep

6. Abegunde DO, Mathers CD, Adam T, Ortegon M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. Lancet. 2007;370(9603):192938.

7. Oliveira Martins J, de la Maisonneuve C . The drivers of public expenditure on Elath and long-term care: an integrated approach. Paris: OECD Economic Studies No. 43, 2006/2. Available at: http://www.oecd.org/dataoecd/62/19/40507566.pdf

8. Medical Expenditure Panel Survey (MEPS): Health Care Expenses for Adults with Chronic Conditions, 2005. Available at: http://www.meps.ahrq.gov/mepsweb/data_files/publications/st203/stat203.shtml

9. Centers for Medicare & Medicaid Services(CMS). [Web site]. U.S.: Department of Health & Human Services. [Acces date April 21st, 2010]. Medicare Standard Analytic File, 2001. Available at: http://www.cms.gov/IdentifiableDataFiles/01_Overview.asp#TopOfPage

10. UK Data Archive (UKDA). [Web site]. [Access date April 21st, 2010]. Analysis of British Household Panel Survey, 2001. Available at: http://www.data-archive.ac.uk/findingData/bhpsTitles.asp

11. Chronic Disease: An Economic Perspective (Oxford Health Alliance 2006). Available at: http://www.oxha.org/initiatives/economics/chronic-disease-an-economic-perspective

12. Centers for Disease Control and Prevention. The Burden of Chronic Diseases and Their Risk Factors: National and State Perspectives 2004. Atlanta: U.S. Department of Health and Human Services; 2004. Available at: http://www.cdc.gov/nccdphp/burdenbook2004

13. 2008 actuarial report on the financial Outlook for Medicaid. Washington: United States Department of Health & Human Services; 2008. Available at:http://www.cms.hhs.gov/ActuarialStudies/downloads/MedicaidReport2008.pdf

14. Report on the WHO conference on Disability and Rehabilitation. Nueva York: WHO; 2007. Disponible en: http://www.who.int/disabilities/publications/dar_world_report_concept_note.pdf

15. Herrera E et al. Plan Marco de Atención Socio-sanitaria en Extremadura. Plan director 2005-2010. Mérida: Junta de Extremadura; 2004. ISBN: 84-95872-62-5. DL: BA-121-2006.

16. Jacobzone S. Ageing and Care for Frail Elderly Persons: An Overview of International Perspectives. Paris: OECD Labour Market and Social Policy Occasional Papers 38, OECD, Directorate for Employment, Labour and Social Affairs; 1999.

17. Casado D. Efectos y Abordaje de la dependencia: un análisis económico. Barcelona: Masson; 2007. ISBN 13: 978-84-458-1721-6. DL: M.45.401-2006.

18. IMSERSO. Las personas mayores en España. Informe 2002. Madrid: Observatorio de Personas Mayores; 2002.

19. Dunlop DD, Lyons JS, Manheim LM, Song J, Chang RW. Arthritis and heart disease as risk factors for major depression: the role of functional limitation. Med Care. 2004;42(6):50211.

20. Heart Disease and Stroke Statistics. American Heart Association 2008. http://www.americanheart.org/downloadable/heart/1200082005246HS_Stats%202008.final.pdf

21. Centers for Disease Control and Prevention (CDC). Annual Smoking-Attributable Mortality, Years of Potential Life Lost and Productivity LossesU.S., 1997-2001. MMWR Morb Mortal Wkly Rep. 2005;54(25): 625-628.

22. Finkelstein EA, Fiebelkorn IC, Wang G. National medical spending attributable to overweight and obesity: how much, and who's paying?. Health Aff (Millwood). 2003 Suppl Web Exclusives, W3-219-26.

23. Anderson D et al. The Relationship between Modifiable Health Risks and Group-Level Health Care Expenditures. A J Health Promot. 2000; 15(1):45-52.

24. Adeyi O et al. Public Policy and the Challenge of Chronic Non-communicable Diseases. Washington DC: The World Bank; 2007.

25. World Economic Forum. Working Towards Wellness: The Business Rationale. Pricewaterhousecoopers; 2008. Available at: http://www.pwc.com/en_GX/gx/healthcare/pdf/wtw_business_rationale.pdf

26. Brown WJ, Hockey R & Dobson A. Physical activity, body mass index and health care costs in mid-age Australian women. Australian and New Zealand Journal of Public Health. 2008; 32(2): 150-155.

27. Plan de Calidad para el Sistema Nacional de Salud. Madrid: Ministerio de Sanidad y Cosumo, 2007. Available at: http://www.msc.es/organizacion/sns/planCalidadSNS/docs/planCalidad2007.pdf

28. Stuckler D, King L, Robinson H, McKee M. WHO's budgetary allocations and burden of disease: a comparative análisis. Lancet. 2008; 372(9649):15639.

29. Murray et al. Effectiveness and costs of interventions on lower systolic blood pressure and cholesterol: a global and regional analysis on reductions of cardiovascular disease. The Lancet 2003; 361:717-725.

30. Centers for Disease Control and Prevention. The Burden of Chronic Diseases and Their Risk Factors: National and State Perspectives 2004. Atlanta: U.S. Department of Health and Human Services; 2004. Available at: http://www.cdc.gov/nccdphp/burdenbook2004

31. Vogeli C, Shields AE, Lee TA, Gibson TB, Marder WD, Weiss KB, et al. Multiple chronic conditions: prevalence, health consequences, and implications for quality, care management, and costs. J Gen Intern Med. 2007 Dec; 22(Suppl 3):391-395.

Abbreviations

AAL: Ambient Assisted Living

BMJ: British Medical Journal

CAM: Complementary And Alternative Medicine

CCD: Complex Chronic Disease

CCM: Chronic Care Model

CIRS: Chronic Illness Resources Survey

CMPs: Case Management Programs

CVD: Cardiovascular Disease

DMPs: Disease Management Programs

EASP: *Escuela Andaluza de Salud Pública*

EPP CIC: Expert Patients Programme Community Interest Company

GRIN: Genomics, Robotics, Informatics and Nanotechnologies

ICCC: Innovative Care for Chronic Conditions

ICD: International Classification of Diseases

ICED: Index of Coexisting Disease

IDS: Individual Disease Severity

MCCs: Multiple Chronic Conditions

MD team: Medical Doctor

MeSH: Medicines Medical Subject Headings

MI: Motivational interviewing

MPOWER: Monitor (tobacco use and prevention policies), Protect (people from tobacco smoke), Offer (help to quit tobacco use), Warn (about the dangers of tobacco), Enforce (bans on tobacco advertising, promotion and sponsorship), Raise (taxes on tobacco)

NHIS: National Health Interview Survey

NHS: National Health Service

OECD: Organization for Economic Co-operation and Development

OPIMEC: *Observatorio de Prácticas Innovadoras en el Manejo de Enfermedades Crónicas Complejas*

PACE: Program of All-inclusive Care

QALY: Quality-Adjusted Life Year

QRISK: Cardiovascular disease risk score

RE-AIM: Reach, Effectiveness, Adoption, Implementation and Maintenance

SNOMED CT: Systematized Nomenclature of Medicine-Clinical Terms

SSPA: *Sistema Sanitario Público de Andalucía*

TCAM: Traditional Complementary And Alternative Medicine

TPE: Therapeutic patient education

VHA: Veterans Health Administration

WHO: World Health Organization

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When people live with multiple chronic diseases:

a collaborative approach to an emerging global challenge

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