Overcoming Disparities to Healthy Aging: Winning Strategies.

Public health and medical drivers, emphasizing the need for appropriate health systems, Mexico/Latin America context

Luis Miguel Gutiérrez Robledo
Life expectancy gaps between high- and low-educated groups at ages 25 and 65 are large. Males, around 2011, in years

Source: OECD data and calculations.
Probability of death for the population 60 years and older, by education, Mexico, 2001–2003

Percentage of respondents with impairment in ADL onset between 2001 and 2012 by sex, birth cohort, and level of education.

Mexican Health and Aging Study (MHAS), N = 9,560.

Note. Younger birth cohort = individuals aged 50–59 at the 2001 baseline. Older birth cohort = individuals aged 60+ at the 2001 baseline.

Depressive symptoms over age by lifetime socioeconomic status (SES) for (A) men and (B) women. Functional limitations over age by lifetime SES for (C) men and (D) women. Self-rated health over age by lifetime SES for (E) men and (F) women.

Life expectancy from age 40 to 85 years, and years of life lost due to low socioeconomic status and $25 \times 25$ risk factors

Data from 7 high income countries

www.thelancet.com Published online January 31, 2017
http://dx.doi.org/10.1016/S0140-6736(16)32380-7
The curve of life course, with the “build-up” and the “decline” stages. Social exposures during the first stage can influence the proportion of optimum growth attained.

Social exposures during the second stage can influence the rate at which functioning is lost. Socioeconomic status is a strong determinant of the rate of such decline.

http://www.lifepathproject.eu/
Levels of influence of SES on frailty and its outcomes

Syndemic model

Disparity conditions that promote disease clustering

- Diabetes
- Depression

Adverse interactions

Frailty

Enhanced disease prevalence, progression and negative health outcomes

Modified from The lancet Vol 389 March 4, 2017
Potential pathways of effect from socio environmental conditions to biological or psychological states

Modified from The lancet Vol 389 March 4, 2017
Low socioeconomic status (SES) is associated with earlier onset of age-related chronic conditions and reduced life-expectancy, but the underlying biomolecular mechanisms remain unclear. Evidence of DNA-methylation differences by SES suggests a possible association of SES with epigenetic age acceleration (AA).
Dimensions of Social Protection in Health

- **Protection against health risk**
  - Epidemiological surveillance
  - Health promotion
  - Disease prevention
  - Risk mitigation

- **Patient protection**
  - Quality of care assurance:
    - Safety
    - Effectiveness
    - Responsiveness

- **Financial protection**
  - Comprehensive health insurance

**Policy instruments of the Mexican Reform**

- New public health agency
- Health card scheme with gender and life-course perspective
- Fund for community health services

- National Crusade for Health Quality
- **Seguro Popular**:
  - Fund for essential health services
  - Fund for protection against catastrophic health expenditures
This paper contributes to this under-researched area by examining health and work impacts on the aging for the best known and most influential of these programs, the Mexican PROGRESA/Oportunidades program. For a number of health indicators, the program appears to significantly improve health, with impacts that are larger with a greater time receiving the program. However, most of these health impacts are concentrated on women.
The intervention had a positive impact on overall well-being measured through the frailty phenotype, showing improving trends in frailty, women show more favorable results than men.

For women, a statistically significant decline in frailty after 18 months.

Frailty decreased for women for whom the five-point frailty index was 1.20 in W1 and decreased 0.24. For men, the index was 1.13 in W1 and decreased 0.02, a decrease that was not statistically significant.
Opportunity NYC–Family Rewards was the first conditional cash transfer, randomized controlled trial for low-income families in the United States.

From 2007 to 2010, Family Rewards offered 2,377 New York City families cash transfers that were conditional upon their investments in education, preventive health care, and parental employment. Their health and other outcomes were compared to those of a control group of 2,372 families.

The experiment led to a modest improvement in health insurance coverage and a large increase in the use of preventive dental care. It improved parents’ perception of their own health and levels of hope, mainly through improvements in reported financial well-being. While the program’s impacts on physical health were weaker, our study might not have captured effects on chronic disease risk that take longer to accrue.
Closing points.

• **Healthy aging is an achievable goal for society**, as it is already happening among individuals in high income strata.

• There is **emerging evidence on the reversibility of the poorer aging trajectories** experienced by individuals exposed to the worst adversities.

• Now its is **time for action**, so we must act by:
  - Improving the **understanding of the mechanisms** through which healthy aging pathways diverge by SES, this will allow interventions to limit adverse outcomes.
  - **Providing evidence** for the development of healthy ageing policies which address the social determinants of aging and health, using both observational studies as well as an experimental approach; this is now feasible departing from the longitudinal data already available.
  - And ultimately, by **mitigating the negative consequences** of the current economic situation on health and the biology of ageing; this should become a priority.
The true causes of disease

• 'Doctors have no special insight on causes of ill-health' That was really shocking. How dare he? But Syme did say that to his students. Like most physicians I assumed that only doctors could understand the causes of illness. It was we, after all, who laid claim to some understanding of biology and pathology. Giving primacy to biology betrayed a classic misunderstanding of the notion of cause. It may be useful to think of accumulation of lipid in the endothelium of coronary arteries as "the cause" of coronary heart disease –


Health inequalities and the social determinants of health are not a footnote to the determinants of health. They are the main issue.

— Michael Marmot —
Thank you.....
# Frailty stages and public policy goals

<table>
<thead>
<tr>
<th>CLINICAL OBJECTIVES</th>
<th>HEALTHY POPULATION</th>
<th>AT RISK (PRE-FRAILTY)</th>
<th>FRAILTY</th>
<th>FULL BLOWN FRAILTY</th>
<th>END STAGE FRAILTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECIFIC FOR THE STAGE</td>
<td>AVOID RISK STATUS</td>
<td>AVOID FRAILTY DEVELOPMENT</td>
<td>PREVENT ADVERSE OUTCOMES</td>
<td>TRANSITION TO END OF LIFE CARE</td>
<td>PALLIATIVE CARE</td>
</tr>
<tr>
<td>KEY CLINICAL INTERVENTIONS</td>
<td>AVOID EXPOSURES</td>
<td>RECOGNIZE AND NEUTRALIZE RISK FACTORS</td>
<td>DETECT AND TREAT</td>
<td>PRESERVE FUNCTION/ SUPPORT THE CAREGIVER</td>
<td>PALLIATIVE CARE AND CAREGIVER SUPPORT</td>
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</table>

## Public Policy Domains and Their Potential Impact

<table>
<thead>
<tr>
<th>Domain</th>
<th>Healthy</th>
<th>At Risk</th>
<th>Frailty</th>
<th>Full Blown</th>
<th>End Stage</th>
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<tr>
<td>Science and Technology</td>
<td>High</td>
<td>High</td>
<td>High</td>
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<td>Health Care</td>
<td>Minimal</td>
<td>Moderate</td>
<td>Moderate/High</td>
<td>High</td>
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<tr>
<td>Long Term Care</td>
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<td>Moderate</td>
<td>High</td>
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<tr>
<td>Public Health</td>
<td>High</td>
<td>Moderate/High</td>
<td>Low</td>
<td>Low</td>
<td>Minimal</td>
</tr>
<tr>
<td>Social support</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>Moderate/High</td>
<td>Moderate/High</td>
</tr>
</tbody>
</table>

[Table links to additional information, if applicable]
Human Development Index in Mexico

Importancia relativa de las exposiciones en momentos diversos del trayecto vital

A : curso normal de la vida
B : exposición precoz con influencia sobre la reserva
C : exposición en la edad adulta que acelera el declinar ligado a la edad
D : Modelo propuesto: exposición precoz y aceleración en la edad adulta.

Modificado de Strachan y Sheikh 2004
Share of people reporting bad health by age, gender, and education.

Note: “Low”, “medium” and “high” levels of education correspond to International Standard Classification of Education (ISCED) codes 0-2, 3-4, and 5-6, respectively.

Source: OECD calculations from microdata on 24 OECD countries.
Health, Aging, and Childhood Socio-economic Conditions in Mexico

- Childhood circumstances have a long-lasting effect on health of the elderly, which persists when controlling for education and wealth, suggests that cash transfers to the elderly may not completely counter the negative effects from poverty a lifetime ago.

- As childhood poverty rates fall, policy makers should be forward-looking in allocating resources to a growing, aging cohort, whose morbidity tends to be associated with relatively more expensive chronic diseases.

Social protection’s impact on determinants of dependence and social exclusion

Interventions
- Universal social pension 65 +
- Constituional right to access health
- Seguro Popular

Determinants
- Life course vulnerabilities
- Legal norms and rights
- Social norms and values

Outcomes
- Adequate income
- Access to services
- Political and social participation
## Effects of the Noncontributory pension programs on frailty (N=945)

<table>
<thead>
<tr>
<th></th>
<th>State Program W1 Mean (SE)</th>
<th>State Program W2 Mean (SE)</th>
<th>Federal Program W1 Mean (SE)</th>
<th>Federal Program W2 Mean (SE)</th>
<th>State-Federal W2-W1 Mean (SE)</th>
<th>Diff. (SE)</th>
<th>P</th>
<th>Diff. (SE)</th>
<th>P</th>
<th>Diff. (SE)</th>
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<td><strong>Men</strong></td>
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<tr>
<td>Weight loss</td>
<td>0.11 (0.02)</td>
<td>0.12 (0.02)</td>
<td>0.08 (0.02)</td>
<td>0.10 (0.02)</td>
<td></td>
<td>-0.00 (0.02)</td>
<td>0.825</td>
<td>0.03 (0.02)</td>
<td>0.146</td>
<td>-0.02 (0.03)</td>
<td>0.405</td>
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<td>Weakness</td>
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<td>0.23 (0.03)</td>
<td>0.21 (0.03)</td>
<td>0.27 (0.03)</td>
<td></td>
<td>-0.07 (0.02)</td>
<td>0.000</td>
<td>0.06 (0.02)</td>
<td>0.005</td>
<td>0.01 (0.03)</td>
<td>0.707</td>
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<td>Exhaustion</td>
<td>0.11 (0.02)</td>
<td>0.02 (0.01)</td>
<td>0.06 (0.02)</td>
<td>0.04 (0.01)</td>
<td></td>
<td>-0.09 (0.02)</td>
<td>0.000</td>
<td>-0.02 (0.01)</td>
<td>0.086</td>
<td>-0.06 (0.02)</td>
<td>0.002</td>
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<tr>
<td>Slow pace</td>
<td>0.19 (0.03)</td>
<td>0.15 (0.03)</td>
<td>0.15 (0.03)</td>
<td>0.11 (0.02)</td>
<td></td>
<td>-0.04 (0.03)</td>
<td>0.149</td>
<td>-0.04 (0.02)</td>
<td>0.075</td>
<td>0.00 (0.04)</td>
<td>0.965</td>
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<tr>
<td>Low physical activity</td>
<td>0.59 (0.03)</td>
<td>0.56 (0.03)</td>
<td>0.54 (0.03)</td>
<td>0.59 (0.03)</td>
<td></td>
<td>-0.03 (0.03)</td>
<td>0.377</td>
<td>0.06 (0.03)</td>
<td>0.070</td>
<td>-0.08 (0.04)</td>
<td>0.053</td>
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<tr>
<td>Frailty Index</td>
<td>1.11 (0.06)</td>
<td>1.08 (0.06)</td>
<td>1.01 (0.06)</td>
<td>1.10 (0.06)</td>
<td></td>
<td>-0.03 (0.05)</td>
<td>0.530</td>
<td>0.09 (0.05)</td>
<td>0.083</td>
<td>-0.12 (0.07)</td>
<td>0.100</td>
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<td>Frailty Level</td>
<td>0.82 (0.04)</td>
<td>0.76 (0.04)</td>
<td>0.76 (0.04)</td>
<td>0.77 (0.04)</td>
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<td>-0.05 (0.03)</td>
<td>0.095</td>
<td>0.01 (0.03)</td>
<td>0.788</td>
<td>-0.06 (0.05)</td>
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<tr>
<td><strong>Women</strong></td>
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<tr>
<td>Weight loss</td>
<td>0.10 (0.02)</td>
<td>0.10 (0.02)</td>
<td>0.08 (0.02)</td>
<td>0.11 (0.02)</td>
<td></td>
<td>0.00 (0.02)</td>
<td>1.000</td>
<td>0.04 (0.02)</td>
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<tr>
<td>Weakness</td>
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<td>0.20 (0.02)</td>
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<td>0.31 (0.04)</td>
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<td>-0.01 (0.02)</td>
<td>0.695</td>
<td>0.16 (0.03)</td>
<td>0.000</td>
<td>-0.17 (0.03)</td>
<td>0.000</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>0.16 (0.02)</td>
<td>0.05 (0.01)</td>
<td>0.11 (0.02)</td>
<td>0.10 (0.02)</td>
<td></td>
<td>-0.11 (0.02)</td>
<td>0.000</td>
<td>-0.01 (0.02)</td>
<td>0.528</td>
<td>-0.10 (0.03)</td>
<td>0.000</td>
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<tr>
<td>Slow pace</td>
<td>0.18 (0.03)</td>
<td>0.12 (0.02)</td>
<td>0.15 (0.03)</td>
<td>0.16 (0.03)</td>
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<td>-0.06 (0.02)</td>
<td>0.004</td>
<td>0.01 (0.03)</td>
<td>0.594</td>
<td>-0.08 (0.03)</td>
<td>0.023</td>
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<tr>
<td>Low physical activity</td>
<td>0.63 (0.03)</td>
<td>0.57 (0.03)</td>
<td>0.66 (0.03)</td>
<td>0.66 (0.03)</td>
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<td>-0.05 (0.03)</td>
<td>0.062</td>
<td>0.01 (0.03)</td>
<td>0.869</td>
<td>-0.06 (0.04)</td>
<td>0.181</td>
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<tr>
<td>Frailty Index</td>
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<td>1.00 (0.05)</td>
<td>1.11 (0.06)</td>
<td>1.28 (0.07)</td>
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<td>-0.21 (0.05)</td>
<td>0.000</td>
<td>0.17 (0.05)</td>
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<td>-0.38 (0.07)</td>
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<tr>
<td>Frailty Level</td>
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<td><strong>0.90 (0.04)</strong></td>
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<td><strong>-0.12 (0.03)</strong></td>
<td>0.000</td>
<td><strong>0.07 (0.03)</strong></td>
<td><strong>0.034</strong></td>
<td><strong>-0.19 (0.04)</strong></td>
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<td></td>
<td></td>
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</tbody>
</table>

Note: Diff. = Difference  
SE = Standard errors
Summary results

- NCP had a positive impact on overall well-being measured through the frailty phenotype, showing improving trends in frailty, although women show more favorable results than men.

- For women, a statistically significant decline in frailty after 18 months.

- Frailty decreased for women for whom the five-point frailty index was 1.20 in W1 and decreased 0.24. For men, the index was 1.13 in W1 and decreased 0.02, a decrease that was not statistically significant.

- Women have less access to formal sources of income relying primarily on family transfers, therefore a pension could increase their ability to buy food, medicine or access to health care that can indirectly impact frailty.

- The impact of NCP could be expected to be equally beneficial in similar socioeconomic and demographic settings, given that the amount of the pension is similar to other countries in Latin America.
Disabilities Prevalence Numbers (1, 2 or more) According to Income Quintile

Source: ENSANUT, 2012
Life expectancy at birth and at age 65 by education level and gender, Norway, 2007–2013

Source: Authors’ elaborations based on Eurostat 2015.