AGING POPULATION AND ITS ECONOMIC IMPACT
+ IMMIGRATION

Use Evidence-based Medicine to Raise the Productivity of Healthcare in Aging Populations

Michael Stolpe (Kiel Institute for the World Economy)

March 15, 2019

Abstract

Healthcare productivity is a concern in all countries with aging populations. Amid rapid change in epidemiology and technological opportunities, solidarity-based health systems can no longer decide how much to spend without an efficient and ethically consistent process to decide what to buy. Using evidence-based medicine (EBM) as a guide would put spending on a more economically and politically sustainable path. As many countries lack sufficient expertise and experience with EBM, a coordinated global initiative should help evaluate new and existing services and technologies, suggest policies to foster the use of EBM locally and improve incentives for biomedical innovation globally.

Challenge

Fiscal policy planning in countries with aging populations is often influenced by fear of explosive growth in public healthcare spending. Amid growing numbers of elderly patients with chronic conditions, spending is feared to spike not only on a per capita basis, but even more so in the growing aggregates of new cohorts reaching old age. Yet wider adoption of evidence-based medicine (EBM) could help expand people's healthy lifespans through better targeted healthcare and put spending on a more economically and politically sustainable path.

EBM is a method of health decision making that aims to integrate the best research evidence with clinical expertise and patient values. The majority of medical decisions in today's world are not evidence-based as they are often influenced by access constraints to knowledge and technology, local traditions, group think among health workers and a variety of other biases that afflict human decision making under uncertainty. The uncertainty is particularly great with older patients whose pervasive background frailty and comorbidities often make treating any specific disease much more difficult and risky.

EBM combined with quantitative economic evaluations would help identify the health services and technologies whose value to patients exceeds their costs – thus, in turn, helping to justify an end to public payments for care with no net-benefit to patients, such as inappropriate procedures or services of insufficient quality. On the other hand, EBM may trigger additional spending on previously unmet health needs, thus helping to create wider public acceptance for expanding care that targets the evolving needs of aging populations.

EBM thus promises to help overcome a range of inefficiencies that aging populations face. *First*, their changing epidemiology opens a gap between healthcare needs and health systems' inherited capabilities. For example, mental ill-health – the fastest growing health burden in many aging populations and, controlling for severity, accounting for nearly 40 % of all illness in affluent countries – is still one of the most neglected conditions, with less than one third of patients receiving treatment. Giving all of them evidence-based psychotherapies would pay for itself, reduce the need to treat physical comorbidities and get many off welfare (Layard and Clark, 2014).

Secondly, rapid advances in biomedical research open a gap between health systems' existing and potential capabilities. Novel areas, such as systems biology, genomics, artificial intelligence and machine learning with "big data," create new potential capabilities that make efficient systems of updating EBM guidelines and evaluating new technologies more important than ever, including an adequate infrastructure to transfer the relevant knowledge from laboratory bench to patient bedside. The speed and global nature of biomedical research call for greater exploitation of returns to scale not only in research itself, but also in health technology assessments, economic evaluations and the organization of healthcare practice.

Third, country-specific factors can open a gap between recommendations based on conventionally ideal standards of evidence, such as randomized controlled clinical trials, and recommendations that are optimally adjusted to local conditions, based on additional observational studies of healthcare practice. For example, scarcities in the supply of health workers may require country-specific decision rules. Not all countries may have the same urgent need for remote monitoring technologies to replace inpatient by outpatient

care, for automation in preparing food, delivering medical consumables and cleaning hospital rooms, or for robots in surgery and nursing. The often localized nature of nutrition, diets and optimal behavior for disease prevention may also create a need to adapt evidence.

Finally, the political economy of population aging may open a gap between the investments that optimal evidence-based healthcare for the old would require and what the old – with often limited political influence – can lobby to get. A global initiative that entails benchmarking with other countries and makes specific recommendations for every country may help close this gap.

Proposal

In Figure 1, we depict the national health system for an aging population as a non-linear learning process. The changing epidemiology does not only influence patient needs, but also sets new themes for health research, which in turn impacts medical decision making. It does so both directly via evidence-based medicine (EBM) and guidelines and indirectly via its impact on new technologies as well as innovation and adjustments in the organization of the health system.

We argue that to achieve efficiency amid population aging, EBM should be used more extensively beyond decision guidelines for medical practitioners – namely with a view to improving economic evaluations of new health technologies, both in terms of their impact on medical decision making and in terms of their implications for the organization of health systems. This is where global economies of scale are particularly important and where the G20 can

help.

To be successful, the G20 must respect countries' sovereignty over their national health policy and its underlying values as well as recognize and build on the relevant existing accomplishments of non-governmental initiatives and networks, such as the Cochrane Collaboration for evidence-based medicine, the Guidelines International Network (G-I-N) and the International Network of Agencies for Health Technology Assessment (INAHTA).

The Cochrane Collaboration is a global non-profit network of researchers, healthcare professionals and consumers that gathers the best evidence from research and publishes accessible summaries to inform health decision-making on the ground. G-I-N is a non-profit network that supports international collaboration in guidelines development, adaptation and implementation with a view to helping its partner organizations create the high quality clinical practice guidelines that can foster safe and effective patient care. INAHTA is a non-profit organization that seeks to create a network of strong, independent agencies within countries that contribute health technology assessments (HTA), the systematic evaluation of a given technology's properties and effects on health, addressing direct and intended effects as well as indirect and unintended consequences, as an aid to decision making at the level of national health systems.

How the G20 can help

The G20 can add value to these initiatives by introducing a greater *strategic focus* on the specific challenges of population aging and by helping to coordinate a decentralized process of developing global (methodological and ethical) *standards* for evidence-based evaluations of health services and

medical technologies. Global standards that guarantee rigorous state-of-the-art methods in all cost-benefit and cost-effectiveness analyses and ensure independence from direct government or private for-profit interference could help achieve greater efficiency and more rapid transfers of knowledge in the global market place for biomedical research and technology. This could also help mitigate the large financial risks that private business often bears in the field of biomedical research and development.

To this end, the G20 should launch a new Global Fund for Healthcare in Aging Populations (GF-HAP) that can serve as a strong partner for countries seeking expertise and experience with evidence-based medicine and economic evaluations or any other challenge for health policy amid population aging. This new global fund could be modelled on the existing Global Fund to Fight AIDS, Tuberculosis and Malaria, but would differ in important ways. For example, the new GF-HAP should not be funding large-scale projects that implement systemic reforms in member countries, but might get involved in small pilot or demonstration projects.

Similar to the existing Global Fund, the new GF-HAP should be a partnership between governments, civil society and the private sector and support programs that are run by local experts in countries with aging populations. The GF-HAP should also prioritize and promote innovative solutions, harness the best evidence and experience from the public and private sectors to build resilient and sustainable systems for healthcare amid population aging.

The GF-HAP should seek funding through regular contributions from member countries and adopt a governance structure that ensures its independence from unilateral government interference and private for-profit business. However,

it should have freedom to establish temporary project partnerships with private business in healthcare, biomedical research and related industries.

Scope and mandate

The scope and mandate of the Global Fund for Healthcare in Aging Populations (GF-HAP) should include:

Monitoring

- Monitoring of private and public health research worldwide – from a user perspective.

- Monitoring and forecasting of adjustment processes in national health systems, including their long-term economic impact on labor force participation, productivity and economic growth.

Evaluation

- Evaluation of new health technologies for disease treatment and diagnosis and new forms of healthcare organization that capitalize on new technologies, including health research broadly defined.

- Development of ethical, methodological and reporting standards.

- Measuring the adoption and diffusion of EBM in member countries, and its impact on population health and healthcare costs.

Knowledge transfer and extension services

- Prioritization of evidence synthesis and dissemination of new practice and decision making guidelines.

- Dissemination of new knowledge through extension services in member countries, including regular public conferences and tailor-made training programs.

- Conception and sponsoring of pilot and demonstration projects in member countries.

- Creation of an open dialogue with civil society and the private business sector about promising opportunities, unmet needs and urgent priorities for the development of new health technologies.

Health databases

- Coordination of international agreements on data protection to facilitate the creation of global research data depositories for patient-centered research as well as transparent and accessible clinical trials databases.

- Creation, management and protection of large international health databases ("big data") to be used by qualified selected research partners helping to develop precision medicine for aging populations, genomics research and a better understanding of the interaction between genes, nutrition and the environment in the development of chronic diseases.

Research and forecasting

- Promotion and sponsoring of health research, including health services research, in the private and public sector.

- Identification and quantification of unmet needs in aging populations, such as mental ill-health, comorbidities, nutrition-related disorders, neurodegenerative conditions, and novel approaches to disease

prevention.

- Forecasting of epidemiological developments amid population aging, costs and benefits of treatment innovations, empirical willingness-to-pay for gains in life expectancy and quality of life.

- Development of appropriate research designs and generic models to assess the socioeconomic implications of alternative scenarios with population aging through country-specific calibrations.

- Interdisciplinary research into the macroeconomic implications of healthcare productivity, longer working lives, economic growth.

Improvement of incentives

- Organization of prize competitions, and other effective incentive schemes, for the development of priority health technologies that promise to be of exceptional value to society, but for some reason, such as market failure, cannot attract sufficient research funding from the private sector alone.

- Creation of space and incentives for interdisciplinary research collaborations, especially with medical researchers and economists from member countries where this is difficult to achieve locally.

Funding and governance

While the bulk of funding for the GF-HAP should come from member countries' regular contributions, additional funding should also be sought from private donors and through the licensing of concepts for training, extension and demonstration projects in the public or private sector.

The governance of the GF-HAP should not be exclusively in the hands of member countries, but should also involve delegates from medical and nursing professional organizations, civil society and established international collaboration partners, such as the Cochrane Collaboration, G-I-N, INHTA, the AllTrials campaign, the OECD, and the World Health Assembly.

Concluding remarks

Our proposal is in line with the World Health Organization's action plan on ageing and health (WHO 2017), but goes well beyond existing World Health Assembly resolutions, such as WHA69.3, by urging much greater and more focused international cooperation – especially by way of creating a new Global Fund for Healthcare in Aging Populations (GF-HAP).

Without this new coordinating institution, there would likely be a continuation of the existing global imbalances in health research, where priorities are largely set by private for-profit corporations and no match with long-term priorities from a societal perspective can be guaranteed. The large economies of scale in the development of new medical technology would continue to be unmatched by countervailing power on the demand side, which the GF-HAP can create by helping to realize economies of scale in health technology evaluations from a user perspective.

Many countries on their own lack the expertise and size to make viable investments in the area of evaluations, but even those that have the expertise may not want to employ too many highly specialized experts in government functions where high-powered performance incentives are difficult to

implement and the risk of obsolescence of any established specialization is large, given that the focus of new developments in medical technology can shift very fast. Existing non-governmental initiatives and networks have done valuable work, but are insufficiently endowed and focused to fully address the specific and emerging challenges of healthcare for aging populations.

We conclude that without the proposed GF-HAP and a much better, more forward-looking and internationally coordinated evaluation process, many national governments would continue to be virtually helpless in the face of large aggregate expenditure risks that loom when the inevitably accelerating demand for innovation in solidarity-based health systems amid population aging is not being managed on the basis of rigorous and comprehensive evidence.

References

- Layard, R. and D.M. Clark (2014). Thrive – The Power of Evidence-based Psychological Therapies. London.
- World Health Organization (2017). Global Strategy and Action Plan on Ageing and Health. Geneva.