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The impact of Ageing on Public Health Policy in Europe

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Despite Europe's wealth, it is a region with stark differences in health. This is best exemplified by differences in healthy life years (HLY). There is a four fold difference in HLYs across EU countries and marked variation in the proportion of time that HLYs contribute to life expectancy after 65 years.

Comparability of HLY both within and outside the EU (USA and Japan) by close monitoring of health status is important and uses data collation systems which monitor the development of different health expectancy indicators including the HLY.

Understanding the underlying causes of cross national differences is fundamental if we are to maximise HLYs across Europe and thus minimise health care costs. Proposed reasons for reported variation in HLY across Europe are socioeconomic inequalities and inequities, variations in numbers of health care professionals and variations in expenditure on health care. Projected health care expenditure to 2060 is also predicted to vary from 3.3% of GDP in Cyprus to 10.4 % of GDP in the UK.

Up to 100 years ago, 3 to 4% of the population in Europe were 65 or older. Thereafter a dramatic increase in extended life span occurred which equates to 3 months per year or 5 hours per day of extra life span. This linear increase continues with no evidence of slowing. For the first time in European history, and probably for the rest of human history, people aged 65 and over will outnumber children under age 5. The changes are attributed to rising life expectancy coupled with reductions in fertility rates. In particular, the number of oldest old is rising such that people age 85 and over are now the fastest growing portion of most EU27 countries. Reasons for the dramatic changes in life expectancy are better awareness of health behaviours, better treatments, less stress and better environments. However, one study demonstrated that demographic changes have been underestimated by 10% (UK) to 40 % (Japan) in G7 countries. **One possible explanation for these underestimates is differences in systems of data collection from which estimates are derived.**

The demographic changes have implications for dramatic changes in care/dependency ratios. For example, in 1900 there were 22 working people for every retired person; while Europe currently has four people of working age for every older person, it will have only two workers per older person by 2050. Hence dramatic changes in models of health care delivery are necessary and **imperative to ensure that extended life span equates as much as possible to extended *healthy* life span** - free from disability both physical and cognitive.

The European Health Survey Systems (EHSS) was developed in order to get regular collections of harmonised data by means of surveys (or survey modules) on health. The EHSS is a comprehensive and co-ordinated but flexible set of surveys, allowing

inter country comparisons, and built around an essential core survey, according to flexible and modular implementation. Eurostat provides a forum through which EU countries can share experience of using HLY data to inform and monitor policy reforms.

Analyses that integrate multiple levels of inquiry, ranging from genes, to biomarkers to neural systems to behaviours, are critical for elucidating pathways linking social behaviours and social environments to age-related outcomes and ultimately, for guiding interventions and public health policy. Longitudinal Studies are required to understand causal. Collection of core data sets from such studies, which are comparable across countries, has the advantage of better understanding policies and programs to promote active healthy aging and advance structural reforms in health and long-term care systems. Such information exchanges and cross-national research will enable collaborative biomedical and behavioural research to improve active life expectancy and reduce disability. **Both objective and subjective data are necessary to inform causal pathways and effective interventions.**

Examples from the Irish longitudinal study on ageing (TILDA) are presented to illustrate the major discrepancies within a single country in data derived from objective and subjective health measures in a nationally representative population study of persons over 50. The study population of 8751 participants represents 1 in 142 people over 50 years. This is an example of how this data may help to inform discrepancies in reported health status/disability and HLY across Europe and serve to underscore the importance of collection, not only of core data as per EHSS, but also of core objective data. It further illustrates that, although collection of core comparable data is the preferred process, flexibility for collation of additional country specific data is also important to address the many causal pathways for ageing. Geographical and social media advantages coupled with government sponsored technology partnerships, enabled health centre assessments of a representative sample with high response rates which would not be possible in other countries. As TILDA evolved, it became apparent at each step of development that significant technology and policy infrastructure was necessary to support the project, much of which was novel to Ireland. Examples of such developments included systems which enabled: collection of data and biological samples for future use; new soft ware interfaces and functionalities; new systems for delivery of health assessments in the home; coordinated and technology driven health assessment centres; national asset mapping and biological sampling in a large well characterised cohort of Irish adults; highly skilled and technology fluent field forces of surveyors and nurses; highly successful iterative partnerships between academic institutions and Irish SMEs; comprehensive education and training programs for technology applications by health care professional and field surveyors; novel blood tracking and long term storage capacity; nationally responsive ethics systems for collection of personal and household data and biological materials; comprehensive systems for confidentiality of data collection. The creation of these infrastructures and systems facilitated ease and reliability of extant and future data collection, which created a valid information platform from which to develop public health policy. The longitudinal design further enables testing of the impact of new health care policies and policy changes.

TILDA actively fosters new research and development opportunities with Irish SMEs, international partners and academic institutions. Accurate data sources are

critical for such developments. This model could be replicated to support employment creation across Europe.

Hypertension is a well-established risk factor for stroke, dementia, heart failure and kidney disease. 40% of TILDA participants, who had high blood pressure, were not aware of the diagnosis and were not treated; thus the prevalence would have been substantially under reported in current EHSS systems.

Atrial fibrillation (AF) is an irregular heart rhythm and rate. It is one of the commonest causes of stroke (responsible for 48% of strokes in Ireland) and of dementia.

People are aware of AF if a doctor makes the diagnosis based on an electrocardiogram. Patients require specific clot preventing therapies – the intensity of which are dependent on other cardiovascular risk factors and frailty status. These therapies are very successful in the prevention of strokes and dementias in clinically risk stratified patients. In TILDA, participants are asked whether or not they have been told by a doctor that they have an irregular heart beat in addition to objective measures of rate and rhythm (electrocardiogram), cardiovascular risk factors and frailty status. Almost 4 in 10 participants who had AF, 70% of whom were at high risk of stroke according to new EU criteria (CHADVasc), were not aware of the arrhythmia. **No source of information using EHSS studies would have comprehensively detected this modifiable risk factor for major disabilities, which was present in 1 in 5 men over 80years.**

Most health inequalities are avoidable by reasonable means. This is why the proposed vision for the new European policy for health, Health 2020, is “for a WHO European Region where all people are enabled and supported in achieving their full health potential and well-being, and in which countries, individually and jointly, work towards reducing inequalities in health within the Region and beyond.” We propose the introduction of objective health measures to core EHSS surveys and extended longitudinal population studies in Europe. We propose the development of and use of technologies which enable easy application of the objective measures in the home and by fieldworkers. We propose that longitudinal surveys which employ these methods will address better understanding of the current discrepancies in reported health status in European countries. We propose that this information will enable accurately targeted policy initiatives necessary to ensure extended HLYs for all older Europeans in current times of austerity and towards a better future.

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