

From Global burden of diseases to health policy and diseases control in Taiwan

從全球疾病負擔觀點看台灣的健康政策與疾病防治

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Abstract:

Trace back the original intent of quantification of global burden of diseases lead us to consider the impact of diseases from societal perspective. They have developed methods to approximately quantify years of life loss (YLL) and years living with disability (YLD) and quickly summarized the global burden for different diseases, which have drawn WHO's attention to allocate more resources on preventing major diseases, especially for people living in the developing world. Their quantification methods of health impacts, however, have not considered quality of life (QOL) and financial costs for lack of data in most countries. Beginning in 2017, the Second Panel of Cost-effectiveness in Health and Medicine recommend to include a reference case of societal perspective for evaluation of consequences of different healthcare technology. They propose an impact inventory template, which includes not only impacts related to formal and informal healthcare sectors but also those of non-healthcare sectors. Typical impacts of non-healthcare sectors contain losses resulted from changes of productivity, consumption, social services, legal/criminal justices, education, housing, production of toxic waste or pollution by intervention, etc. These newly added demands cover the issue more comprehensively and health policy decision makers would be able to compare preventive, diagnostic & therapeutic, rehabilitative, and alternative medicines on the same metric. But it also produce big challenges to people on this field. My team have developed methods to quantify lifetime survival functions and compare them with age- and sex-matched referents simulated from national life tables to estimate LE (life expectancy) and EYLL (expected life expectancy) for different diseases. Then, the survival function can be multiplied with a second functions of the aforementioned items (QOL, costs, productivity, etc.), and integrate both to estimate quality-adjusted life expectancy, loss-of-QALE, lifetime costs, lifetime demand of care services, etc. Then, all different healthcare services could be directly compared under the quality-adjusted life year (QALY) unit for cost-effectiveness. Based on these methodology and analyses of big data, we have found prolonged mechanical ventilation generally costs more than 2.2-2.8 GDP (gross domestic product) per QALY, while comatose patients would cost more than 5 GDP per QALY. After matching for sex, age, and major co-morbidities, we found no difference in QALE for patients under maintenance hemodialysis (HD) and peritoneal dialysis (PD); HD costs about 1.2 GDP per QALY, while PD saves about \$ 3000 USD per QALY for the National Health Insurance (NHI) in comparison with HD. All current cancer management costs less than 1 GDP per QALY, but the data have not yet covered reimbursement after 2010. Moreover, screening for cancer of breast, colorectum, oral and cervical cancer would save lives for people and lifetime healthcare costs for NHI. A good helmet worn would save about 5 QALY of life for a head injury occurred to motorcycle riders. We had better improve our efforts and cost-effectiveness of various interventions of preventive medicine to meet the challenges of aging population and increasing demand of healthcare services of Taiwan. I would recommend our specialists to integrate closely with primary care physicians to promote preventive medicine. And, all of us must always keep our knowledge and practices of controls of hypertension, hyperglycemia, hyperlipidemia, and tobacco smoking updated and improve population health for people of Taiwan.