

# Beban penyakit stroke di indonesia dalys lost dengan analisis kontrafaktual faktor risiko utama = The burden of stroke in indonesia dalys lost by counterfactual analysis of the main risk factors

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## Abstrak

Economic growth and the demographic transition in Indonesia affect the epidemiological transition. Communicable diseases began to decline, while noncommunicable diseases (NCDs) increased. NCDs is the largest disease burden in the world since a long period of illness, also causes a lot of death and disability. In 2005 an estimated 80% of deaths in developing countries due to NCDs. NCDs handling capacity program not get priority, so NCDs described as "The next Health Tsunami". NCDs action plan for East Asia and Pacific region is the research and development of health interventions to address cases of cerebrovascular and stroke. Stroke is the number one killer in Indonesia, Riskesdas 2007 showed 15.4% of total deaths in population due to stroke.

Operational research has conducted to determine the burden of DALYs lost stroke in Indonesia and its economic burden in the year 2007 as well as 2020 predictions, with the counterfactual exposure to main risk factors. Calculation of DALYs lost due to stroke using the Global Disease Burden method. A total of 5,449 cases of stroke from Riskesdas 2007 were analyzed with nine modifiable related risk factors. To reduce the incidence of stroke in the population was calculated PAF of combination risk factors that combined the most effective feasible and plausible. The economic burden is calculated based on the direct medical costs, transportation costs for medical treatment and opportunity costs.

Estimates of DALYs lost due to the stroke of Indonesia population in 2007 with 2,337,718 loss of productive years lost and the estimated economic burden was Rp.3 trillion (equivalent to 20% of the budget of Ministry of Health 2007). There are three proven risk factors influence the incidence of stroke ( $p < 0,05$ ); hypertension (OR 24.8), diabetes (OR 7.2) and lack of physical activity (OR 6.1). Combination of all three have a maximum value of PAR 0.792. In 2020 the incidence of stroke is predicted to increase 71.5% (169.012 cases) followed by an increase in the burden of DALYs stroke 32.5%, estimated economic burden was Rp.3 trillion. The counterfactual calculations of three risk factors within feasible limits is predicted decrease 19.071 incidence of stroke in 2020 and the costs can be saved Rp.1,485trillion. Efforts plausible counterfactual is predicted decrease 9.536 cases and the cost savings Rp.688billion ( budget in 2020 inflation calculated 4.2%).

Needed improvement NCD prevention program planning in a proactive way to raise the target early detection cases of hypertension and diabetes become 75% which handled with health personnel and 50% which controllable. Strengthens the NCD network in order to integrated of health risk issues that can be democratically expressed, and enter to the political process to influence decision-makers in government. Improving quality of medical records, health surveillance and vital registration, thus providing accurate information to make an evidence-based materials for advocacy to the decisionmakers in central and regional.

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Pertumbuhan ekonomi dan transisi demografi di Indonesia berdampak terhadap transisi epidemiologi. Penyakit menular mulai menurun, sementara penyakit tidak menular (PTM) terjadi peningkatan. PTM merupakan beban penyakit terbesar di dunia karena periode sakitnya lama, menyebabkan banyak kematian dan disabilitas. Tahun 2005 diperkirakan 80% kematian di negara sedang berkembang disebabkan PTM. Upaya pengendalian PTM belum mendapat prioritas, sehingga PTM dinyatakan sebagai "The next Health Tsunami". Rencana aksi PTM regional Asia Timur dan Pasifik adalah penelitian dan pengembangan intervensi kesehatan untuk mengatasi kasus serebrovaskular dan stroke. Stroke merupakan pembunuh nomor satu di Indonesia, berdasarkan Riskesdas 2007 sebesar 15,4% dari total kematian disebabkan stroke.

Riset operasional dilakukan untuk mengetahui beban DALYs stroke di Indonesia dan beban ekonominya di tahun 2007 serta prediksi tahun 2020, dengan analisis kontrafaktual pajanan faktor risiko utama. Perhitungan DALYs lost akibat stroke menggunakan metode Global Burden Disease. Sebanyak 5.449 kasus stroke dianalisis dengan sembilan faktor risiko yang dapat diubah. Untuk menurunkan insiden stroke di populasi dihitung PAF kombinasi gabungan faktor risiko secara feasible dan plausible. Beban ekonomi dihitung berdasarkan biaya medis langsung, biaya transportasi selama berobat dan biaya oportunitas.

Hasil Estimasi DALYs lost akibat stroke Indonesia tahun 2007 menunjukkan nilai kerugian 2.337.718 tahun produktif yang hilang dengan perkiraan beban ekonomi Rp.3 Triliun (setara 20% anggaran Kementerian Kesehatan 2007). Diketahui ada tiga faktor risiko yang mempengaruhi kejadian stroke ( $p < 0,05$ ) yaitu hipertensi (OR 24,8), DM(7,2) dan kurang aktifitas fisik (OR 6,1). Gabungan ketiganya mempunyai nilai maksimal PAR 0,792. Hasil prediksi tahun 2020 insiden stroke meningkat 71,4% (169.012 kasus) diikuti peningkatan DALYs lost akibat stroke 32,5%, prediksi beban ekonomi Rp.3,7Triliun. Perhitungan kontrafaktual tiga faktor risiko batas feasible diprediksi menurunkan 19.071 insiden stroke tahun 2020, biaya yang dihemat Rp.1,5 Trilyun. Upaya kontrafaktual plausibel diprediksi menurunkan 9.536 kasus, biaya yang dihemat Rp.688 Milyar (biaya tahun 2020 memperhitungkan inflasi 4,2%).

Diperlukan peningkatan perencanaan proram pencegahan PTM dengan cara proaktif untuk menaikan target deteksi dini kasus hipertensi dan DM menjadi 75% tertangani petugas dan 50% yang terkontrol.

Membangun jejaring PTM agar isu risiko kesehatan PTM dapat terintegrasi secara demokratis, dan masuk dalam proses politik untuk mempengaruhi pengambil keputusan. Meningkatkan kualitas data rekam medik, survailans kesehatan, dan pencatatan penyebab kematian, yang dapat digunakan sebagai bahan advokasi.