

New developments in personalized medicine could save billions of dollars in improved health

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New developments in personalised and precision medicine (PPM) could offer enormous gains in healthy life expectancy for Americans, but the incentives to develop them are weak, according to Dr Victor Dzau, President of the US Institute of Medicine, and colleagues, writing in a Personal View in *The Lancet*.

PPM tailors [medical treatment](#) to the individual characteristics of each patient, according to their susceptibility to a particular illness. But PPM goes beyond just targeting therapies at individuals who are ill; it includes the ability to identify those at highest risk of developing a disease, and who would benefit most from prevention measures.

The authors use a health simulation model—developed by Professor Dana Goldman, Director of the University of Southern California Schaeffer Center for Health Policy and Economics, Los Angeles, USA—to project the future impact of PPM interventions that improve screening and risk prediction technologies to identify individuals at highest risk of developing specific diseases. The model predicts the monetary value of health (years of healthy life) generated by PPM interventions in reducing the incidence of six diseases (cancer, diabetes, [heart disease](#), [high blood pressure](#), [lung disease](#), and stroke) in the US population by 10% and 50% between 2012 and 2060.

The results show that a PPM intervention that reduces the incidence of

these six diseases by 10% would generate \$96 billion from diabetes and \$70 billion from cancer in the form of longer, healthier lives over 50 years. A PPM innovation that reduces heart disease incidence by 50% would generate a staggering \$607 billion in improved health over 50 years.

"Preventive, personalised, and precision medicine interventions targeted at reducing heart disease would have the greatest societal benefit, because heart disease is very common and has a relatively large effect on life expectancy," explains Dr Dzau. "Other diseases such as stroke or lung disease are much less prevalent and offer smaller opportunities for creating additional years of healthy life from incidence reduction."

However, while preventive PPM innovations hold huge promise, there are few incentives to develop them. "The current reimbursement environment in the US health care system is characterised by near-term budget pressures, and discourages the development of preventive, personalised, and precision [medical interventions](#) in favour of treatments that generate less value overall, but provide greater returns in the short term," adds Dr Dzau.

According to the authors, reimbursement based on a test's value, rather than cost, could strengthen manufacturers' incentives to bring preventive PPM diagnostic tests to market more quickly. "In the USA, private insurers' incentives favour interventions with immediate benefits and short payback periods. But the real benefits of PPM innovations accumulate over a much longer time, as individuals enjoy living longer in good health. Our predictions show that developing a model that generates positive returns for private payers could benefit everyone."

More information: *The Lancet*, www.thelancet.com/journals/lan...
 [\(15\)60722-X/abstract](http://www.thelancet.com/journals/lan...)

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