

Investing in a healthy Australia

With health and aged care expenditure projected to grow to more than \$200 billion by 2033 and healthcare becoming more expensive with the proliferation of high-tech treatments, the need to find proven, affordable illness prevention measures is pressing.

Preventable causes of death, such as tobacco smoking, poor diet and physical inactivity have been estimated to be responsible for nearly 40% of total yearly mortality in the United States. While programs such as counselling adults to quit smoking, colorectal cancer screening and providing influenza vaccination have been shown to reduce mortality at low cost or at a cost saving, there is evidence that some preventive measures do not save money, or are expensive for the health benefits they confer.

To ensure the best value health care, governments require reliable information, so that they can direct the limited resources to where they have the best health outcomes. Data linkage provides the tool that enables researchers and governments

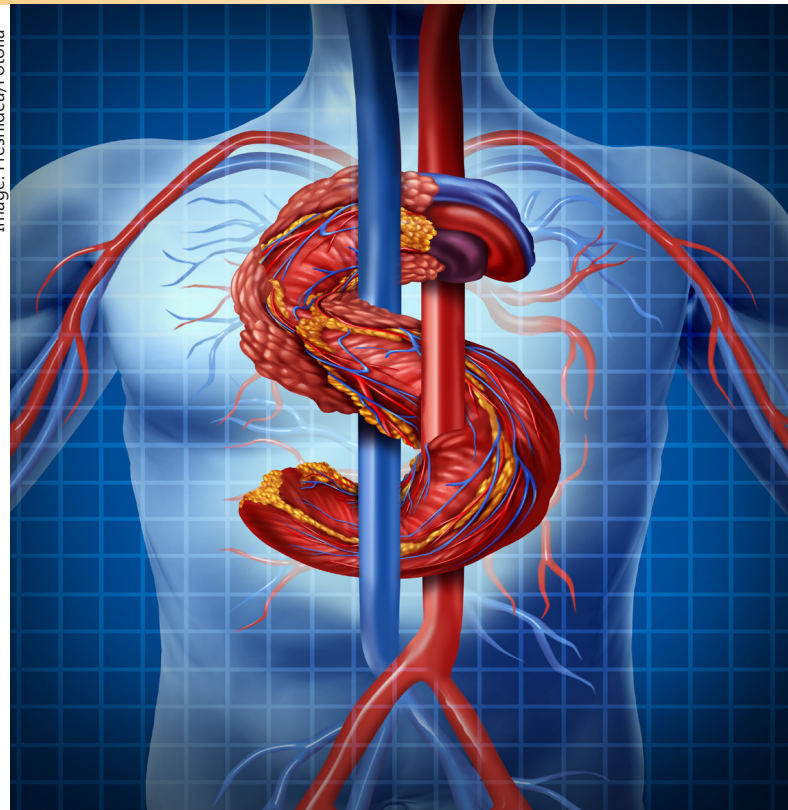


Image: Freshidea/Fotolia

to study the health of populations and properly examine the efficiency of the health care system. By linking together data on inputs (such as health professionals and hospitals) with outputs and outcomes (volume of services provided, performance indicators and health outcomes), analysts can study how changes in inputs influence health outcomes, a vital question in understanding health sector efficiency.

This edition of the CHReL newsletter highlights two recent studies from the preventive health field. Both have relied upon data linkage for the quick and cost-effective assembly of large scale research data and provide new evidence on interventions and opportunities to improve health through prevention.

Protecting your privacy

Across Australia, a small number of dedicated data linkage providers are helping to protect your privacy. The Centre for Health Record Linkage (CHReL), provides a service linking health-related databases in NSW and the ACT for research that is for the public benefit.

Protection of privacy is a major consideration in record linkage studies; the CHReL follows a strict privacy preserving protocol. Once ethical approval is obtained, the CHReL uses personal information such as name, date of birth and address to create links between records for the same person in different health databases. Information about people's health does not go to the CHReL but stays in the original database. By separating data files, and separating the processes of record linkage and data analysis, the CHReL always preserves privacy.

Personal information is kept highly secure and confidential, and is used in accordance with privacy laws, and in accordance with any conditions placed on the use of personal information by the database owners and human research ethics committees.



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Several recent studies point to the health risks of too much sitting and scientists believe Australians now sit for more than half of their waking hours. A recent large scale Australian study to determine the independent relationship of sitting time with all-cause mortality was undertaken by researchers from the University of Sydney, the Sax Institute and the Australian National University. The research team used data from the 45 and Up Study, a sample of around 267,000 men and women aged 45 years or older from NSW. To assess the mortality outcomes, 45 and Up participants were followed up using data linkage to NSW Death Registrations. This data linkage was done by the CHeReL using privacy preserving techniques that enabled the researchers to cost-effectively obtain information on deaths without revealing the identity of participants in the study. Working in this way helps to protect

Don't Just sit there!

How much time do you spend sitting down each day? The human body was designed for walking and that's how we travelled for thousands of years, but now with ever more technology at our fingertips we are increasingly spending our lives sitting down – at home, driving the car and especially at work.

privacy and avoids the significant costs of manually following up participants over time, thus maximising investment in health and medical research.

Using this linked data set, the researchers found that sitting time does increase the risk of mortality regardless of the age, sex, body mass index and levels of physical activity and health status of an individual. This means that even relatively fit and healthy people are affected by prolonged sitting.

The authors concluded that public health programs should focus on reducing sitting time in addition to increasing physical activity. Moreover, encouraging high-risk groups such as those suffering from heart disease and diabetes to sit less and be more physically active should be a public health priority.

Helmets on heads: Research using linked data

Following the introduction of mandatory helmet legislation for cyclists on public roads in the early 1990's, there has been an ongoing debate in Australia and internationally regarding the effectiveness of helmets in preventing head injury.

Prior studies have demonstrated that helmets reduce the risk of a head injury, but there has been conflicting evidence regarding by how much the risk was reduced. The inconsistent findings are largely attributable to scientific differences in study inclusion criteria, sample size, and ways of measuring severity.

Researchers from the Transport and Road Safety Research Group (TARS) at the University of NSW have attempted to overcome some of these limitations by carrying out a large-scale study, using linked data, on more than 6,500 cyclist collisions. The size of the study has made it possible to look in detail at many of the different factors affecting injury severity. The use of linked data is a cost-effective research technique and enabled the inclusion of cyclist casualties that did not require hospital treatment.

The study examined the effectiveness of bicycle helmets in preventing head injury among cyclists in crashes involving motor vehicles, as well as the impact of 'risky cycling behaviour'. The research used NSW administrative data



Photo: Kids.4pictures/Fotolia

including police-reported road crash, hospital admission and mortality information, from 2001-2009; these data sets were linked together by the Centre for Health Record Linkage using privacy-preserving techniques.

Helmet use was associated with 74% reduced risk of head injury in bicycle collisions with motor vehicles, and the more severe the injury considered, the greater the reduction. Alarming, around one half of children and adolescents were not wearing a helmet at the time of collision. Non-helmeted cyclists were more likely to display risky riding behaviour; they were, however, less likely to cycle in risky areas; the net result of which was that they were more likely to be involved in more severe crashes.

The authors describe it as one of the first case-control studies to have examined head injury severity among cyclists using linked police, hospital and mortality data. They concluded that given the demonstrated effectiveness of helmets, this issue should continue to be addressed with preventive action.