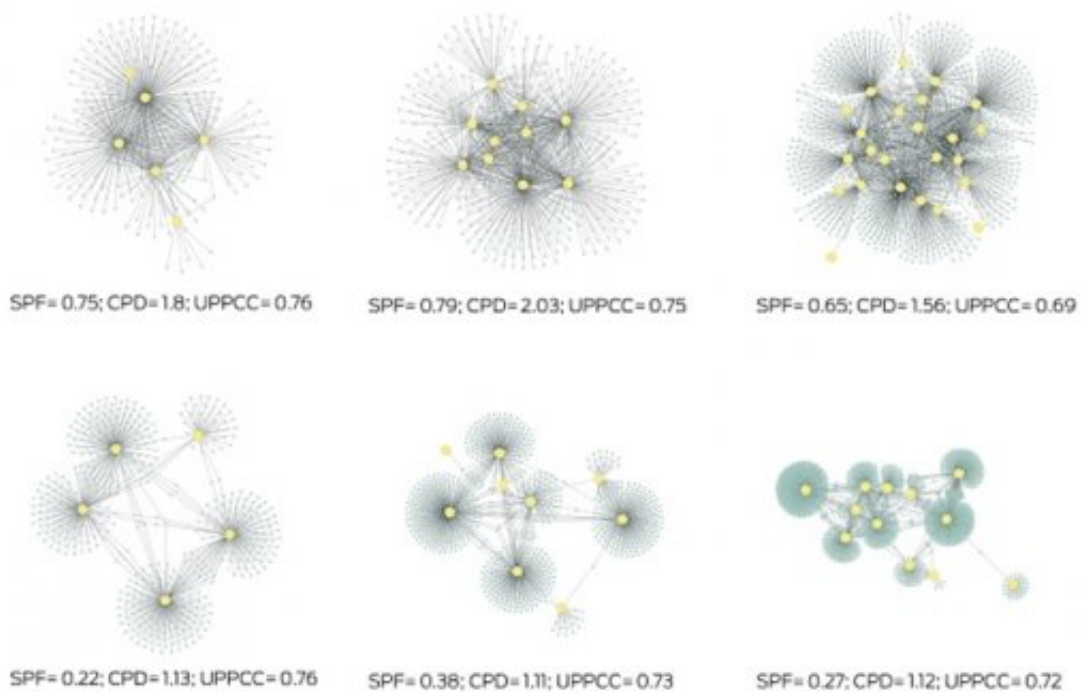


Innovative big data study sheds light on general practice in Australia

July 13 2018, by Isabelle Dubach



Visualisation of six provider practice communities (PPCs) differing in size and the extent of shared patient care: Yellow dots represent general practitioner providers; blue dots represent patients; grey lines represent patients having one or more consultations with a GP. CPD = community patient degree; SPF = shared patient fraction; UPPCC = usual PPC continuity of care. Credit: *Medical Journal of Australia*

An Australian-first study by UNSW researchers has analysed millions of Medicare claims to gain insights into Australian general practice. The study opens up a new toolbox for exploring how patients use health care services.

A team of researchers from the Centre for Big Data Research in Health at UNSW Sydney has used big data analytics to explore how general practice in Australia has changed over two decades.

The study, published in the *Medical Journal of Australia*, found that while there has been a move towards bigger GP practices, patient loyalty remains high.

The findings provide valuable new insights, especially given that primary care is an extremely data-poor field of research, says UNSW Professor Louisa Jorm, Director of the Centre for Big Data Research in Health and co-author of the study.

"We were surprised to see that there is very little information out there on general practices in Australia," she says.

"For example, since the Annual Survey of Divisions ended in 2011, we don't even know how many GP practices there are in Australia.

"We need data to help drive policy in the primary care system in Australia, and right now up-to-date data is hard to find."

That's why the team set out to apply a novel [big data analytics](#) approach to a large set of Medicare claims – to learn more about GP practices, the proportion of bulk-billed claims, continuity of care, patient loyalty and patient sharing.

"Network analysis – the approach used in this study – is one of the new

and exciting ways we can use big data to better understand features of our health system," says Professor Jorm.

The researchers analysed millions of Medicare claims from GP consultations during 1994–2014 for a random 10 per cent sample of Australian residents, and used network analysis techniques to identify GP communities.

"We looked at the claims to see when patients were visiting different doctors for their GP services. Where doctors had many patients in common, it's likely they are sharing the care for these patients in the same medical practice, so we grouped them together as a provider-practice community, or PPC," says Professor Jorm.

The data show that practice communities have grown over time: the proportion of PPCs with six or more providers increased from 32 per cent in 1994 to 43 per cent in 2014, while that of sole provider PPCs declined from 50 per cent to 39 per cent. The median number of claims per patient per year remained stable over the 21-year study period.

The study also revealed interesting insights into patient loyalty, says Professor Jorm:

"Despite this shift towards much bigger GP practices and fewer solo GPs, we found that patients' loyalty to their usual GP and usual GP practice is high, and has been stable over the last 20 years.

"Our findings also show that team-based approaches – where patients see multiple GPs within a practice rather than having a single GP – are associated with greater patient loyalty to the practice. This is encouraging for GPs who need to balance work and family commitments.

"This high level of patient loyalty has implications for the design of incentive programs for encouraging quality primary care if their success relies on the patients' choice of [practice](#)."

The research also found that the proportion of PPCs in which all providers bulk-billed all consultations ranged from 22 per cent in 1994 to 29 per cent in 2014.

"These trends are consistent with the reported drop in the number of bulk-billed claims to a record low in 2003-4, before increasing after bulk-billing incentives were introduced in 2004," explains Professor Jorm.

Looking ahead, the novel [big data](#) approach used in this study will help researchers monitor the features of Australian general practices and their influence on patient care.

"Our findings open up a new toolbox for exploring how patients use [health care services](#). The next step is to explore the implications of the data on [patients'](#) health and health outcomes," says Professor Jorm.

The study team comprised Dr. Bich Tran, Dr. Michael Falster and Professor Louisa Jorm from the UNSW Centre for Big Data Research in Health, Dr. Peter Straka and Dr. Thomas Britz from UNSW Mathematics and Statistics, and Professor Kirsty Douglas from ANU.

The study is available in this week's *MJA* (online) , and UNSW Professor Jorm is also featured on the accompanying *MJA* podcast.

Provided by University of New South Wales

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