

**Information request 4.4 The Commission seeks information and views on: What empirical evidence is available on the causal relationship between HMR, public hospital performance and public health outcomes, particularly at the state level? Please provide details.**

Thank you for offering your question for public response. Two examples of South Australian health and medical research helping establish causal relationships between hospital activity and health outcomes in the community are offered below.

**Example 1**

Establishing causal relationships between public hospital performance and health outcomes is associated with some basic information needs which health and medical research can help develop. One basic information need is to understand the customer base, for example, the population of people who use public hospitals, for what purposes, with what frequency and at what cost to the health system, the person and society. A further basic need is to understand what components and amount of service use are amenable to change through avoidance or prevention.

A South Australian research initiative was developed to answer the above questions using a person-centred approach. With a particular focus on potentially preventable hospital use, the initiative aimed to answer specific research questions (detailed in Appendix A). Further work would then routinise the production of results so they could accompany time trend reporting in key performance areas on hospital activity in South Australia. The program initiative involved collaborations between SA Health (central office and local health networks) and health and medical researchers at the University of Adelaide, University of South Australia and Flinders University.

The program scope was subsequently curtailed for several reasons. However, it did yield previously unavailable information on:

- The amount, distribution and costs of emergency department use in metropolitan Adelaide. Potentially preventable presentations and the excess cost component were also made available (1); and,
- The number, totalled length of stay, distribution and costs of inpatient stays involving chronic conditions (2).

Tracking these and other indicators relevant to service change initiatives can provide valuable perspectives on needs which the health system can respond to and evaluating the system's activity and performance in response to those needs. Accompanying innovations in person-centred care with person-centred performance measures will inform evaluation and, by adopting appropriate methods, assist with establishing causation. Those evaluations can then be informed on how much benefit was produced, at what cost, and how were each distributed through the population of service users.

A decision-support framework causally linking effective, efficient and equitable system activity with health outcomes is available and includes a worked, South Australian example focused on the management of coronary heart disease (3). Moreover, the work completed to date provides an example of how health and medical researchers, health care providers, system administrators and community members can co-contribute to continued evidence production and learning about health system value throughout the community.

## **Example 2**

Delivering cancer care is a major activity in South Australia's public hospital system and cancer outcomes vary widely throughout the community (4). The Cancer Data and Aboriginal Disparities (CanDAD) research project developed and tested an integrated, comprehensive, state-wide cancer monitoring and surveillance system to address disparities and advocate for clinical system change (5).

As a partnership between the South Australian Aboriginal Health Council, Cancer Council, Department of Health, Health and Medical Research Institute, University of South Australia and South Australia/Northern Territory Data Link (4), CanDAD incorporated a wide range of person-linked epidemiological data. Data sources for the population cohort of cancer cases among Aboriginal South Australians and a matched cohort of non-Aboriginal peers included public and private hospital unit records, the South Australian Population Cancer Registry, MBS and PBS unit records.

Our examination of cancer surgery, systemic and radiotherapy showed the effects of treatment did not differ. However, receipt of cancer surgery and systemic therapies varied markedly and contributed to significant differences in survival after cancer diagnosis (6). A closer focus on breast cancer cases among South Australian women allowed us to include cancer screening as well as treatment (7). Our results showed significant variations in exposure to breast screening and surgical treatment and these factors contributed to excess cancer related deaths.

### **Viewpoint**

The initiative within Example 1 was designed to establish an initial data platform to provide an information baseline on the flow of people through the public hospital system in terms of incident cases, prevalent cases and duration of use. The platform intentionally provided for replicating the outcomes across time and people. The platform could be further expanded to include cross-border transfers, particularly with the Northern Territory, private hospital records, and primary care using MBS and PBS records. This would provide a more complete assessment of the value generated by the health system components for the people the system serves.

With a focus on cancer, Example 2 included private hospital records, an data issue raised in the Commission's draft report (8). The CanDAD study developed a protocol suitable for scaling up to cover all cancer cases in South Australia. Again, this research provides a base for continued assessment of population need and system response to those needs.

## References

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8. South Australian Productivity Commission. Inquiry into Health and Medical Research in South Australia, Draft Report. 2020 September 2020.

## Potentially Preventable Hospital use in South Australia ¶

Potentially Preventable Hospital contacts (PPHs) indicate hospital presentations and stays which might be avoided if appropriate, necessary and timely health care is available elsewhere. Most analyses of PPH look at volume of hospital services. Person-linked administrative records provide an alternative perspective focussing on the people experiencing hospital contact. Focussing on individuals and groups within the community will help inform and monitor person-centred care. ¶

¶.....Section Break (Continuous).....¶

### This project asks: ¶

1. How many people experience inpatient stays in South Australian hospitals? ¶
2. How many people experience PPHs in South Australian hospitals? ¶
3. What proportion of people experience multiple, or more frequent, PPHs and total length of stay? ¶
4. What are the demographic characteristics of people experiencing more frequent PPH? ¶
5. What hospital resources associated with PPHs? ¶
6. What is the geographic relationship between the area of usual residence of people experiencing PPHs, local primary health services and acute care facilities? ¶

In some community sections there is a relationship between Emergency Department (ED) services and PPHs. So the study will also ask: ¶

7. How many people access EDs in South Australian hospitals and how many of these are potentially preventable? ¶
8. How many of the people attending public hospital EDs subsequently experience PPHs as inpatients of South Australian hospitals? ¶

The addition of death records to the linked dataset will allow further questions such as: ¶

9. How many people in the wider community have ever experienced PPHs and how many exit the prevalent pool because of death each year? ¶
10. Following a PPH event, what changes to mortality risk occur over time? For example, has 12 month survival after a first PPH admission changed from 2010 to 2019? ¶

Questions 1 to 7 deal with incident PPH events. Questions 7 and 8 focus on patient pathway to hospitalisation. Questions 9 and 10 will help provide information about prevalence, case fatality and duration associated with PPHs. ¶.....

### Answering these questions will help: ¶

- Monitor changing trends in the distribution of PPHs within the community. For example, for aggregate PPHs and/or underlying conditions by sex, age and area. ¶
- Identify gaps in the spatial distribution of people experiencing PPHs, the provision of primary health services and acute care services. ¶
- Inform discussions about the potential for reallocating resources toward associated primary care and preventive activities. ¶
- Evaluate population health outcomes that result from relevant resource, service and practice changes in a continuous improvement framework. ¶
- Inform further developments of SA Health and Wellbeing performance indicators. ¶
- Inform discussions about the association between hospital ED and inpatient services and the relationship with primary care and preventive activities. ¶
- Inform discussions about patient outcomes following PPH separations. ¶



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