Applying FAIR (Findable, Accessible, Interoperable and Reusable) principles to linked datasets: opportunities and challenges

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Background
An Australian government priority is the use of data to support integrated, and evidence-based health policy and clinical practice with growing recognition, both nationally and internationally, that greater scientific gains are achieved through the sharing and reuse of validated datasets.

Objectives
To test the application of the FAIR (Findable, Accessible, Interoperable and Reusable) guiding principles as an approach to allow researchers to find, read, use and reuse relevant scientific datasets.

Method
The colorectal cancer (CRC) data linkage project was used as a case study to test the application of the FAIR principles and to identify the associated opportunities, challenges, and operational issues when applying FAIR to data assets. The CRC data linkage project links cancer registry data and administrative health data across hospital, State and Federal boundaries to identify unexplained health care variations and to set program directions for research translation initiatives to reduce premature death from CRC in SA.

Results
The CRC data linkage project is bringing about a change in thinking among health administrations and service providers regarding the importance of linked data for cancer control. Public data custodians and ancillary data holders are understandably cautious, but are now sharing health-service and clinical data more readily, which is increasing transparency on health-service needs and practices and better focusing efforts to improve service outcomes. However, the process has identified the need for new infrastructure, resources and policy frameworks needed to manage data assets within a FAIR approach. Significant opportunities, and challenges, exist in applying the FAIR principles to linked datasets where multiple and diverse custodians exist.