

# From the Health Science Alliance (HSA) Biobank to the Health Precincts Biobank: Lessons learnt and future directions

Carmel M Quinn<sup>1</sup>, A. Hettiaratchi<sup>1</sup>, M. Porwal<sup>1</sup>, S. Macmillan<sup>2</sup>, S. McCullough OAM<sup>3</sup>, LM Moir<sup>4</sup>, C Power<sup>4</sup>, D. Goldstein<sup>5</sup>, W. Liaw<sup>6</sup> & PJ. Crowe<sup>7</sup>

<sup>1</sup>Health Precincts Biobank, UNSW Biospecimen Services, Mark Wainwright Analytical Centre, UNSW Sydney, NSW 2052; <sup>2</sup>SPHERE Cancer CAG, UNSW Sydney; <sup>3</sup>SPHERE Cancer CAG Consumer Advisory Panel; <sup>4</sup>Biological Resources Imaging Laboratory, PVC Research Infrastructure, UNSW Sydney; <sup>5</sup>Nelune Comprehensive Cancer Centre, Prince of Wales Hospital, Randwick NSW; <sup>6</sup>Cancer Care Centre, St George Hospital; <sup>7</sup>Department of Surgery, Prince of Wales Hospital, NSW

## BACKGROUND

The Health Science Alliance (HSA) Biobank was established in 2012 as a collaborative initiative between the South-Eastern Sydney Local Health District (SESLHD), NSW Health Pathology (NSWHP, then known as South-Eastern Area Laboratory Service, SEALS) and the University of NSW (UNSW). At that time, compiling collections of human tissue to create biobanks was a global development, with cancer researchers amongst the most prolific users. After 10 years the biobank now has a new name and lessons have been learnt about operating sustainably into the future.

## AIM

To transition from a universal, 'classic' cancer biobank to a more sustainable model; expanding an established translational resource, the HSA Biobank, to help answer a wide range of health and disease research questions as the **Health Precincts Biobank** within UNSW Biospecimen Services.

## FOCUS ON SUSTAINABILITY

Biobanks are resource intensive operations and sustainability is a perennial challenge. Many biobanks globally have folded or become legacy collections, and while each situation is different, there are some factors in common. Some frequently cited challenges confronting the HSA Biobank as well as biobanking more broadly, are listed in Table 1. (Quinn et al, 2021).

Challenge	Proposed solutions
Utilisation of biospecimen collection	<ul style="list-style-type: none"> <li>Marketing: researchers must be made aware of what is available</li> <li>Targeting areas of high demand: focusing resources on specimens more likely to be accessed</li> </ul>
Biospecimen annotation	<ul style="list-style-type: none"> <li>Automated extraction from health systems: development can reduce required resources long term</li> </ul>
Operational sustainability	<ul style="list-style-type: none"> <li>Backing from a large organization (e.g., UNSW) is necessary for biobank operation while maintaining reasonable access costs for researchers</li> </ul>
Gaining/maintaining public trust	<ul style="list-style-type: none"> <li>Via certification / NATA accreditation</li> <li>Transparency of operations e.g., via website</li> </ul>

Table 1.

Traditional, established biobanks, including the HSA Biobank, collect biospecimens under pre-defined conditions. Over time, requests for prospective, bespoke tissue collection by biobanks, (where requirements are stipulated by researchers), has grown. There are advantages and disadvantages to both approaches: some examples are listed in Table 2.

	Established collection	Bespoke collection
Risk of specimens not being used in research?	✓	✗
Long-term follow-up data available?	✓	✗
Agility to meet the changing needs of researchers	✗	✓
HREC amendments required?	✗	✓

Table 2.

## METHODS

The HSA Biobank was supported for 10 years until June 2021 through Cancer Institute NSW funding, via the Translational Cancer Research Network (TCRN). Succession planning was begun 2 years prior to the funding end date to bring the activity under the Mark Wainwright Analytic Centre (MWAC) at UNSW (Fig 1).

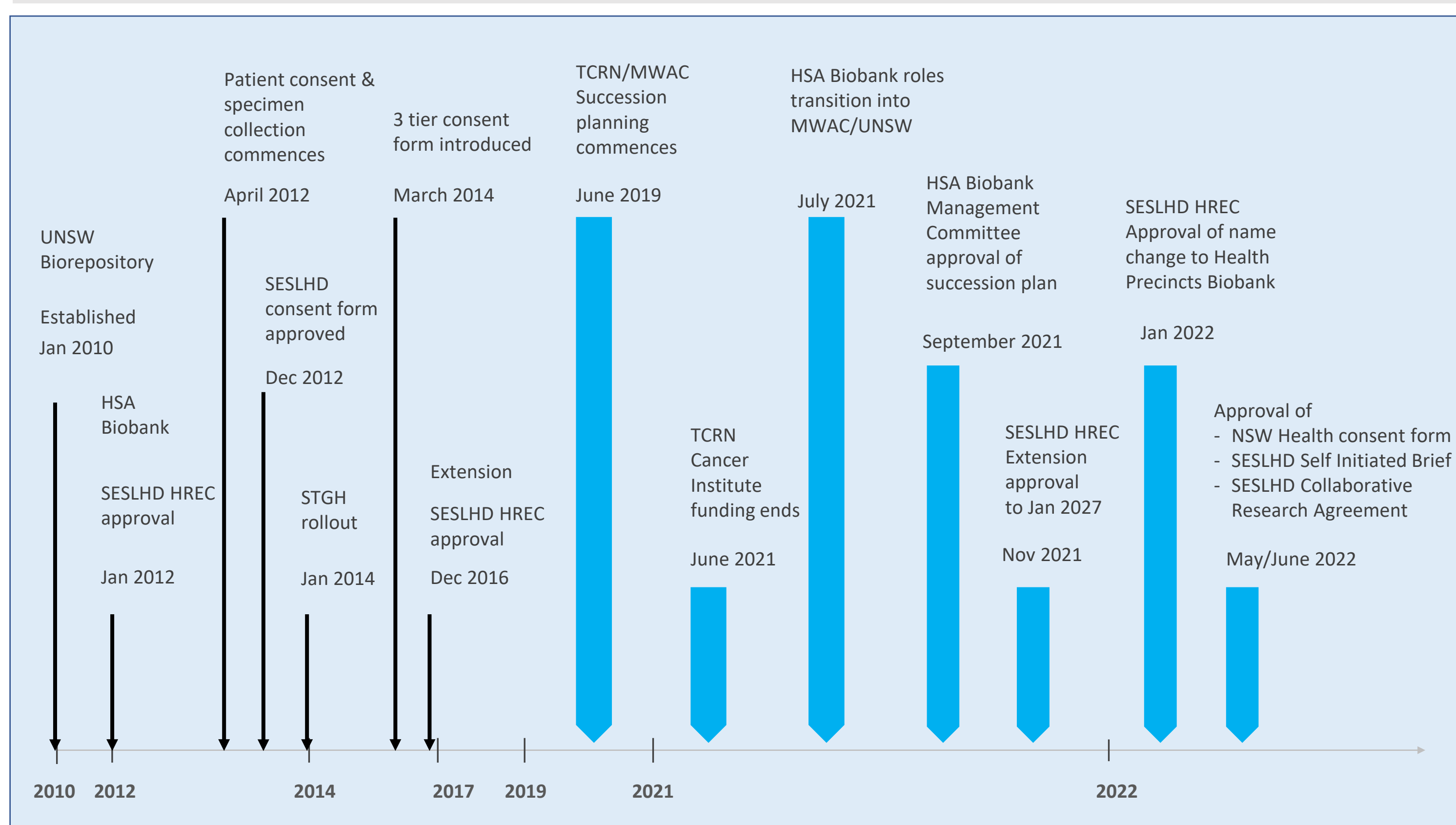


Fig 1. Timeline: HSA to Health Precincts Biobank

A wide-reaching review was undertaken, examining the anticipated biospecimen and data needs for UNSW-affiliated researchers. Researchers were engaged through initial surveys, followed with F2F meetings, so priority areas could be identified. A **Biorepository Strategy** was developed, highlighting the need to provide a coordinated approach to biobanking across UNSW and affiliates, and guidance for researchers seeking access to biospecimens, all leveraging upon the existing HSA Biobank, and the UNSW Biorepository (where HSA Biobank specimens are housed and managed). Key recommendations are listed in Table 3).

## Biorepository Strategy: Key recommendations

- Broaden scope of HSA Biobank beyond cancer
- Provide & maintain a centralised biospecimen management database
- Employ automated data linkage & secure process for delivering deidentified clinical & imaging data
- Provide HREC guidance & templates
- Formalise agreements with health partners
- Promote universal consent as standard practice

Table 3.

## RESULTS

By assessing the anticipated future research needs in the local UNSW environment and considering the changing nature of researchers' biospecimen and data needs more broadly, a dual biospecimen-access model has been established (Fig 2). The new name, **Health Precincts Biobank** reflects the Randwick Health and Innovation Precinct which incorporates both UNSW and SESLHD. Demand for annotated biospecimens from the HSA Biobank has remained high, particularly for Formalin Fixed Paraffin Embedded (FFPE) tissue, and plasma. HREC constraints prevent the biobank from directly facilitate bespoke requests, but resources are available within UNSW Biospecimen Services to assist with these requests.

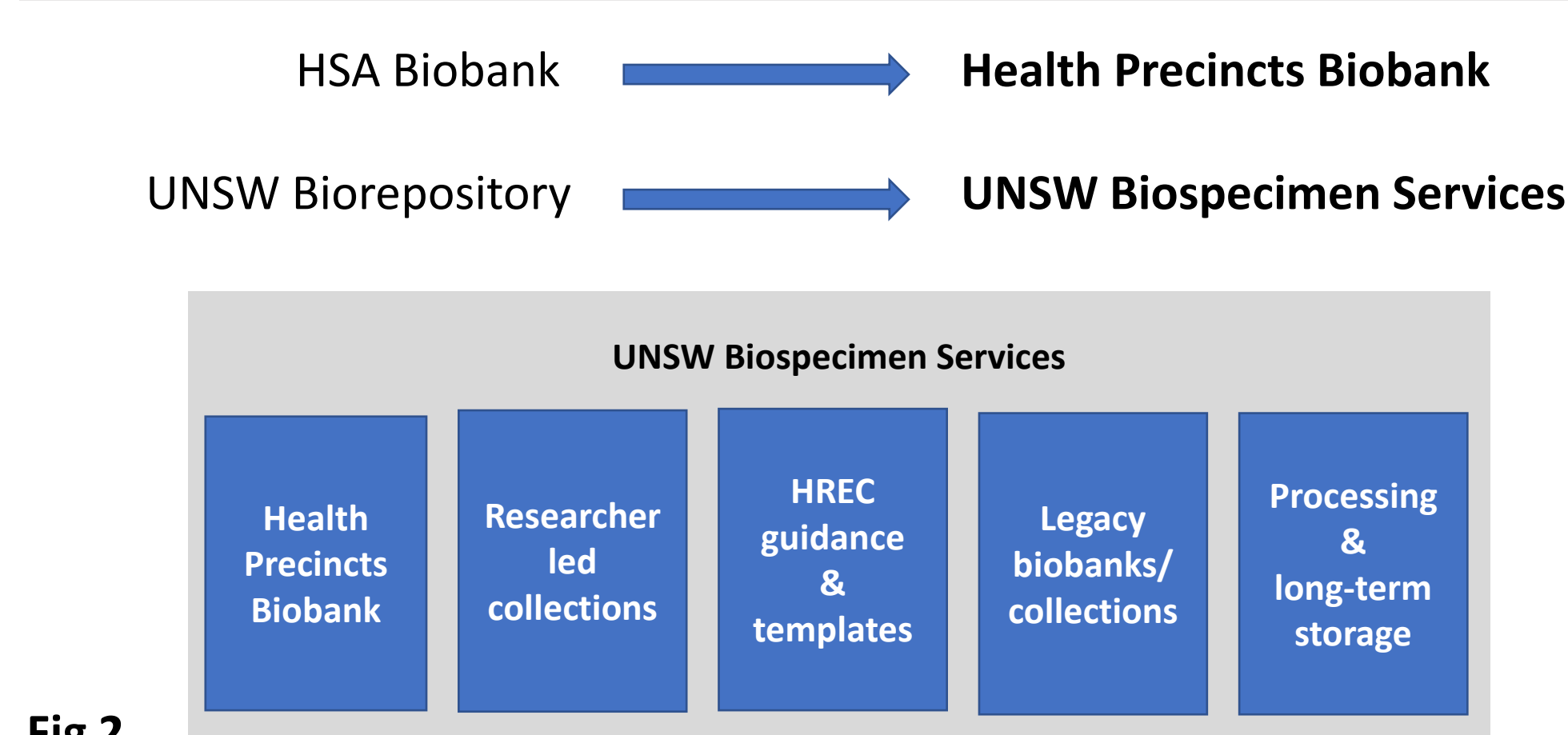


Fig 2.

A robust governance structure for the **Health Precincts Biobank** has been developed wherein operational governance and funding is managed through UNSW, ethics through SESLHD with governance around ethics as well as specimen access, managed through the biobank Advisory Committee and Research Access Committee (Fig 3).

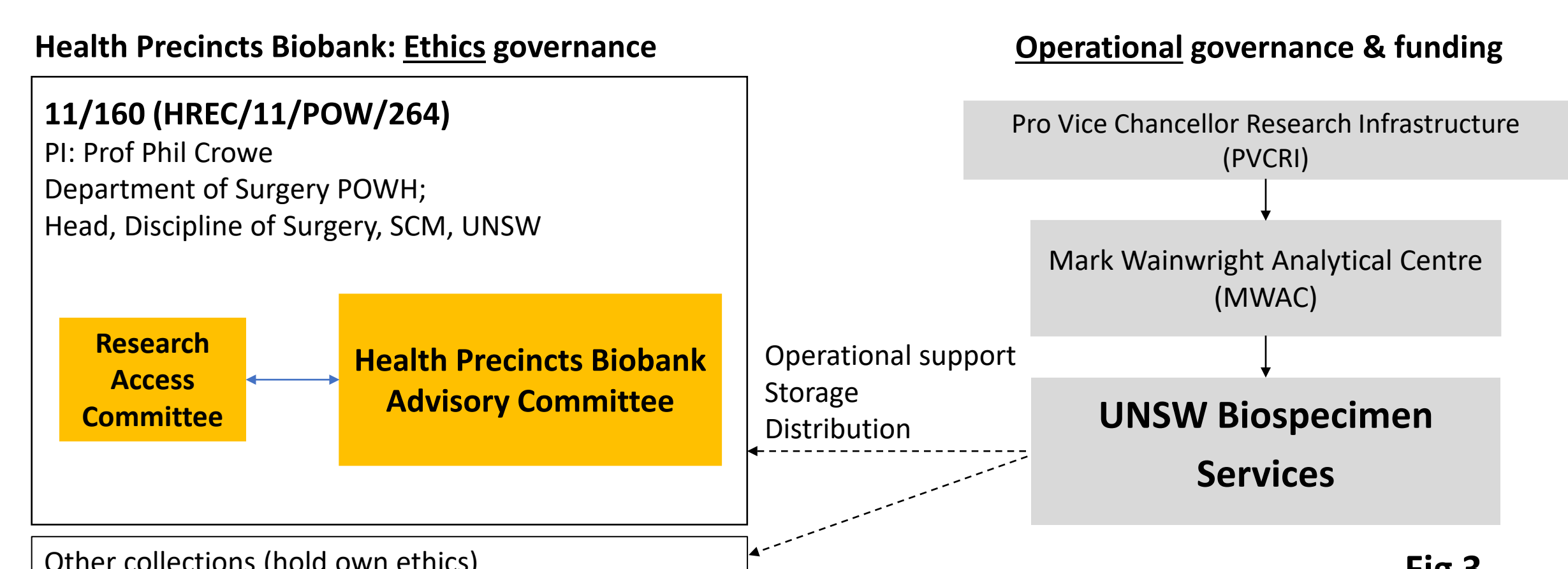


Fig 3.

## CONCLUSIONS

The **Health Precincts Biobank** as part of the broader UNSW Biospecimen Services is built upon the success of the HSA Biobank. Importantly, this provides more than just a continuing collection of biospecimens but leverages the wider infrastructure to allow for expansion beyond cancer. Assistance with investigator-led, biobank-independent bespoke collections is a strong area of demand that can be met through UNSW Biospecimen Services.