

**Operationalising
systems-thinking
approaches to evaluating
health system
innovations:
The example of
HealthPathways Sydney**

Australian Evaluation Conference
2019

18 September 2019

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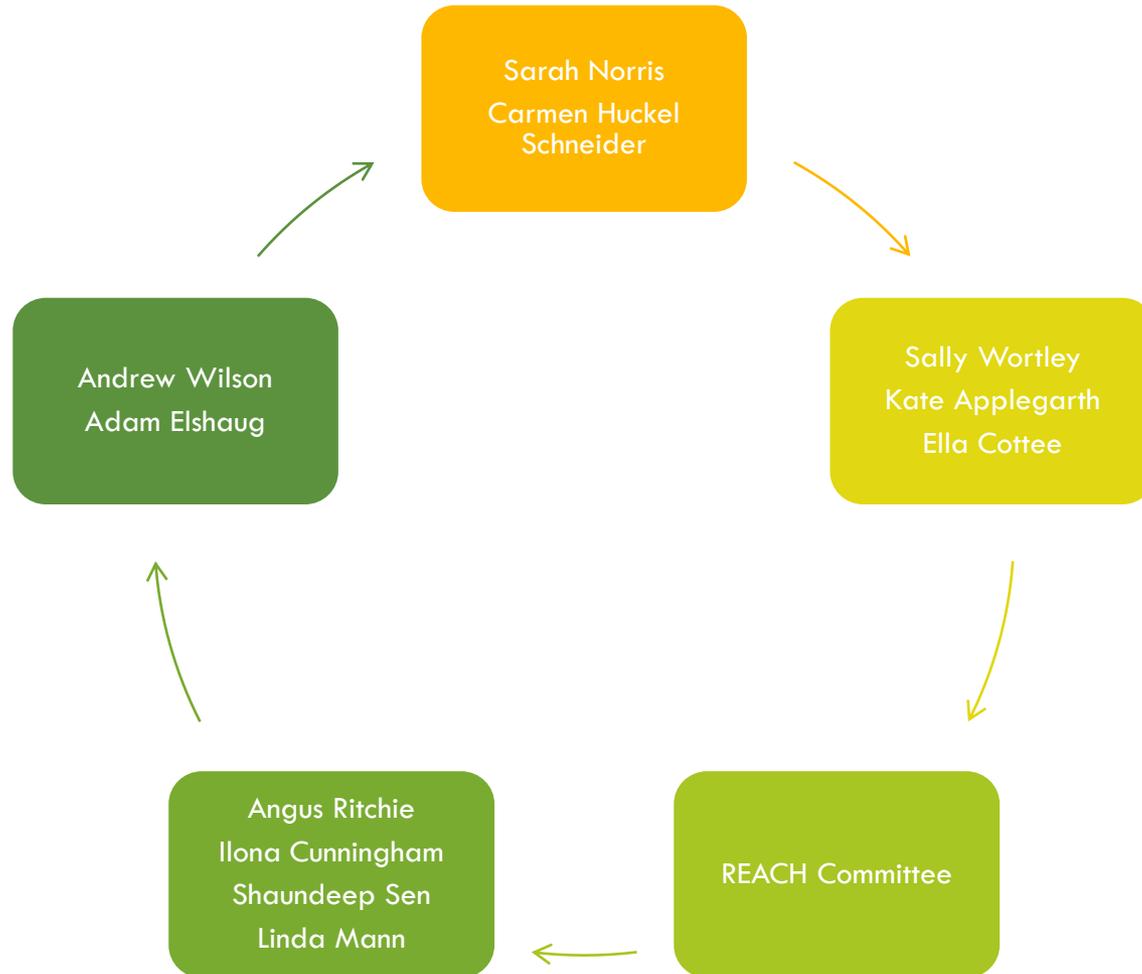
On behalf of the HealthPathways
Evaluation Team



THE UNIVERSITY OF
SYDNEY



HealthPathways Sydney Project Team

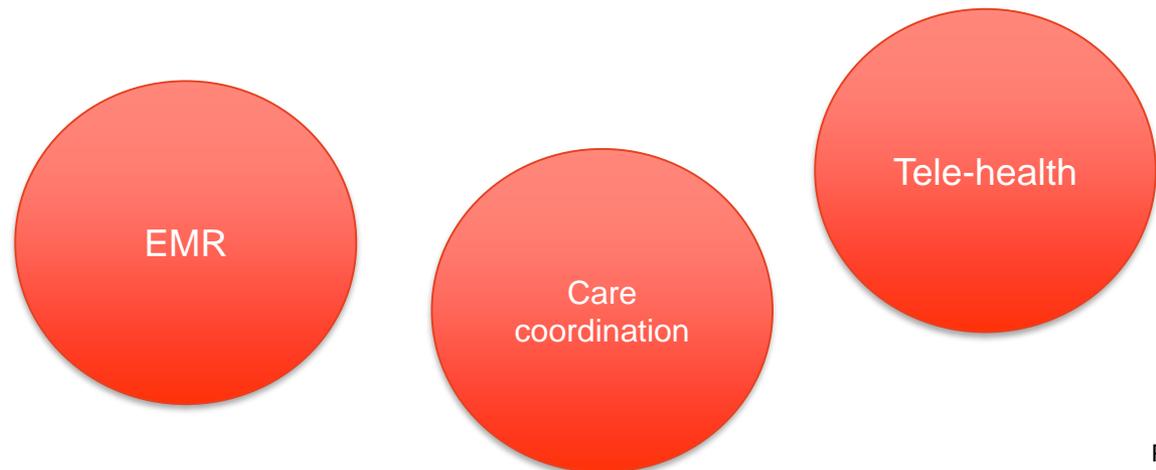


The challenge of change in complex settings

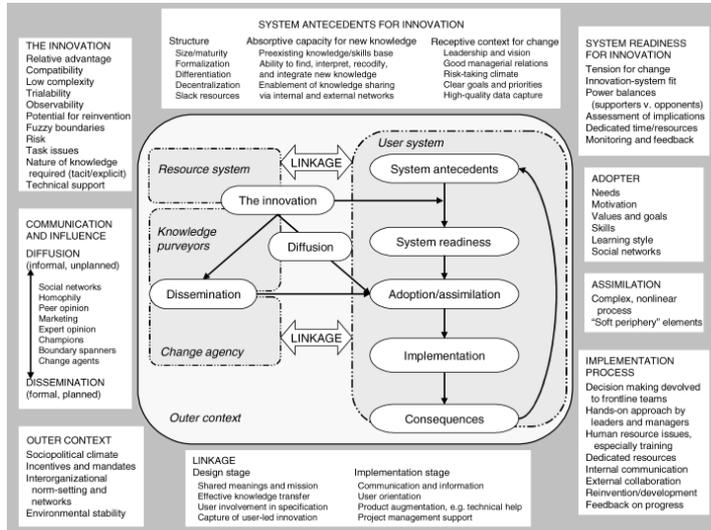
- Health systems are complex settings, and introducing new services, technologies and processes is challenging.
- Previous research has found that the more complex the setting the less likely it is that new health technologies will be sustainably adopted.
- To understand how and why innovation works “*we need studies that are interdisciplinary, nondeterministic, locally situated, and designed to examine the recursive relationship between human action and the wider organizational and system context*”.

The challenge of change in complex settings

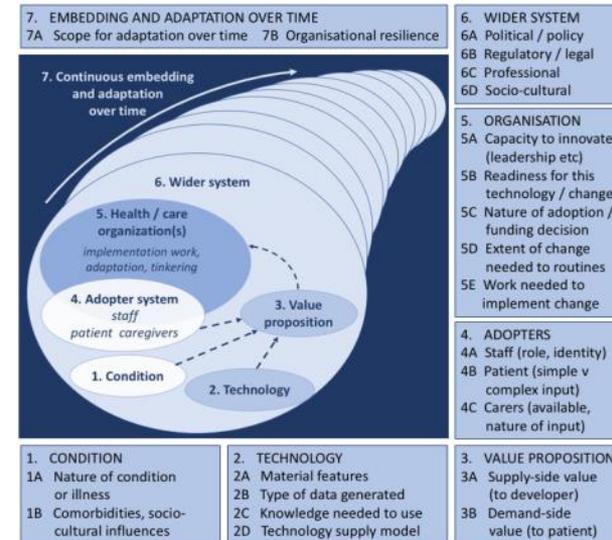
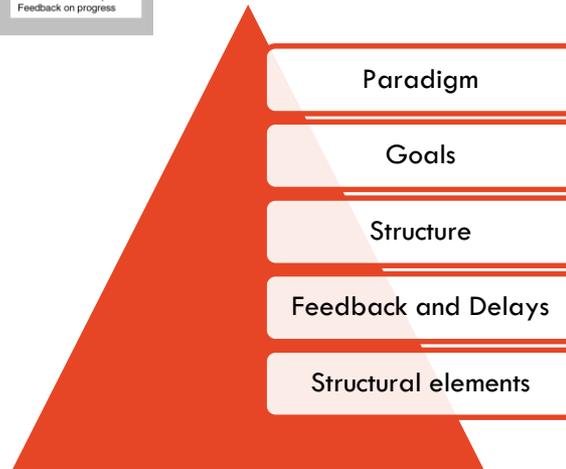
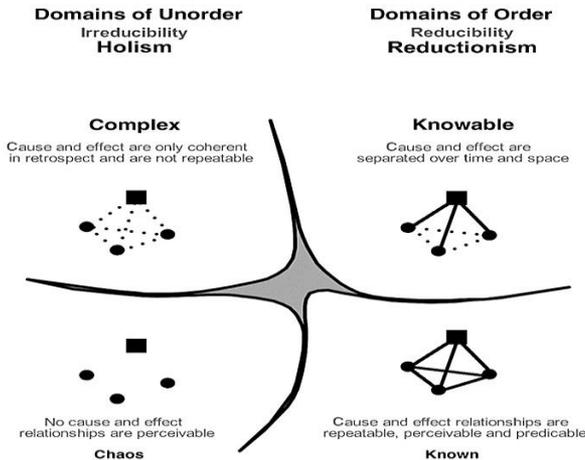
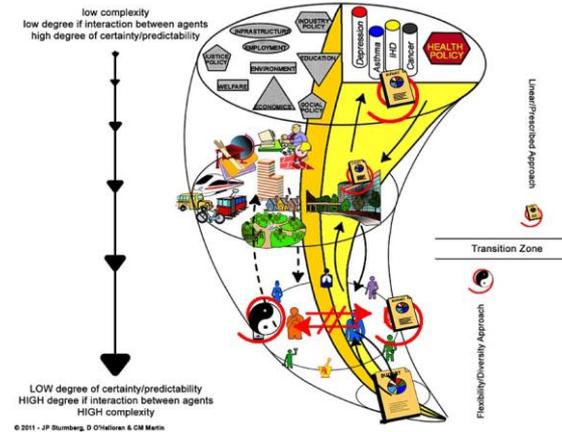
- Temporal link between cause and effect may be stretched over relatively long periods in patterns of change
- Effects might be emergent, hidden, unintentional, incremental
- Value of impact might be unclear
- Ever moving and evolving systems make for 'contaminated' environments. Cause and effect is hard to establish.



Frameworks have been developed to help us take a 'system-wide' approach



Policy analysis of the Australian Healthcare System



What does this mean for study design?

	What we need to know?	How do we study this?
Relationships matter	The relationships between different actors and elements of the system – and where the innovation fits.	Network analysis, system mapping
Space matters	The physical context, distance and patterns of local action and inaction.	Geo-spatial mapping
Ideas matter	Opinions, action, sub-conscious affiliations and expectations	Qual interviews, discourse analysis
Context matters	innovation embed in context, create new sets of expectations	CMO Realist Analysis, system mapping
History matters	What drives agents to act the way they do?	Process tracing, history of practice

What is HealthPathways?

- HealthPathways is a free, password-protected online portal for General Practitioners that is intended for use during consultations
- It provides information on how to assess and manage medical conditions, and how to request timely input from local specialist services
- The overall aim of HealthPathways is to improve patient outcomes by ensuring that the *right patient*, is referred to the *right place*, at the *right time*

HealthPathways Sydney

- HealthPathways Sydney is a collaboration between SLHD and CESP HN
- *Geographical area:* Inner West Sydney (RPA, Concord, Canterbury and Balmain hospitals)
- *Start date:* March 2014
- *Number of live pathways by end of evaluation:* 649
- *Pathways in development:* 82

What is HealthPathways?

- HealthPathways is an initiative of the Canterbury District Health Board in Christchurch, New Zealand, that started in 2008
- HealthPathways has since been introduced in nine regions in NZ, 23 regions in Australia (from 2012 onwards) and one in the UK (2016).
- HealthPathways Sydney is a defined innovation entering into a complex health system... with all the typical barriers for analysis...

Example of a pathway from HealthPathways Sydney

Antenatal - First Consult



Indicates specific advice about Aboriginal and Torres Strait Islander people.



Indicates information specific to people from culturally and linguistically diverse communities.

Red Flags



Ectopic pregnancy may present with pain or bleeding.

Quick Links

[SLHD Sustained Health Home Visiting Service](#)

Assessment



Practice Point!

It is not necessary to take [serum BHCG](#) when a woman has a known intrauterine pregnancy, especially after 9 weeks gestation. If a woman has vaginal bleeding, an ultrasound scan is recommended.

This consult may be completed over several visits if necessary and timely.

1. Confirm pregnancy if not already done.
2. Calculate pregnancy dates using last menstrual period.
3. Discuss the patient's plans for the pregnancy.
4. If considering:
 - termination, see the [NSW law in regard to abortion](#), and note that Sydney LHD does not offer termination of pregnancy unless for fetal anomaly. [Private clinics](#) provide termination services. See also [Termination of Pregnancy \(TOP\) pathway](#).
 - adoption, see NSW Government [adoption information](#).

Management

Record baseline blood pressure, weight, and calculate [+ BMI](#). If maternal obesity (BMI > 27 if Asian, > 30 otherwise), consider referral to the [free Get Healthy in Pregnancy program](#) or [private dietitian services](#).

1. Start folic acid if not already taking this:
 - 0.5 mg once daily for most women.
 - 5 mg once daily until 14 weeks if patient with diabetes, on anti-epileptic medication, or there is a personal or family history of spina bifida.
2. Start [+ iodine](#).
3. Consider an STI check. Recommend HVS PCR or first stream (not midstream) [+ urine PCR for chlamydia](#) for women aged < 29 years or with a new partner.
4. Offer a cervical Pap smear to every women receiving antenatal care who has not had cervical screening in the last 2 years.
 - This should be taken as part of antenatal care, ideally < 24 weeks.
 - Use a cytology spatula or Cervex brush, not a cytobrush or Cervex Combi.
5. Arrange [+ antenatal bloods and urine](#).

Request

- For acute admissions or emergencies, refer to [Emergency Department](#).
- Request [public](#) or private antenatal care. Ensure first hospital appointment is scheduled between 12 to 14 weeks gestation.
- If indicated, request [perinatal mental health review](#).
- If agreed, refer Aboriginal and Torres Strait Islander women or women pregnant with an Aboriginal and Torres Strait Islander baby to the [+ Aboriginal Liaison Midwife](#). Refer as soon as pregnancy diagnosed. 🇺🇸🇦🇺

Information



[+ Clinical Resources](#)



[+ Patient Information](#) 🇺🇸🇦🇺

Perinatal Mental Health Review



Indicates specific advice about Aboriginal and Torres Strait Islander people.

For crisis situations ring the Mental Health Access Line **1800 011 511** 24 hours.

Request

Royal Prince Alfred Hospital (RPAH) Perinatal Psychiatry Clinic

For patients with pre-existing mental illness or at risk of developing a perinatal mental health problem who are having their baby at RPAH.

1. Fax [RPA Women and Babies Psychosocial Referral Form](#) to **(02) 9515-7452**, marked Attention Perinatal Mental Health team,
2. Phone either Perinatal Mental Health on **(02) 9515-5873**, or [GP Liaison midwife](#) to confirm that referral has been received.

Royal Prince Alfred Hospital (RPAH) Perinatal and Family Support Clinic

For patients with substance use risk for this pregnancy and/or other psychosocial issues, and patients sharing care between RPAH and Aboriginal Medical Service, Redfern.

To refer phone **(02) 9515-7101**.

Canterbury Hospital Perinatal Mental Health Team

Service for patients who are planning to have their baby at Canterbury Hospital.

To refer, phone the Perinatal Mental Health Nurse Practitioner/CNC:

- Phone **(02) 9787-0000** and page **82062**, or
- To leave a message, phone **(02) 9787-0488**.

Mothersafe

Free [counselling services](#) based at Royal Hospital for Women, Randwick.

1. Advise patient to phone:
 - **(02) 9382-6539**, or
 - **1800 647 848** (non-metropolitan callers)
2. For face-to-face counselling, fax referral to **(02) 9382-6070** to help patient make appointment.

What does this mean for study design?

- Not only mixed methods, but mixed paradigms.
- Nested studies
- Openness to unexpected findings, barriers, effects.
- Ask system level questions at all points of study.
- Collate – interpret – theorise across studies.

- But still challenges remain
- Ultimately the study of innovation and its effects still involves collection of data and its interpretation
 - Documents – protocols, policy directives, minutes, guideline, pathways
 - Numbers – practice data, location data, # of referrals, website hits etc.
 - Survey and communications – interview transcripts, etc.

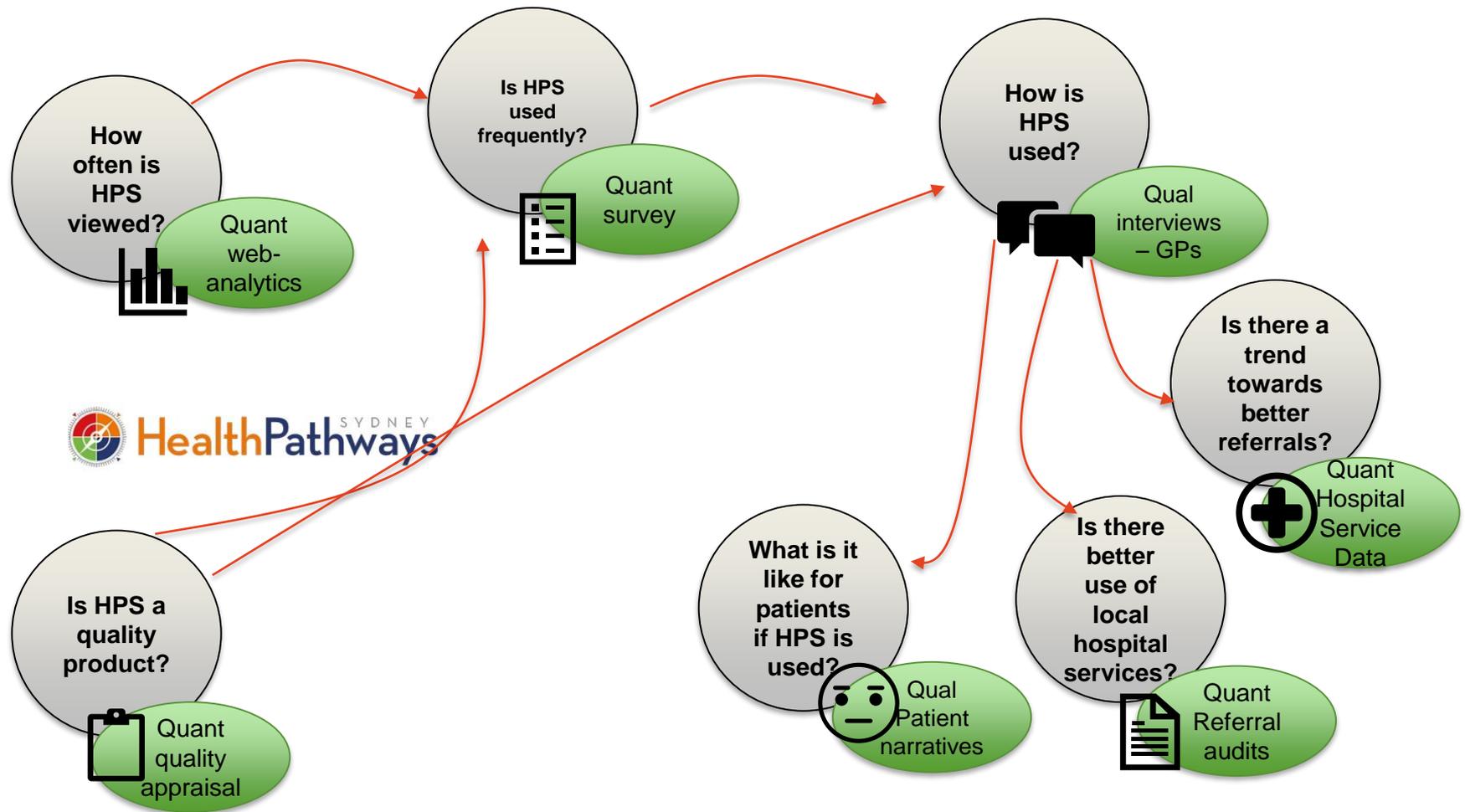
Initial approach

- To document reach, acceptability, quality and effectiveness
- Multiple, inter-related studies
- Range of indicators
- Mix of qualitative and quantitative methods
- Realist approach

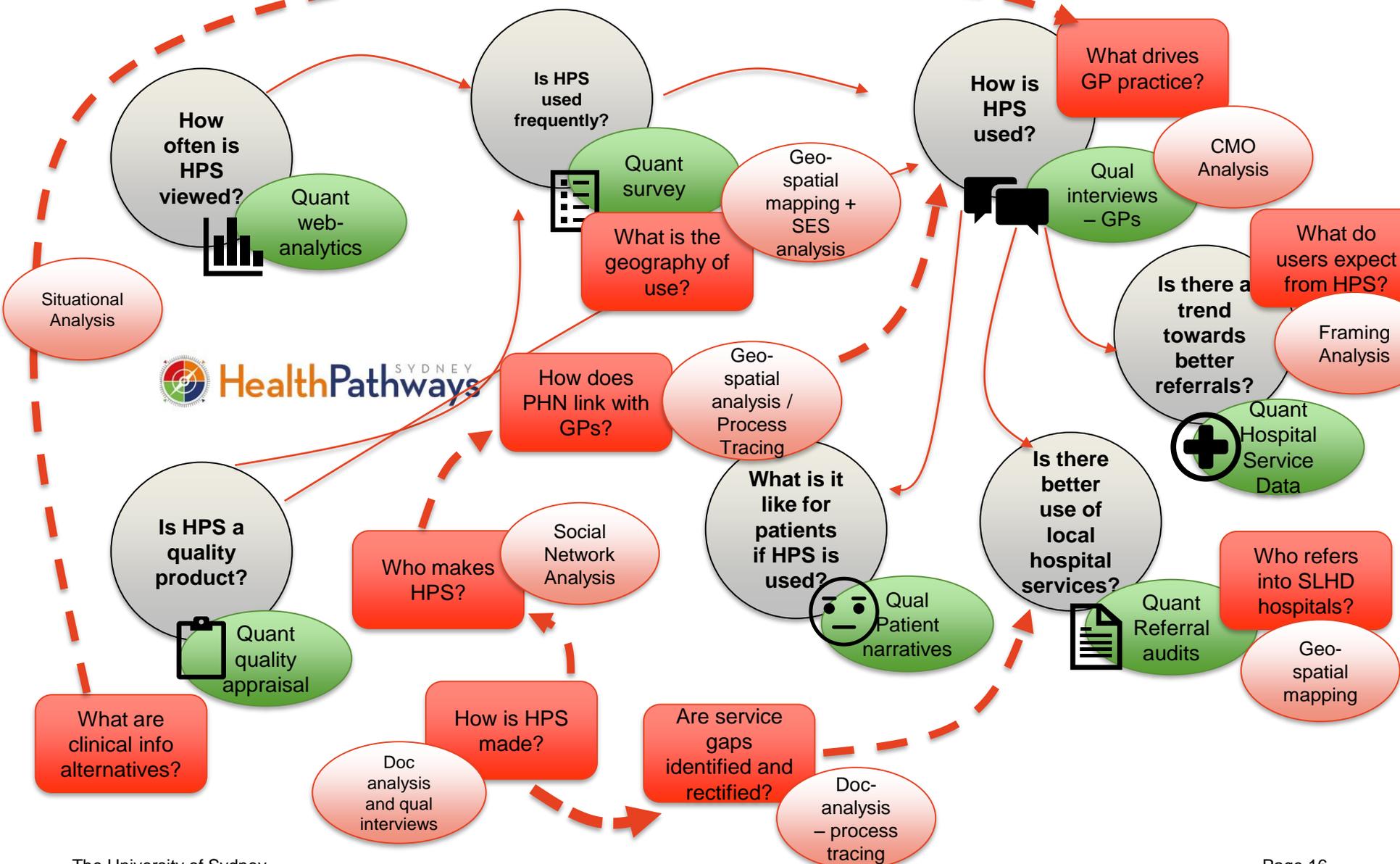
Final approach

- Evaluation undertaken in two phases – Phase One, as above
- Phase Two: considered sustainability and embeddedness
- Reframed the evaluation as an assessment of the introduction of a technology (HPS) in a complex setting (the local health system)
- Systems approach using NASSS Framework – **N**on-adoption, **A**bandonment, **S**cale-up, **S**pread & **S**ustainability

Nested studies, questions, data source, analysis



Nested studies, questions, data source, analysis



Phase One studies

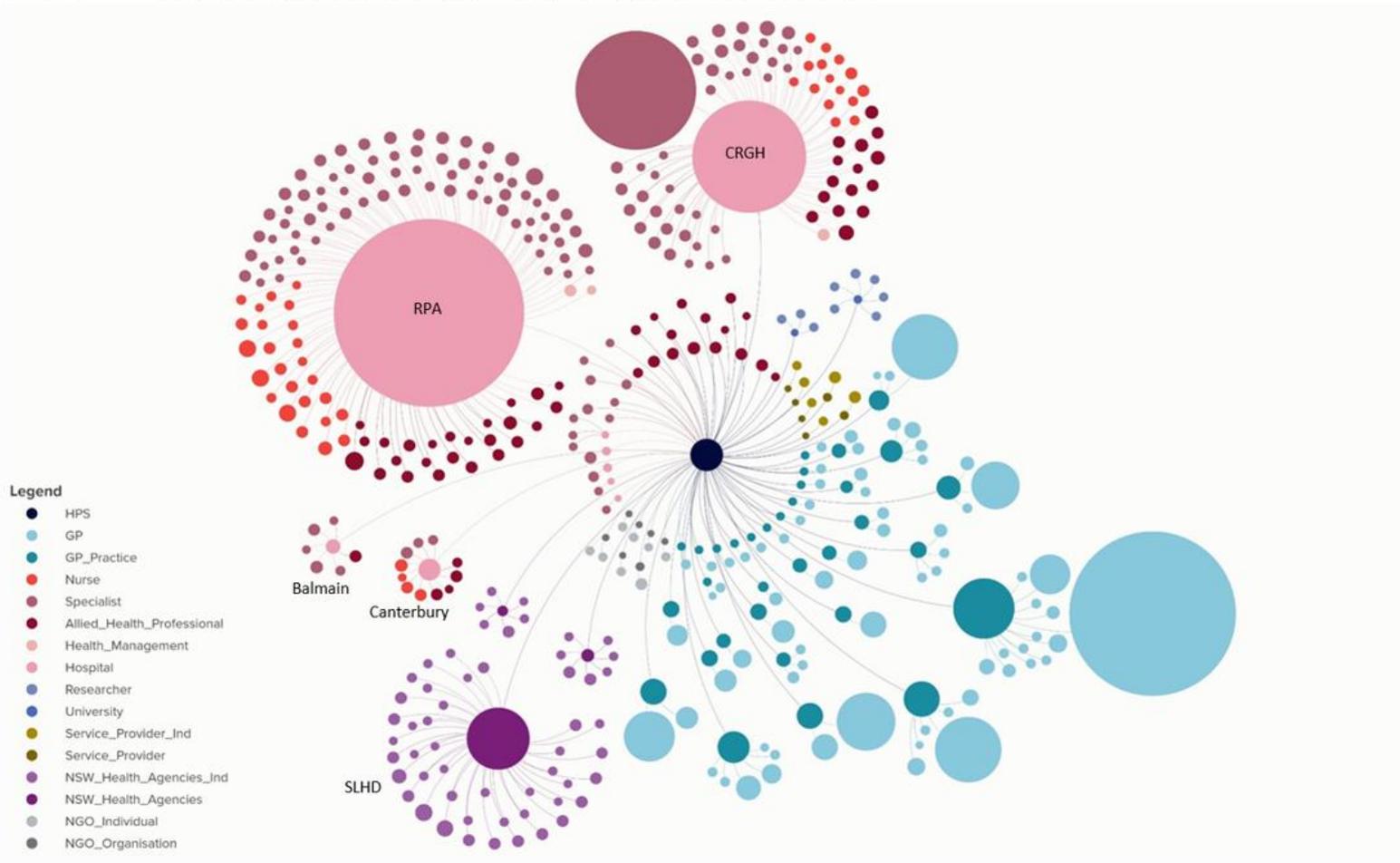
Study number and description	Reach	Acceptability	Quality	Effectiveness
0. Quantitative GP clinical activity study				✓
1. Quantitative study of the use of HPS with Google Analytics Data and established GP surveys	✓			
2. Qualitative study of interviews with GPs who do, and who not, use HPS		✓	✓	✓
3. Qualitative study of patient experience		✓		✓
4. Mixed methods study (time-series analysis + qualitative analysis) of referral quality and appropriateness to hospital Haematology		✓	✓	✓
5. Mixed methods study (time-series analysis + qualitative analysis) of referral quality and appropriateness to hospital Renal Medicine		✓	✓	✓
6. Quantitative study (time-series) of referral trends to SLHD clinics				✓

Phase Two studies

Study number and description	Embeddedness	Sustainability	System-level interactions
7. Social Network Analysis study of active participants in HPS processes	✓	✓	✓
8. Geospatial mapping study of HPS awareness within CESP HN	✓	✓	✓
9. Process tracing study of documents and the identification of service redesign opportunities		✓	✓
10. Workgroup outcomes study (MD student study)	✓	✓	✓
11. Quality of HPS content in context study		✓	✓
12. Framing analysis		✓	✓
13. Situational Analysis of the internal and external environment, relationships, and capabilities, and future horizons.	✓	✓	✓

Analysis examples - SNA

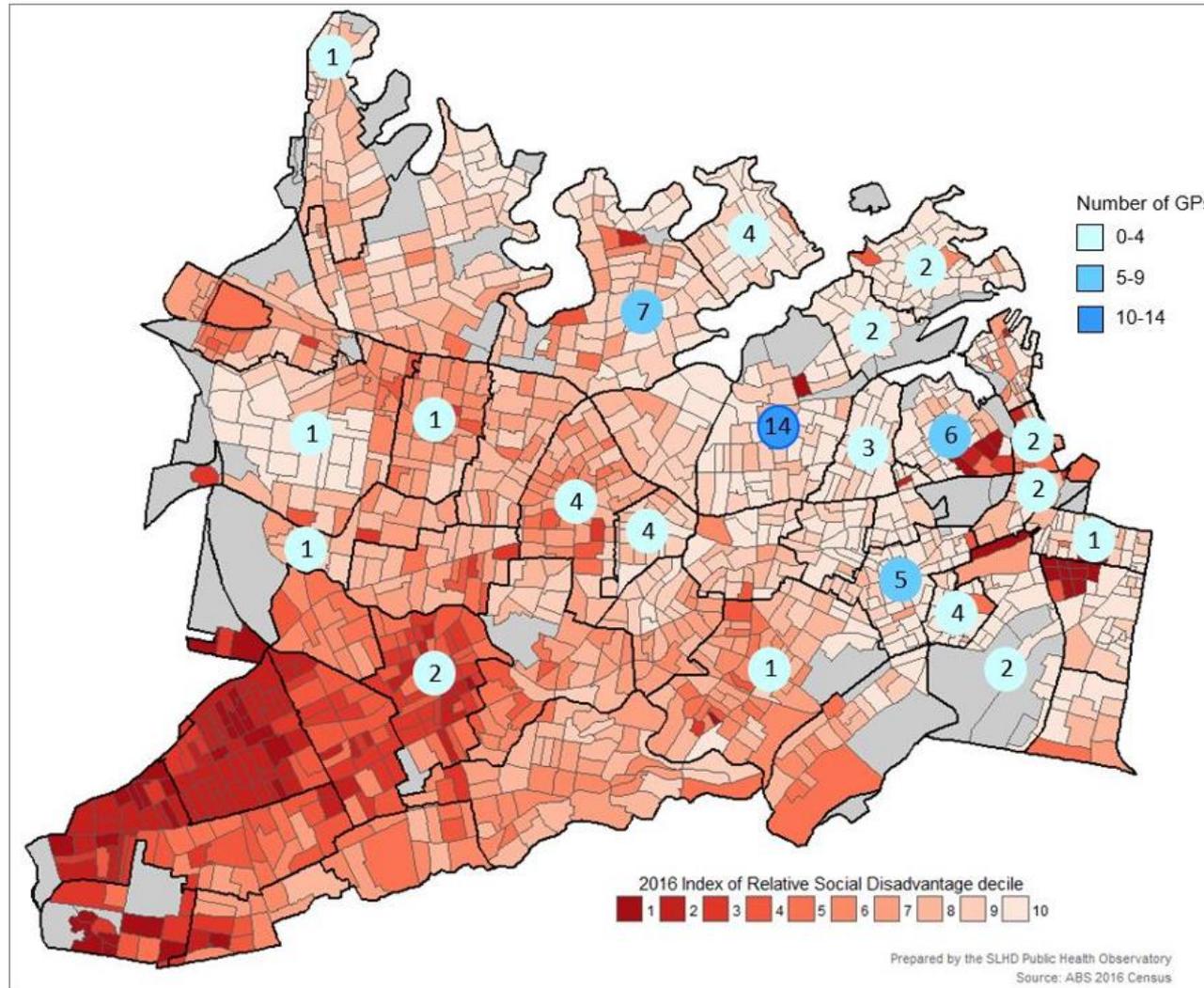
Figure 8 The social network that has been established around the HPS program



Abbreviations: CRGH, Concord Repatriation General Hospital; GP, General Practitioner; HPS, Health Pathways Sydney; Ind, individual; NGO, non-government organisation; NSW, New South Wales; RPA, Royal Prince Alfred Hospital; SLHD, Sydney Local Health District.

Analysis examples – Geo-spatial

Figure 9 Number of GPs who have been workgroup or CRG participants by index of social disadvantage



Analysis examples – Framing

Frame	Value Proposition
<i>The one-stop-shop frame</i>	make general practice simpler, saving time and energy for GPs.
<i>The practice quality standards frame</i>	driving consistency in care across primary and specialist services
<i>The reducing-waste frame</i>	reduce health system overuse, patients to be referred to the correct specialty at the correct time
<i>The system-improvement frame</i>	health services gaps are identified, and processes redesigned accordingly.
<i>The improved patient experience frame</i>	prevent patients ‘falling through the cracks’, becoming frustrated or confused, or having to spend unnecessary time navigating their healthcare
<i>The Modern GP Practice frame</i>	Healthpathways represents the future of IT based medical practice

Collate, interpret, theorise across studies

Bringing together as a rich case study

- Closeness to the source of the innovation influences uptake.
- A geographically bound innovation has limited effect in a system that has blurred geographical boundaries.
- The innovation should be defined by its development processes as well as the end product.
- The development process has value in that it uncovers system-design problems – but is only sustainable if it incorporates feedback and learning.
- A public system innovation must take into account patterns of public-private referrals.
- Content matters for usefulness.