Designing evidence-informed and cost-effective Primary Health Services

Panelists: Jade Hart, Jonathan Karnon, Kenneth Lo

Q&A Moderator: Joanna Holt

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Webinar Outline

- Issues around the use of research evidence by PHNs
- Challenges of assessing the cost effectiveness of primary health services
- An evidence-informed, co-creation framework
- Summary
- Questions and answers (Q&A)

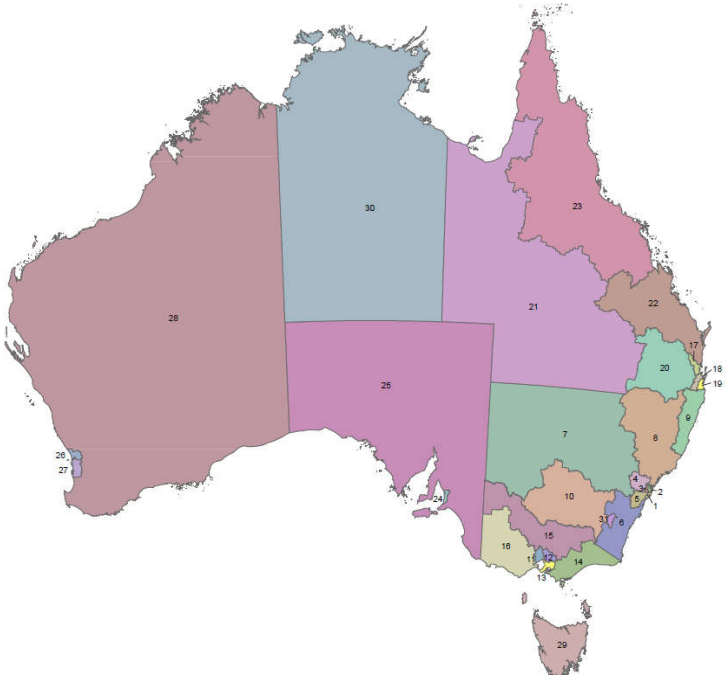
Primary Health Networks: Context and approach

Jade Hart

Victorian PHN Alliance

Melbourne School of Population and Global Health, The University of Melbourne

Primary Health Networks - Applying a regional approach for national reach



PHNs have been established to enhance the **efficiency** and **effectiveness** of medical services for patients, particularly those at **risk** of poor **health outcomes**, and improve **coordination** of care to ensure patients receive the right care in the right place at the right time.

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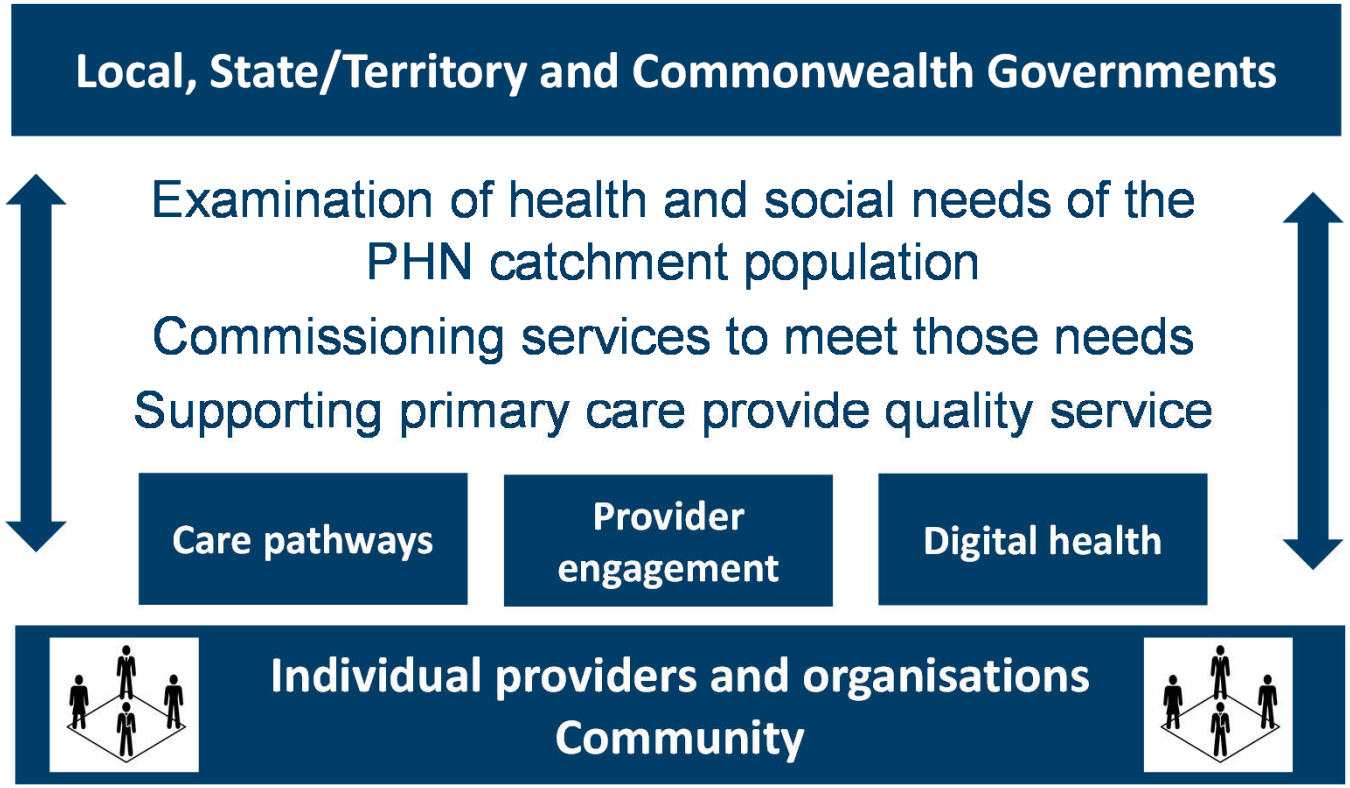
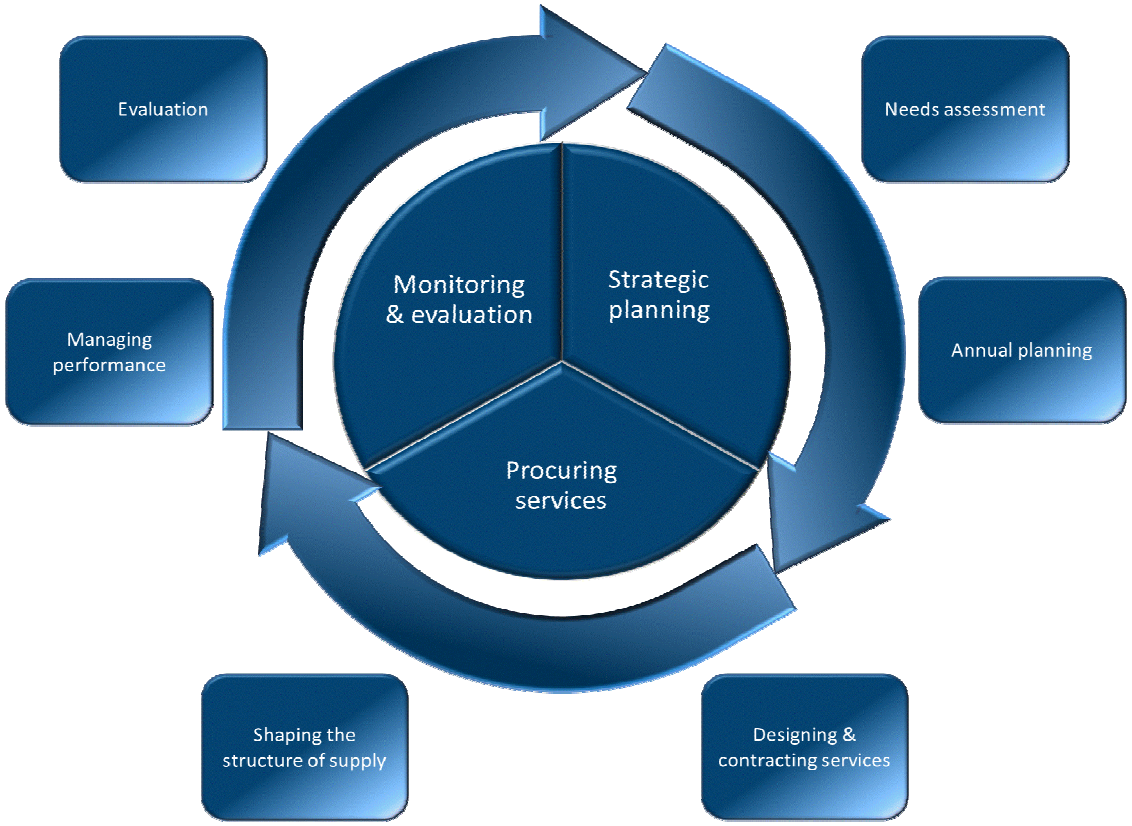
How Primary Health Networks work



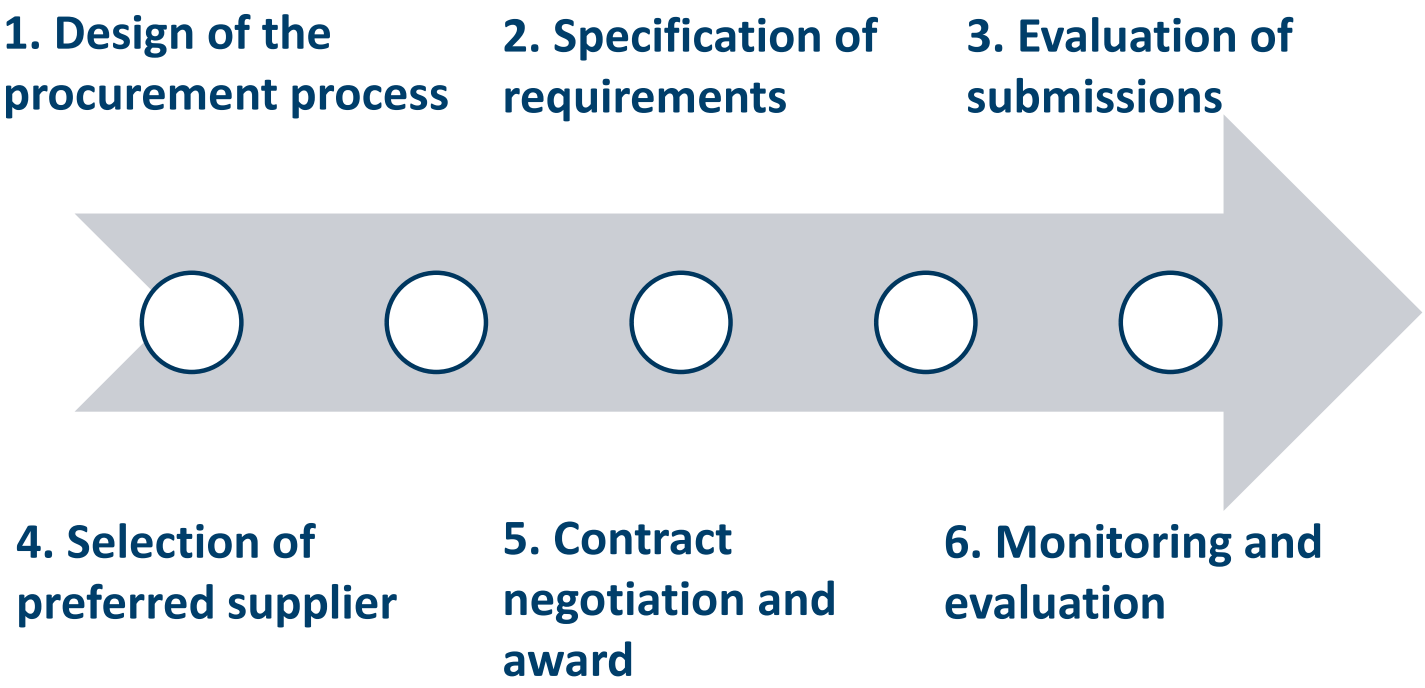
Commissioning for performance and quality

PHN Program Performance and Quality Framework



Department of Health 2018

Procurement approaches in a PHN commissioning context



PHN procurement vignettes

Alcohol and other drugs

Procurement of culturally respectful early intervention and treatment programs to young people through the Multicultural Youth Centre Muslim Youth and Families program

Suicide prevention

Procurement of a mix of individual and population based strategies that deliver an integrated approach to preventing suicide in men in small rural communities

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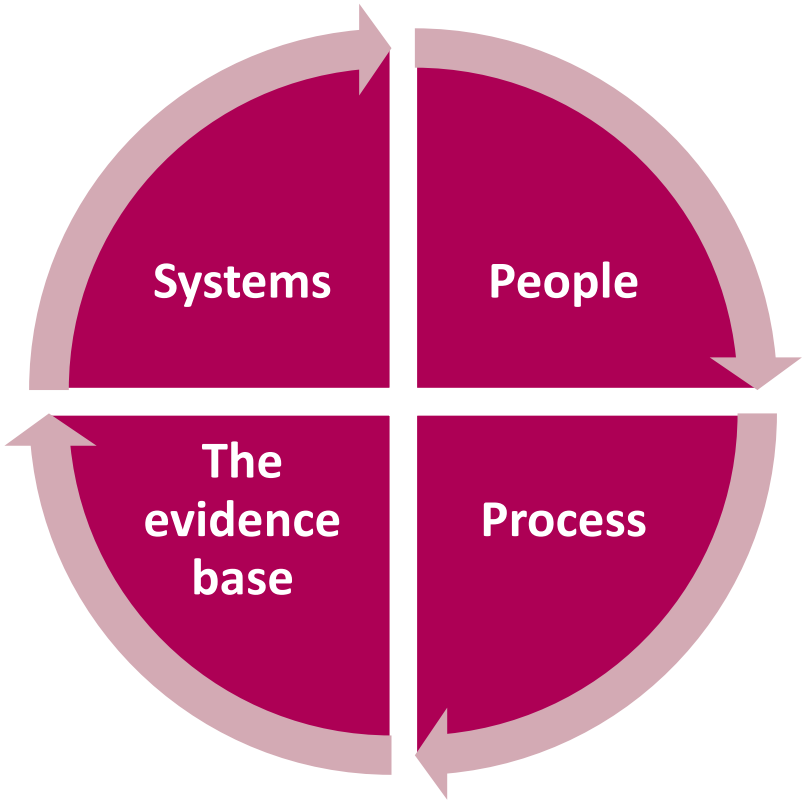
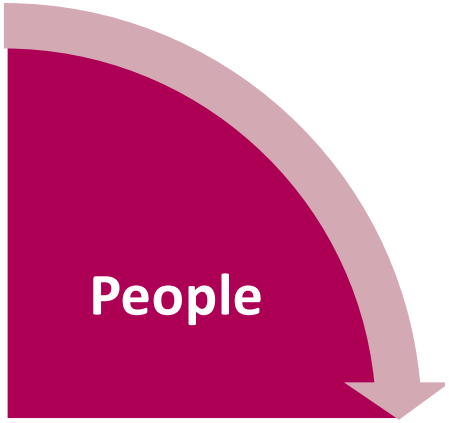
Research evidence-informed procurement



Research evidence-informed procurement

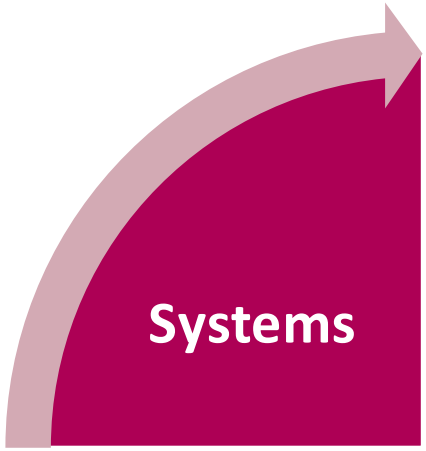


- Capacity linked to that of PHN staff, research partners, and service providers/market
- Individual commissioning competencies linked to organisational competencies – core, plan, engage, procure, manage, lead
- Development strategies and collaboration

Research evidence-informed procurement

- Processes established with a review to continual refinement through feedback and monitoring
- Product of maturing service system oriented approach
- Acknowledgement of corporate governance obligations and guidance

Research evidence-informed procurement



- Intra- and inter-systems responses involving:
  - Primary Health Networks
  - Service providers, professional bodies, peaks
  - Academic and specialist advisory services
- Efforts enabled by:
  - Partnerships
  - Time horizons
  - Secure resourcing

Research evidence-informed procurement

- The focus on research evidence alongside all other forms of evidence (qualitative evidence, quantitative data, grey literature)
- Criteria for which research evidence must be assessed – quality and availability
- Opportunity for a strategic approach to primary care research development

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Research evidence-informed procurement: Key points

1. Consensus support for a framework to facilitate optimisation of research evidence in PHN procurement.
2. Recognition that legitimacy, accountability and transparency for commissioning has implications for approach. The positivist view will have its limits.
3. The move toward outcomes based commissioning rather than procurement as being merely process focused places focus on how to achieve outcomes within a biopsychosocial view of health.
4. Shared goal among all primary care commissioners in advancing reform within local communities.

Challenges of assessing the cost effectiveness of primary health services

Jonathan Karnon

The University of Adelaide

Economic evaluation

- Compares the costs and outcomes of alternative courses of action

- New drug vs. Current drug
- Do the additional benefits justify any additional costs?

- Alternative design options for a Drug and Alcohol program
- Which design option generates the most benefits, given the funds available or allocated to address drug and alcohol issues?

(relatively) simple economic evaluation

- Simple interventions: new drugs
- Simple evidence: randomised controlled trials
- Accepted methods for estimating costs and outcomes
  - Cost per Quality Adjusted Life year (QALY) gained
- Example decision: should we pay $40,000 to gain an additional QALY?

PHNs commission complex interventions

- Multiple and interacting components
  - e.g. increasing access, integration and quality
- Multiple stakeholders or organisations targeted by the intervention
  - e.g. GPs, specialists, and welfare, employment and family services
- Behaviours required by those delivering or receiving the intervention
  - e.g. use of stepped care models
- Flexibility or tailoring of the intervention is permitted
  - e.g. to individual need and stage of change

Medical Research Council (MRC) Framework on complex interventions

PHNs use complicated evidence

- The research evidence reports on the effects of:
  - Heterogeneous interventions
  - In different locations
  - Using multiple study designs with varying quality
    - qualitative and quantitative

- Relevant non-research evidence includes:
  - Local target population characteristics and outcomes
  - Current services
  - Capacity to provide new services
  - Stakeholder preferences

PHN program stages

- Pre-implementation
  - Program design
  - Reliant on published research evidence
  - Feasibility of estimating expected outcomes of alternative program designs?
    - Aim to compare costs and assess relative importance of potential program features?

- Post-implementation
  - Program review
  - Local and published research evidence
  - Potential to estimate costs and outcomes

Questions

- Research evidence
  - Which research evidence to include?
  - How to synthesise research evidence?
    - Quantitative and qualitative research evidence
    - Including local evaluation data

- How to combine research and non-research evidence?
  - What local data to collect?
  - How to estimate costs and represent benefits in the local context?
  - How to engage stakeholders?

Our aim

- To work with PHNs to investigate and support the estimation of the costs and benefits of alternative program designs

- To illustrate a potential framework, we have analysed published research evidence on approaches to reducing hospital transfers from aged care facilities

- Kenneth…

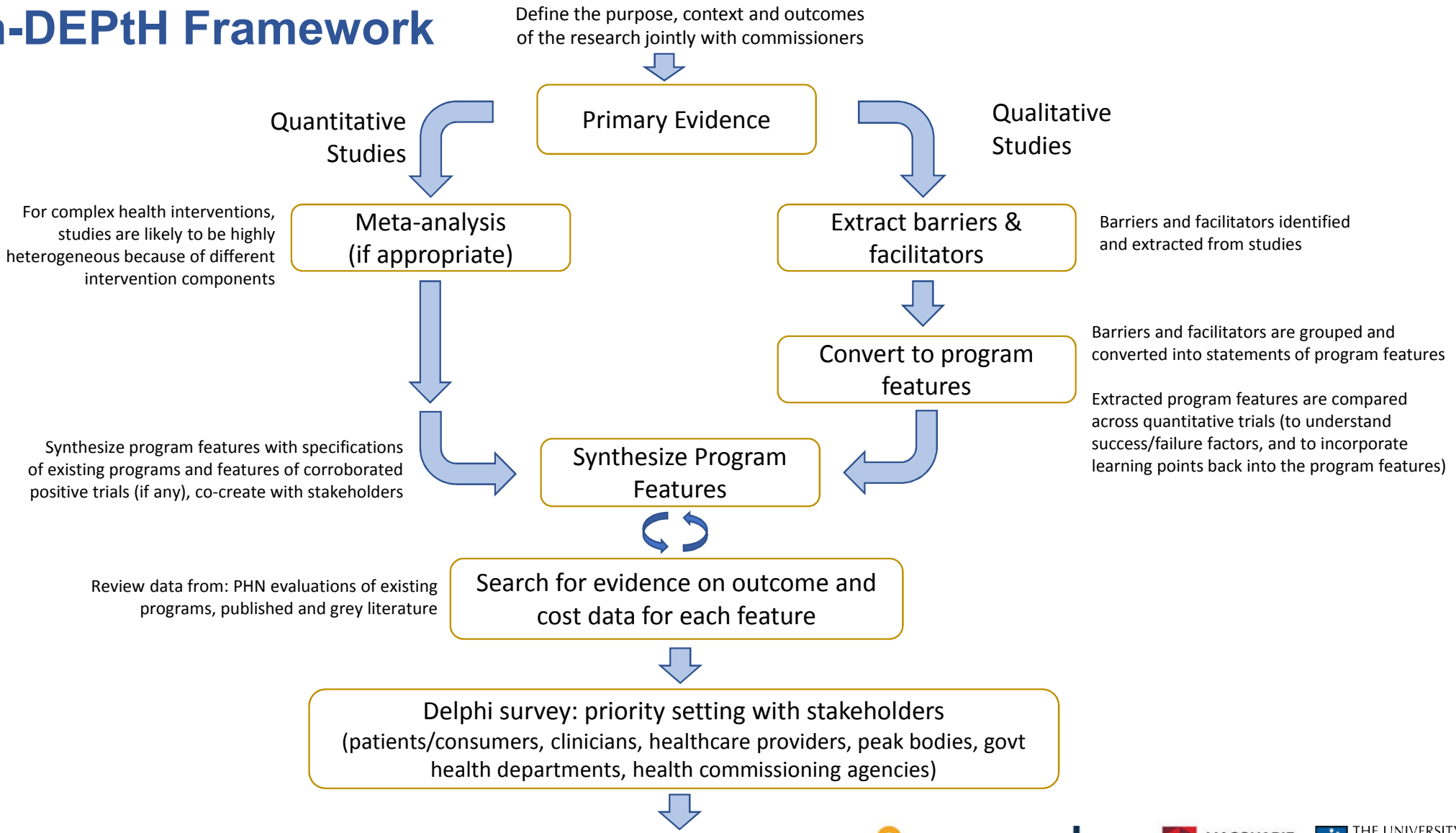
in-DEPtH Framework

Evidence-informed, co-creation framework for the Design, Evaluation and Procurement of Health Services

Kenneth Lo

The University of Adelaide/Macquarie University

in-DEPtH Framework



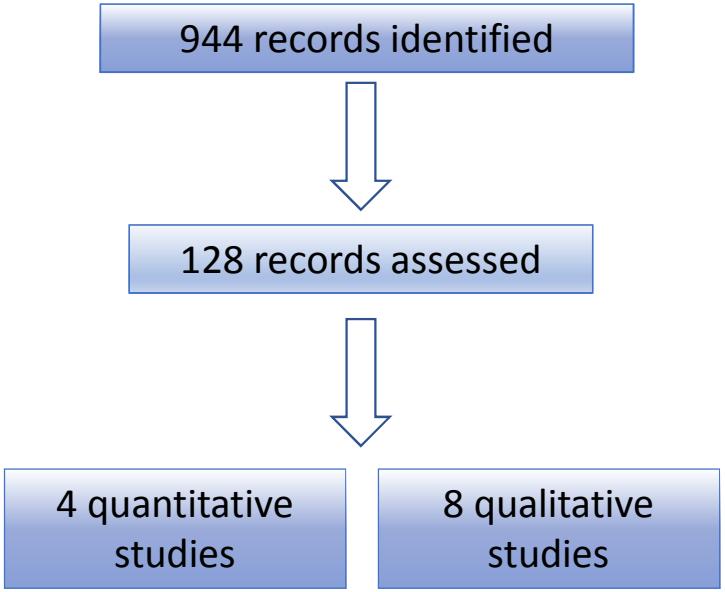
Context of case study

- Aged care is listed as one of the key priorities for PHNs (Primary Health Networks)
- Using residential aged care as a case study example, we prototyped the framework
- Question: How to improve care and reduce hospital transfers from residential aged care facilities?

Search for evidence

Inclusion Criteria

- Aged care residents
- Located in aged care facilities of Australia and New Zealand
- Evaluation of aged care interventions
- Inclusion of a comparison group
- Outcomes measure: ED presentations or hospitalisations



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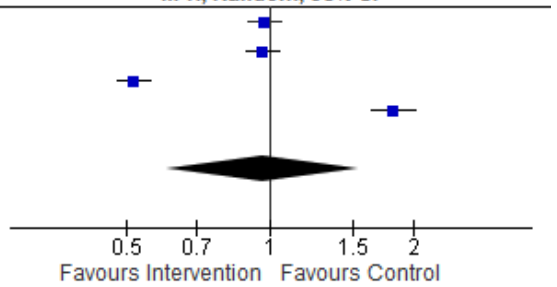
Meta-analysis* conducted for the four quantitative studies: Inconclusive finding

Study or Subgroup	Intervention Events	Intervention Total	Control Events	Control Total	Weight	Risk Ratio M-H, Random, 95% CI
Boyd 2014	710	1425	578	1128	25.0%	0.97 [0.90, 1.05]
Connolly 2015	608	1131	491	880	25.0%	0.96 [0.89, 1.04]
Fan 2016	715	2485	730	1313	25.0%	0.52 [0.48, 0.56]
Hullick 2016	312	453	317	836	24.9%	1.82 [1.63, 2.02]
Total (95% CI)		**5494**		**4157**	**100.0%**	**0.97 [0.61, 1.54]**
Total events	2345		2116			

Heterogeneity: $Tau^2 = 0.22$; $Chi^2 = 366.23$, df = 3 ($P < 0.00001$); $I^2 = 99\%$

Test for overall effect: $Z = 0.14$ ($P = 0.89$)



Limitations

- High heterogeneity as each trial had a different mix of program features
- Studies had different designs: pre/post; cluster randomised

*Meta-analysis: a quantitative analysis method, whereby a pooled treatment effect size is calculated from individual trials

Qualitative studies: extract program features

Stokoe 2016	Conway 2015	Crilly 2012	Arendts 2010	Codde 2010	Shanley 2011	Arendts 2010 (systematic review)	Arendts 2013 (systematic review)	Identified Program Features
Records of advanced care directives of residents	Have advanced care directives at RACFs in place. Need to clarify with residents, families and staff that advanced care directives are useful tools in exercising, rather than removing, the resident's choices about care.		Support for Advanced Care Directives; training for RACF staff to deal with dying patients and education of families about the end of life		> Need ACDs to facilitate communication between family and staff to incoporate patients' wishes into treatment plan during emergencies > Have explicit notes in the medical records about care decisions; and a commitment to stay the course of care.	Use of advanced care directives and end-of-life palliative care within RACF	Nurses need knowledge of wishes of residents and their families	> Need ACDs to facilitate communication between family and RACF staff to incoporate patients' wishes into treatment plan during emergencies > Have explicit notes in the medical records about care decisions; and a commitment to stay the course of care.

Compare extracted program features to quantitative studies (to understand success/failure factors)

Identified Program Features	Hullick 2016	Fan 2016	Connolly 2015	Boyd 2014
> Has readily available clinical expertise and advice for management of illnesses within the facility, such as telephone support line, adding external clinical resources to RACFs. > Suggestions identified: - telephone support line to organise alternatives to hospital transfer such as a medical or nursing consultation in the nursing home or an urgent outpatient appointment the next day	> Telephone advice to RACF staff; working with them to define the purpose of transfer and the goals of care	> HiNH allocates clinical staff to manage aged care residents with actual or potential acute symptoms in the RACF > HINH program manager assesses whether HINH or hospital admission was most appropriate. > Daily review of HINH patients > Developing individualized treatment plan for the patient in collaboration with patient's GP and RACF nursing staff	> Resident review by GNS (Gerontology nurse specialist). GNS's time commitment was 20% across all intervention facilities (18 facilties) > Only 23% of residents were discussed in multidisciplinary team (MDT) meetings.	> Regular, proactive bimonthly GNS (gerontology nurse specialists) visits > Telephone consultation and site visits as needed

Compare extracted program features to quantitative studies (to understand success/failure factors)

Identified Program Features	Hullick 2016	Fan 2016	Connolly 2015	Boyd 2014
• Need ACDs to facilitate communication between family and RACF staff to incorporate patients' wishes into treatment plan during emergencies • Have explicit notes in the medical records about care decisions; and a commitment to stay the course of care.				
RACF staff needs to upskill and provide care such as ability to cannulate, administer intravenous antibiotics or opium, perform blood transfusion, tracheostomy management, peritoneal dialysis, administration of intravenous antibiotics, changing percutaneous endoscopic gastrostomy (PEG) tubes and suprapubic catheters, management of subcutaneous and intravenous fluids and management of dementia and delirium.	Educating of RACF staff about the service, clinical guidelines for managing common emergencies, communication training and recognition of the deteriorating patient.	> HRM provides support and education for RACF staff and general practitioners (GP's) to improve their ability to provide acute medical care for residents. > Acute care skills of ACP nurses developed (see can do all the dressings. We can even do the needs). > Type of additional care delivered might include attending to wound dressing and observing subcutaneous fluid delivery.	> Gerontology education and clinical coaching for RACF nurses & care-givers including advanced (end-of-life) care planning, nutrition/ hydration, early detection of illness, falls prevention, end-stage dementia care, communication with families and practical aspects of care.	> Standardized bimonthly education sessions at the facility (mean 5.5 sessions per facility in 12 months) > Gerontology clinical coaching at the bedside as needed (mean 2.3 sessions per facility in 12 months) > Clinical practice development of staff > Quarterly district-wide education sessions
> Timely and sufficient access to GPs, such that GPs are able to make unscheduled visits and when they do come, they allow for sufficient consultation time. > Suggestions identified: - reduce the number of GPs who come to RACF and nursing regular GP clinics at RACF for all residents - Downside processes: reduce the amount of paperwork involved for GPs and provide flexibility for GPs to treat residents when they become unwell				
Adequate staffing level t to handle unexpected events like transfer to ED; provide additional acute care at RACF so that care for other residents is not affected; assist to treatment plans by outreach team member to RACF.				
Has suitable medical equipment onsite to enable provision of acute care at RACFs		Support for ACP nurses in clusted providing equipment		
Has suitable medicine onsite to enable provision of acute care, including new medications after return from ED.		Support for ACP nurses in clusted providing clinical supplies		
Modify accreditation to allow policies of RACFs to provide acute care, esp for low-care RACFs				
> Has readily available clinical expertise and advice for management of illnesses within the facility, such as telephone support line, aiding external clinical resources to RACFs. > Suggestions identified: - telephone support line to organise alternatives to hospital transfer such as a medical or nursing consultation in the nursing home or an urgent outpatient appointment the next day	> Telephone advice to RACF staff, working with them to define the purpose of transfer and the goals of care	> HRM allocates clinical staff to manage aged care residents with actual or potential acute symptoms in the RACF > HRM program manager assesses whether HRM or hospital admission was most appropriate. > Daily review of HRM patients > Developing individualized treatment plan for the patient in collaboration with patient's GP and RACF nursing staff	> Resident review by GNS (Gerontology nurse specialist). GNE's time commitment was 20% across all intervention facilities (10 facilities) > Only 29% of residents were discussed in MDT meetings.	> Regular, proactive bimonthly GNS (gerontology nurse specialists) visits > Telephone consultation and site-visits as needed > Wound care consultant
Has standardised procedures for transfer to ED, with proper handover of patient information (eg current conditions, medical history, allergies) between ED and RACF (and also with ambulance crew)	> Facilitating ED transfers and informed triage of residents at the ED > Case management by an advanced practice nurse at ED to reduce transfers, eg to change way medication is administered and this helped to shift it back to RACF. > Establishment of the purpose of the ED transfer based on the resident's goals of care by the RACF staff, with support from the ED Registered Nurse (RN). > No mention of ambulance personnel	> Developed referral form and referral process within hospital > HRM seeks senior medical decision-making at an early stage of presentation to ED, and has a key contact person (an ED nurse who has previous geriatric care experience as well) that facilitates open discussion and communication between families, RACF staff, GPs and hospital staff, in order to enable efficient movement of patients within the institutions and diverse management for them > No mention of ambulance personnel		> Comprehensive geriatric assessment (mean 2.6 assessments per facility in 12 months) > GNS liaison with secondary care Older Adult Specialists Services, e.g., geriatricians and allied health > GNS liaison across primary and secondary care services e.g. hospital services, primary healthcare practices, palliative care services, needs assessment services. > GNS also provided care coordination for residents transitioning across healthcare settings, although much of this work was not well captured in GNS records > No mention of ambulance personnel
Has a proper discharge protocol from ED back to RACF, such that medications, medical equipment & treatment plans are provided		> HRM coordinates the discharge of RACF residents from EDs and inpatient units. Where returning to RACF is applicable or end-of-life care in RACFs is desirable, the HRM team would liaise with patients' GP and support for RACF staff to continue with care that otherwise would have been provided inhospital. > HRM programme manager notified the GP and asked them to review the patient within 3 days (if discharged with antibiotics for example)		
> When GP is not available, someone else is empowered to make the transfer decision. > Suggestion identified: Need for an on-call assessment team (ie mobile medical team) available 24/7 that was id to be dispatched to RACF as needed to overcome the need to transfer.	NP (Advanced Practice) Nurse	> HRM Program manager still needs to consult with GP for transfer to ED > Hence recommendation to use an APN as HRM program manager		
Have after-hours management plan in place	ED nurses with aged care expertise took calls after 5:00pm, on weekends and public holidays.	> Outside these hours, ACP residents were either admitted to a hospital ward for care continuation or admitted to the ED observation ward for HRM referral the next day. > If the patient was presented to the ED on Saturday morning and was suitable for HRM services, they would be admitted to the hospital for the HRM programme manager to follow-up on Monday. > During the after hours when HRM is not operating, if there is any non-urgent patient otherwise requiring ED presentation, would still be kept by RACF staff in the facility because of awareness that the HRM staff will provide appropriate care for them on the following day.		

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Synthesis of program features (ACD example)

Synthesized Program Features	Identified Program Features	PHN Existing Program	Fan 2016
All residents to have ACDs to facilitate communication between resident, family and RACF staff to incorporate patients' wishes into treatment plan during emergencies. Have explicit notes in the medical records about care decisions (such as using the 7 Step Pathway - Community Version) and a commitment to stay the course of care.	Advanced Care Directives (ACDs) to facilitate communication between resident, family and Residential Aged Care Facility (RACF) staff to incorporate patients' wishes into treatment plan during emergencies. Have explicit notes in the medical records about care decisions and a commitment to stay the course of care.	End of Life Care — incorporating the 7 Step Pathway - Community Version into Eldercare's Palliative Care Model pathways to support end of life care and associated decision making	

Summary of synthesized program features

- 19 features:

1. Have Advanced Care Directives in place
2. Training and education for RACF staff (i.e. upskilling)
3. Access to General Practitioners (GPs) (e.g. running regular in-house GP clinics at RACF for all residents)
4. Adequate staffing level: to handle unexpected events like transfers to ED, provide additional acute care at RACF
5. Medical equipment onsite to provide acute care at RACFs
6. Medicine onsite to provide acute care at RACFs
7. Modify accreditation to allow policies of RACFs to provide acute care, especially for low-care RACFs
8. Have readily available external clinical expertise and advice (e.g. allocation of dedicated outreach nurse {Hospital in Nursing Home HINH nurse} at RACFs)
9. Standardised procedures for transfer to Emergency Departments (ED)
10. Proper discharge protocol from ED back to RACF (medications, medical equipment & treatment plans are provided).

Summary of synthesized program features

11. When GP is not available, someone else is empowered to make the transfer decision to ED (e.g. using Advanced Practice Nurse)
12. After-hours management plan
13. Care plans in-place for common chronic conditions (pneumonia, urinary sepsis, dehydration, palliative care, venous/arterial ulcers)
14. One main contact point (e.g. the HINH program nurse) to enable continuity of care
15. Computerised medical records at RACFs to facilitate easy access to residents' histories by GPs and transfer to ED
16. Proper coordination between ED and inpatient wards to manage admitted residents
17. Coordination with ambulance personnel to ensure timely arrival at RACFs for ED transfers
18. Allow care staff (Assistants In Nursing/AINs), who form the majority of RACF staff, to administer ‘as needed’ medication and nurse initiated medications
19. Clear responsibility of medical care for residents: in hospital, responsibility with hospital staff; when discharged back to RACF, with GP

Estimate of outcome for program feature: Advanced Care Directives (ACD)

Study	Country	ACP Intervention Model	Study Findings
Nguyen et al. (2017)[1]	Australia	▪ Once individuals reach the target age (65 years), their doctors, nurses or dedicated ACP facilitators initiate the ACP discussion ▪ Additional review of the ACD occur at critical times, such as when individuals are diagnosed with dementia or a terminal illness, or other life-changing circumstances ▪ Used a health-system perspective ▪ All costs were calculated in 2015 Australian dollars.	▪ Four consultations (30-90 min each) for people aged 65+ years, and at risk of developing dementia, is cost effective compared to current situation ▪ Sensitivity factors: uptake rate, compliance with ACP wishes, end-of-life choices ▪ ACP uptake: 50%, Compliance with ACP wishes: 75%, Die in hospital: 15%

1. Nguyen KH, Sellars M, Agar M, Kurrle S, Kelly A, Comans T. An economic model of advance care planning in Australia: a cost-effective way to respect patient choice. BMC Health Serv Res. 2017;17(1):797.

Cost estimates of program features (ACD)

Synthesized Program Features	Resource Item	Resource Quantity	Resource Unit	Resource Unit Cost	Total Cost	Cost Context	Cost Perspective
All residents to have ACDs to facilitate communication between resident, family and RACF staff to incorporate patients' wishes into treatment plan during emergencies. Have explicit notes in the medical records about care decisions (such as using the 7 Step Pathway - Community Version) and a commitment to stay the course of care.					668.80	Per Resident	Primary Healthcare System
	Initial appointments for ACP with GP (Medical Benefit Scheme item 141)	1	meeting	452.65	452.65		
	Follow up appointment with GP (Medical Benefit Scheme item 732)	3	meeting	72.05	216.15		
					163.35	Per RACF Per Week	RACF
	RN (for ACP coordination at RACF)	0.5	day	326.70	163.35		

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Delphi process - Prioritisation of synthesised program components

- Two initial Delphi* rounds:
  - First round: rank based on level of benefits to residents/patients
  - Second round: rank based on level of difficulty to implement (i.e. deliverability)
- Third round: results of the two rounds will be shared
  - Taking into account the results of prior two rounds, a final third round to rank the features

*Delphi: survey participants provide inputs independently and anonymously in two or more rounds. Group result from prior round is shared amongst participants, and serves to guide participants in subsequent rounds

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Observations from residential aged care case study

- Some features are policy related:
  - Modify accreditation to allow policies of RACFs to provide acute care, especially for low-care RACFs
  - Allow care staff (Assistants In Nursing/AINs) to administer ‘as needed’ medication and nurse initiated medications
- Some features are acute-care related:
  - Have readily available external clinical expertise and advice (e.g. allocation of dedicated outreach nurse to RACFs)
  - Proper coordination between ED and inpatient wards to manage admitted residents
  - Proper discharge protocol from ED back to RACF, such that medications, medical equipment & treatment plans are provided.

Observations from residential aged care case study

- Some features are difficult to estimate the cost (setup and running):
  - Medical equipment onsite to provide acute care at RACFs
  - Medicine onsite to provide acute care at RACFs
  - Adequate staffing level: to handle unexpected events like transfers to ED, provide additional acute care at RACF
- Studies focused on provision of physical/medical care
  - Provision of emotional care not included in studies
  - Rates of depression among people living in residential aged-care facilities are around 35 per cent. (Source: National Ageing Research Institute. (2009). Depression in older age: a scoping study. Final Report. Melbourne: beyondblue.)

Observations from residential aged care case study

- Approach for Delphi:
  - Fan 2016 (evaluating a hospital outreach service: HiNH*) showed positive outcomes
  - Organise features into 2 groups:
    - Core features: mirror HiNH program (12 features)
    - Independent features: stand-alone, not included in HiNH (7 features), for Delphi
  - Or rank all 19 features
    - Not sure how the features are connected to one another. If the features are split up, will final combination still work?

*HiNH: Hospital in the Nursing Home

Strengths of framework

- in-DEPtH is a systematic approach that can support PHNs to commission programs that are evidence-informed, contextually relevant and stakeholder engaged.
- in-DEPtH offers a co-creation approach with stakeholders that incorporates their inputs to prioritize features.
- The prioritized service/program features could directly be used as procurement specifications for commissioning.

Limitations of framework

- Sufficient primary studies to have adequate quality of evidence
- Stakeholder participation for co-creation
- Participants, who come with different perspectives and vested interests, could potentially confound the Delphi process

Summary

- Legitimacy, accountability and transparency for commissioning has implications for approach. The positivist view will have its limits.
- Difficult to disaggregate effects of evaluated multi-component services
- Evidence-informed: interpret complicated evidence in local context
  - How to use research and non-research evidence to estimate costs and benefits of alternative program options?
- Scope for centralised analysis of research evidence
  - Local synthesis and interpretation of research and non-research evidence

Next Steps

- Seeking partner PHNs
  - To apply and test the feasibility and value of the framework.
  - We will provide research resources to support the application of the framework.
  - Applications would be aligned with PHNs' priorities and commissioning/procurement timeframes to ensure practical relevance.
- Contacts:
  - Prof. Jonathan Karnon
    - Tel: (08) 8313 3562; Email: jonathan.karnon@adelaide.edu.au
  - Kenneth Lo
    - Tel: (08) 8313 3970; Email: kenneth.lo@adelaide.edu.au
- Resources:
  - Funding through NHMRC Partnership Centre in Health System Sustainability

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Designing evidence-informed and cost-effective Primary Health Services

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Disclaimer

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