Telehealth substitution of rural outreach services:
an economic analysis

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Abbreviations

- ABF – Activity-based Funding
- AHW – Aboriginal Health Worker
- ASGC – Australian Standard Geographical Classification
- F2F – Face-to-Face
- GP – General Practitioner
- MBS – Medicare Benefits Schedule
- RA – Remoteness Area
- RACF – Residential Aged Care Facility
- RPM – Remote Patient Monitoring
- S&F – Store-and-forward
- VC – Video conferencing
- WTP – Willingness to Practice

Overview

Part 1:Payment models for telehealth

- Medicare
- Activity-based funding
- Comparison to payment Medicaid, USA

Part 2: Economic modelling for CheckUP

- Methods
- Results
- Comparison of findings to published literature

Part 1 Payment models for telehealth consultations, Medicare, ABF, comparison with USA

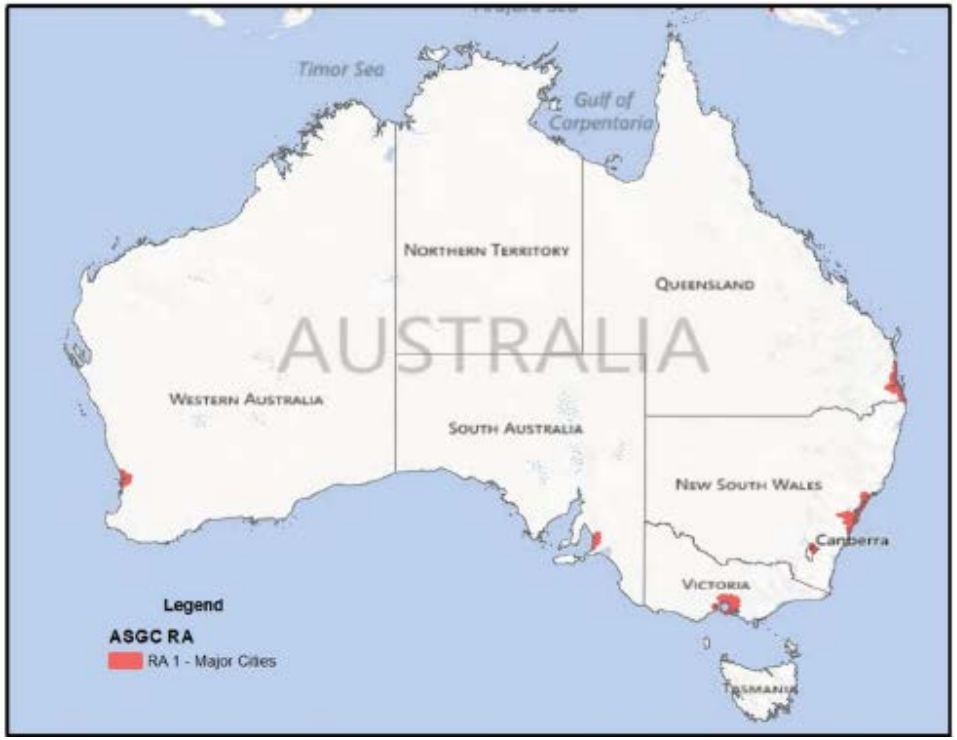
Medicare

- Medicare
  - Australia's universal health scheme
  - Commonwealth Government program
  - General revenue + Medicare levy (1.5%)
- Medicare Benefits Schedule
  - Price book of appropriate fee (scheduled fee) for a health service
  - Patient rebate 100% GP, 75% admitted services, 85% otherwise

MBS value of telehealth

- Telehealth items in MBS
  - Specialist video consultations
  - GP, nurse, AHW attending same consultation
  - Patient must live outside of RA1
  - Patient and specialist 15 km apart
  - Exclusion AMS and RACF
- Gaps in MBS funding
  - Patients within RA1
  - GP-to-patient
  - Allied health and nursing consultations-to-patient
  - Store-and-forward

RA1 – Major city



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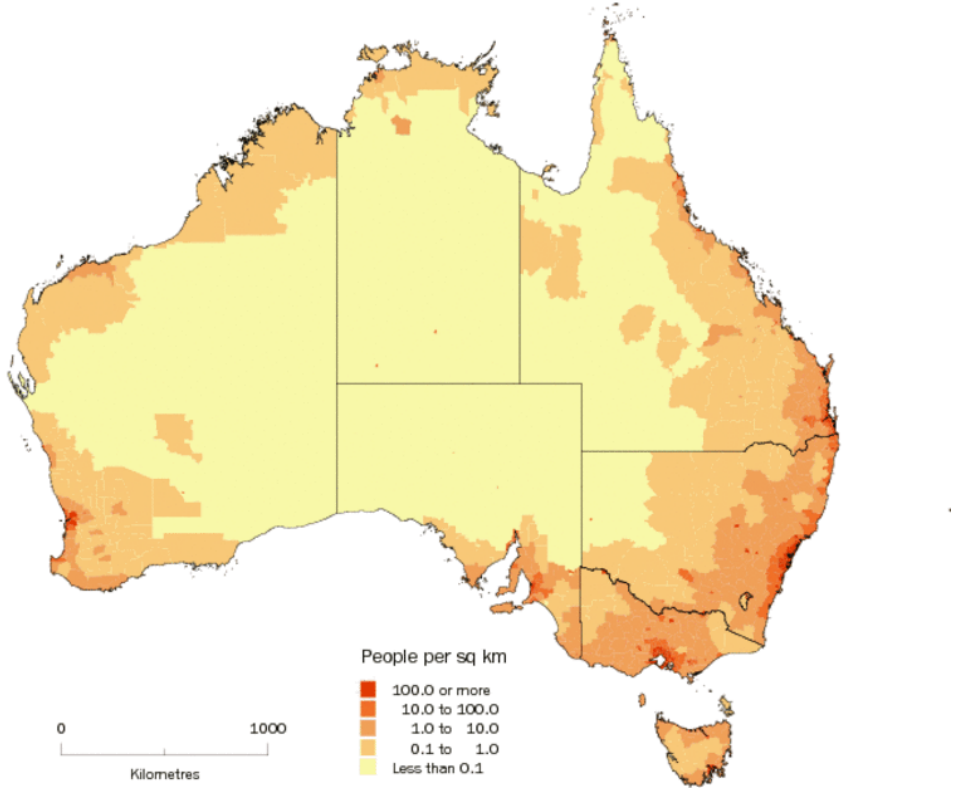
Population density



Population distribution

ASGC	Classification	Population distribution
RA1	Major city	68%
RA2	Inner regional	20%
RA3	Outer regional	9%
RA4	Remote	2%
RA5	Very remote	1%

http://www.aihw.gov.au/rural-health-remoteness-classifications/

Outpatient consultations funding

Example 1:

- Specialist endocrinology consultation – follow-up review for complex diabetes patient.
- Patient lives in telehealth eligible area

Example 2:

- Speech and language therapy

Value of telehealth

Medicare Benefit Schedule – F2F

Item number / scheduled fee: 116 / $75.50

Value of telehealth

Medicare Benefit Schedule – Video consultation

Item number / scheduled fee: 116 / $75.50 plus 112 / $37.75

GP
accompanying
a patient during
a VC
2126 / $49.95

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Activity based funding

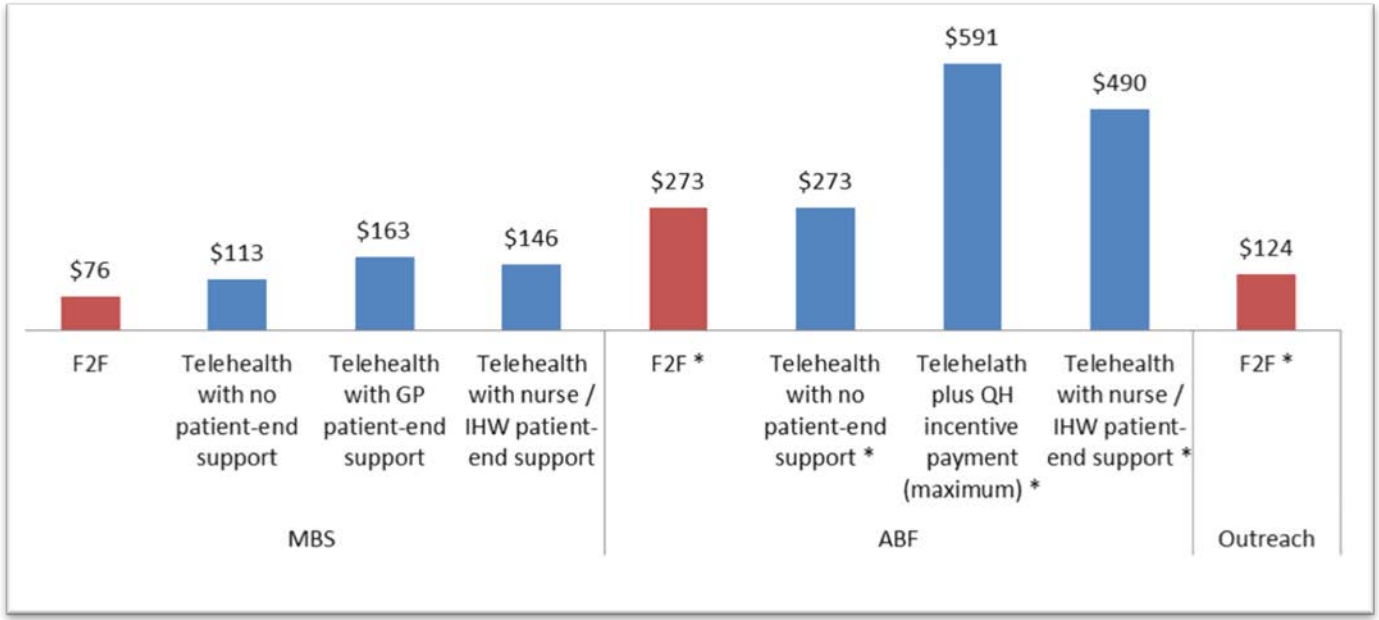
- Funding model for public hospitals
- Funding is based on weighted activity
- Adopted in 2012-13
- Queensland Health
  - Largest hospitals (n=34) ABF
  - Smallest hospital block funded

Value of telehealth

- Specialist, allied health and nursing consultation
- $ telehealth = F2F

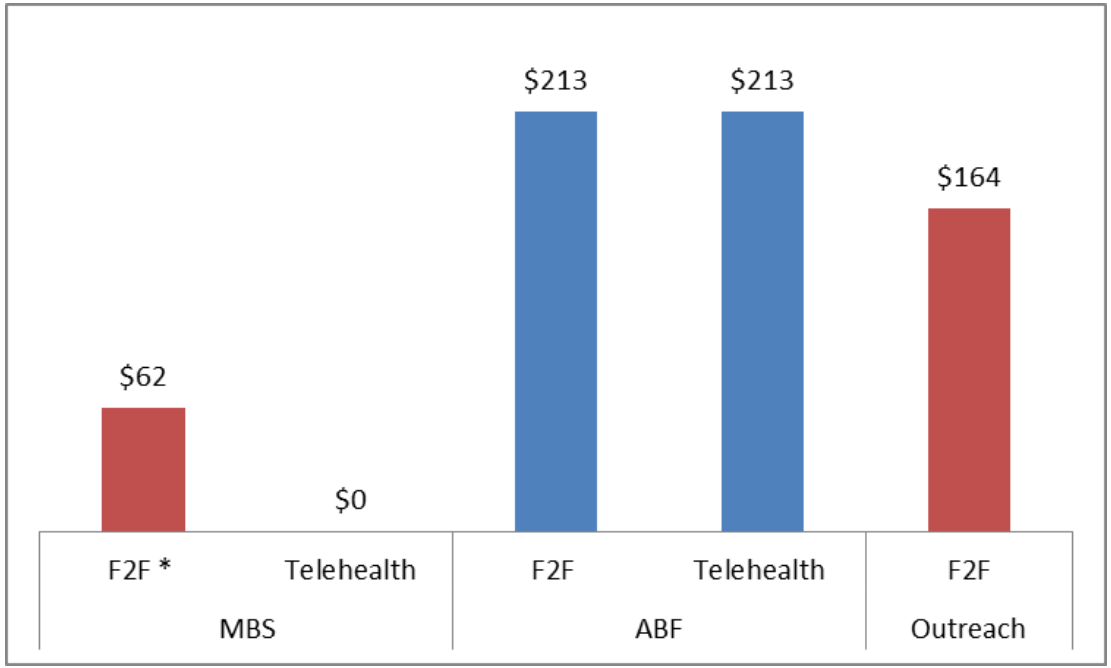
  plus
- Queensland time limited incentive program for telehealth activity

Specialist



* May also attract an MBS payment

Allied health



* Limited number and range

United States

Private insurance

- 24 (48%) states have telemedicine parity laws for private insurance
- Remaining pay less for telehealth consultations

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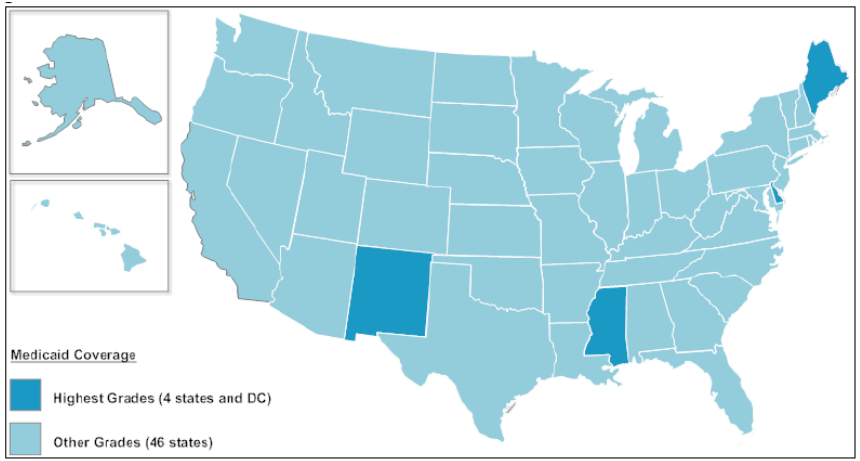
United States

Medicaid is "government insurance program for persons whose income and resources are insufficient to pay for health care".

United States

Medicaid - Coverage

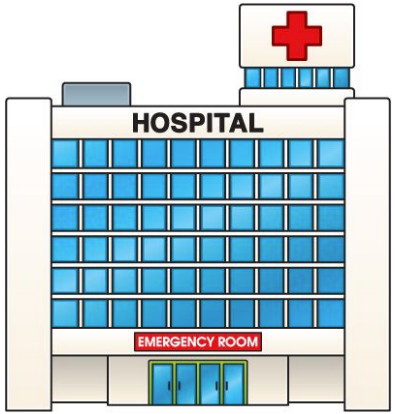
- 48 (92%) of states have Medicaid payments for telemedicine consultations



United States

Medicaid – Patient location

- 24 (46%) states payment not conditional on patient location e.g. home
- 26 (52%) states qualified patient location
- School qualified as patient location



United States

Medicaid – Modality

- 10 (20%) states covered VC, S&F, RPM, audio
- 6 (12%) states covered VC, S&F, RPM
- 29 (58%) states VC only
- 4 states excluded cell phone video

United States

Medicaid – Clinicians

- 4 (8%) states physician only
- 19 (38%) states < 9 disciplines
- 31 (62%) states > 9 disciplines
- 3 states podiatrist
- 3 states chiropractors
- 2 optometrist
- 5 substance abuse counsellors

United States

Medicaid – Distance restrictions

- 41 (82%) states no distance restrictions or geographic designations

Part 2: Economic modelling – CheckUP methods and results

Modelling

"A model, be it a model car or an economic model, is a simplified representation of a more complex mechanism."

The Australia Institute, The use and abuse of economic modelling in Australia Users' guide to tricks of the trade Technical Brief No. 12 2012, Available at http://www.tai.org.au/sites/defualt/files/TB%2012%20The%20use%20and%20abuse%20of%20economic%20modelling%20in%20Australia_4.pdf

Why model telehealth?

"……difficulty of generalising results of individual economic studies due to the variability of applications and the effect of unique local factors on each telehealth service. "

Whitten PS, Mair FS, Haycox A, May CR, Williams TL, Hellmich S: Systematic review of cost effectiveness studies of telemedicine interventions. BMJ 2002, 324:1434-1437

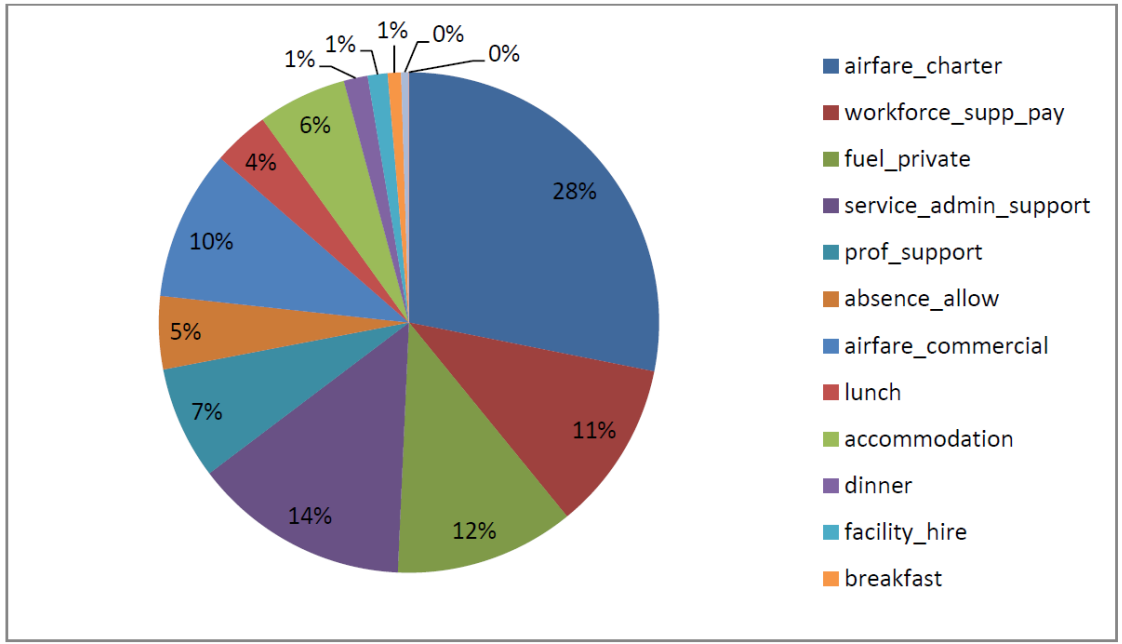
Methods

- Compare the actual cost of providing outreach service to the theoretical cost of providing services by a blended outreach and telehealth
- Perspective of the CheckUP

Assumptions

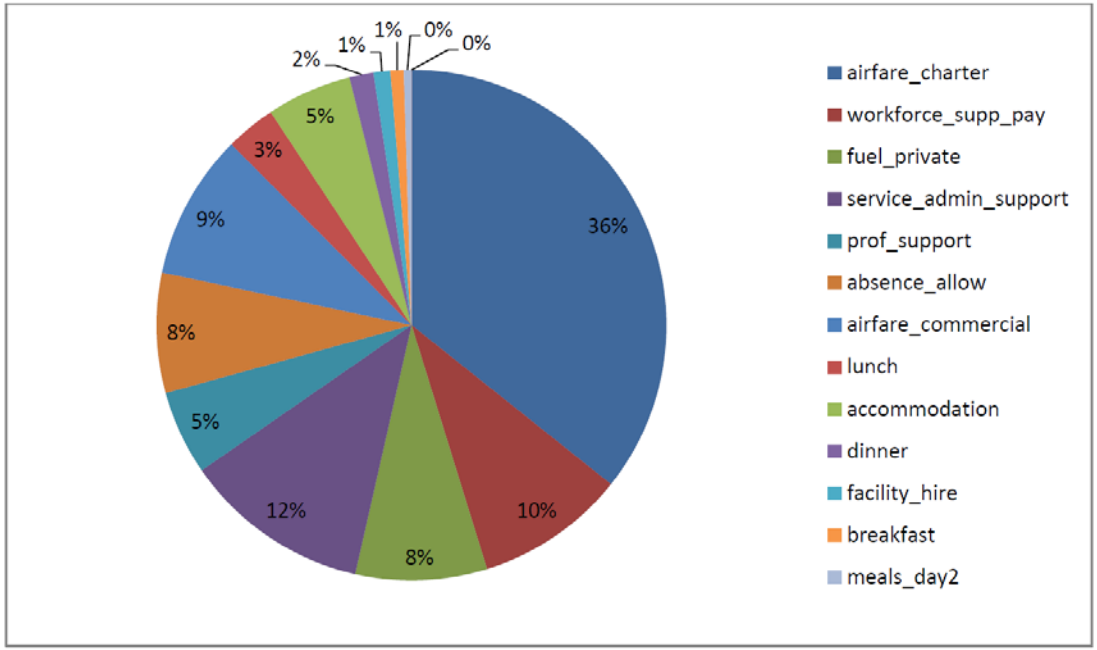
- Telehealth will result in savings of travel costs and expenses
  - Transportation, accommodation etc.
- Telehealth will save travel time
  - More patients seen in a set period of time
- Not all outreach visits can be substituted by telehealth

Costs



Actual costs by expenditure type - All combined (top 50% by activity)

Costs



Actual costs by expenditure type - All combined (top 50% of overall cost)

Input variables

- Actual activity and cost data for CheckUP service 2014-15

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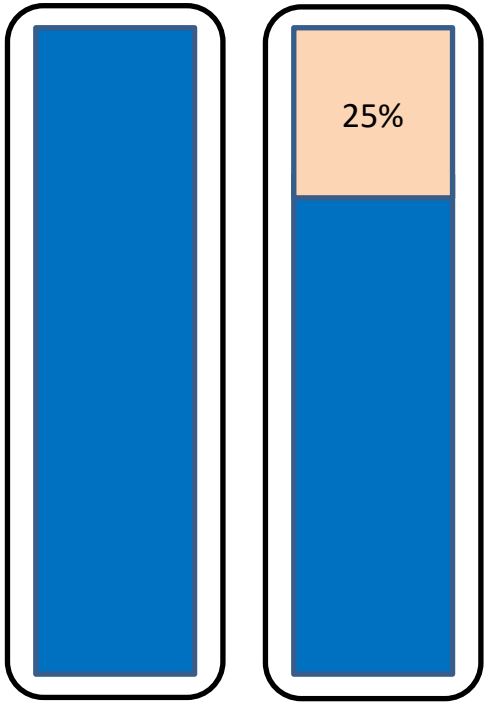
Input variables - disciplines

Top 50% of activity based on number of visits	
Rank	Health Professional
1	Podiatry
2	Dietetics
3	Exercise Physiologist
4	Diabetes Education
5	General Practitioner
6	Psychology
7	Occupational Therapy - Paediatrics
8	Speech Therapy - Paediatrics
9	Physiotherapy
10	Nurse

Top 50% of activity based on cost of service	
Rank	Health Professional
1	General Practitioner
2	Podiatry
3	Nurse
4	Diabetes Education
5	Dietetics
6	Exercise Physiologist
7	Physician - Psychiatry - Adult
8	Physiotherapy
9	Psychology
10	Physician – General
11	Physician - Dermatology
12	Health Worker
13	Physician - Paediatrics
14	Speech Pathology

Input variables – substitution rate

Total cost of providing a service by F2F outreach



Total cost of providing a service by a combination of F2F outreach and telehealth

Telehealth

F2F Outreach

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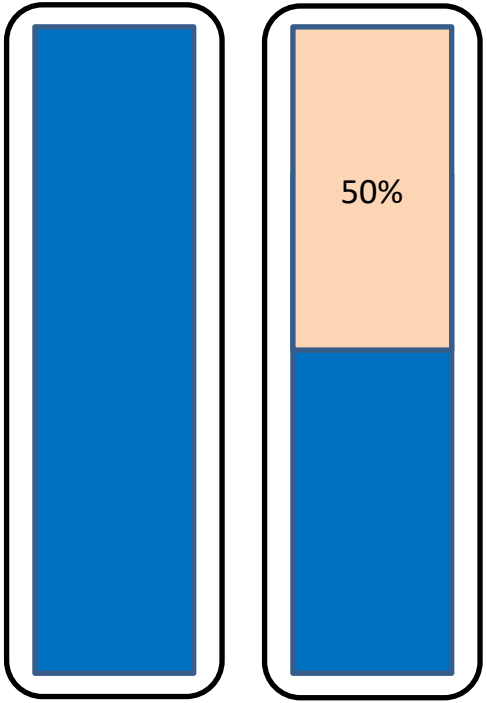
Input variables – substitution rate

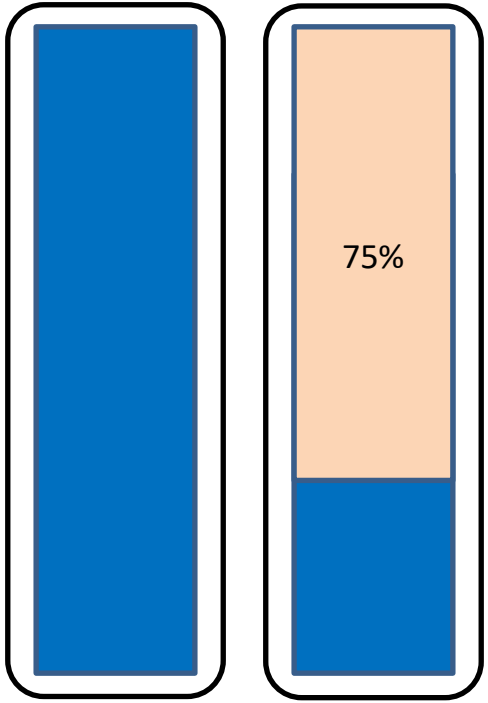
Total cost of providing a service by F2F outreach



Total cost of providing a service by a combination of F2F outreach and telehealth

Input variables – substitution rate

Total cost of providing a service by F2F outreach



Total cost of providing a service by a combination of F2F outreach and telehealth

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Input variables – clinician payments

	Model 1	Model 2 (a)	Model 2 (b)
Workforce Support Payment	$200 per day	$120 per hour	$120 per hour
Professional Support Payment			
Administration fee	$80 per day		
Assumption		Duration of visit is assumed to be equivalent to face-to-face	Duration of visit is assumed to be half that of face-to-face

Input variables – clinician payments

	Model 3 (a)	Model 3 (b)
Workforce Support Payment	$120 per hour - Allied Health $210 per hour – General Practitioner $244 per hour – Specialist	$120 per hour - Allied Health $210 per hour – General Practitioner $244 per hour – Specialist
Professional Support Payment		
Administration fee	$50 per day	$50 per day
Assumption	Duration of visit is assumed to be equivalent to face-to-face	Duration of visit is assumed to be half that of face-to-face

Input variables – clinician payments

	Model 4 (a)	Model 4 (b)
Workforce Support Payment	$120 per hour - Allied Health $210 per hour - General Practitioner No hourly rate for Specialist	$120 per hour - Allied Health $210 per hour - General Practitioner No hourly rate for Specialist
Professional Support Payment	$244 per day (specialist only)	$244 per day (specialist only)
Administration fee	$110 per day (specialist only)	$110 per day (specialist only)
Assumption	Duration of visit is assumed to be equivalent to face-to-face	Duration of visit is assumed to be half that of face-to-face

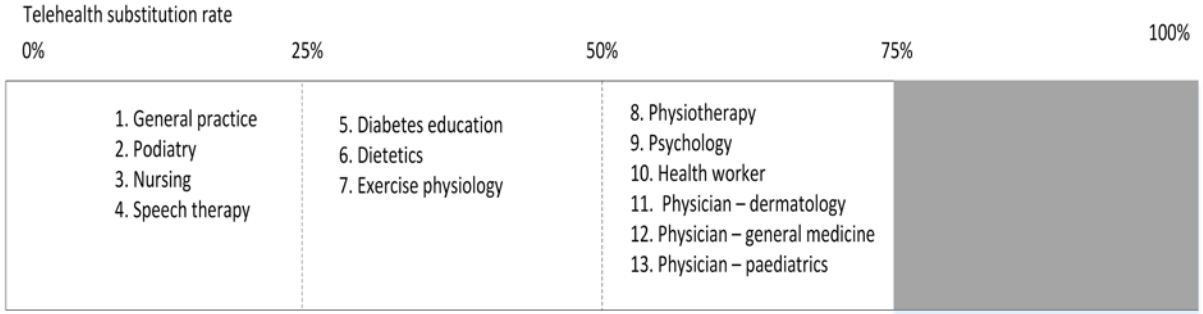
Modelling

16 disciplines x 3 rates of substitution x

7 payment scenarios =

336 models

Results



Disciplines where telehealth substitution was cheaper in at least one model (scenario)

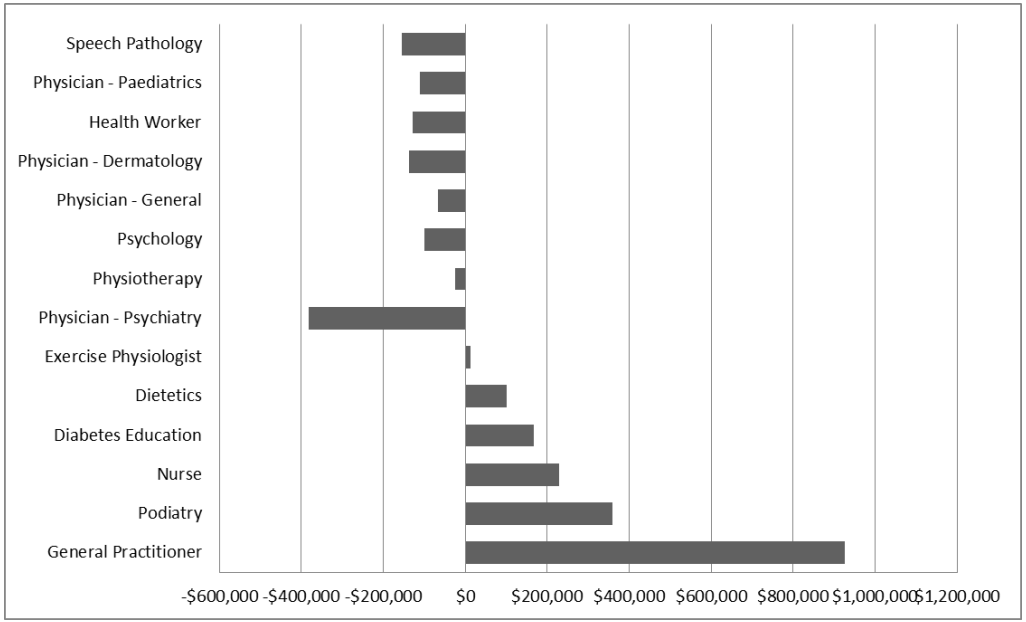
Results

General Practitioner		
Substitution	Maximum saving (Model 1)	Minimum saving
25%	$731K	$582K
50%	$926K	$628K
75%	$1,121K	$674K

Podiatrist		
Substitution	Maximum saving (Model 1)	Minimum saving
25%	$179K	$65K
50%	$359K	$130K
75%	$538K	$382K

Savings ∞ substitution rate

Results



What the model doesn’t show

- Consumer acceptance of telehealth
- Changes in other quality metrics
  - Responsiveness
  - Accessibility
  - Satisfaction
- Clinician’s WTP telehealth
- Clinician’s acceptance of reimbursement model/s
- Differences in health outcomes

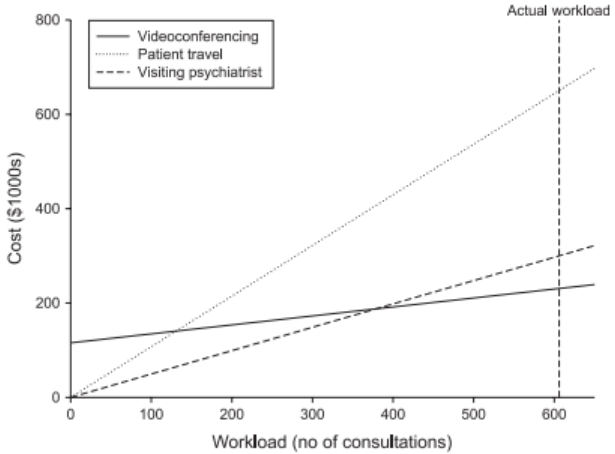
How do our findings compare?

- Delivery of health services by real time video communication was cost-effective for home care and access to on-call hospital specialists,
- Showed mixed results for rural service delivery,
- Was not cost-effective for local delivery of services between hospitals and primary care.

Wade, VA, Karnon, J, Elshaug, AG, et al. A systematic review of economic analyses of telehealth services using real time video communication. *BMC Health Services Research*. 2010; **10**: 1-13.

How do our findings compare?

- Clinician travelling *versus* telehealth
- Patient travelling *versus* telehealth
- Payer pays travel



Anthony C Smith, Stephen Stathis, et al. A cost-minimization analysis of a telepaediatric mental health service for patients in rural and remote QueenslandJ Telemed Telecare December 1, 2007 13: 79-83

Conclusions

- Mixed results
- Case-by-case basis
  - Level of granularity
  - Case-mix / degree of substitutability
  - Cost (telecommunications, additional equipment, additional staff) versus travel savings
  - Clinician's willingness to practice

Contact

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