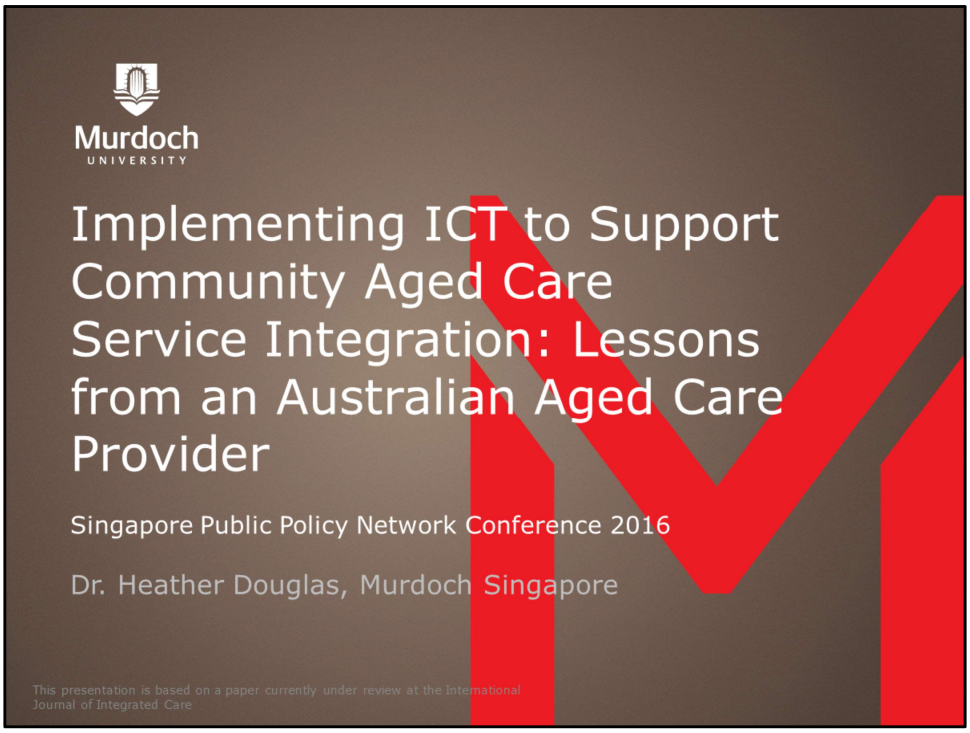
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Implementing ICT to Support Community Aged Care Service Integration: Lessons from an Australian Aged Care Provider
Singapore Public Policy Network Conference 2016
Dr. Heather Douglas, Murdoch Singapore
This presentation is based on a paper currently under review at the International Journal of Integrated Care

Context

- In Singapore
  - The share of population over 65 is projected to double from 12% in 2015 to 27% in 2025
  - The share of those above 80 will triple from 2% to 7% in the same time period

- Key challenge
  - Internationally older adults prefer to stay at home, access individualised care plans, and services when they need them
  - How do we provide appropriate, quality, accessible, and sustainable services to support older people's needs?

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Australian Context

- From July 2015, the Australian community care sector faces challenges associated with a Consumer Directed Care model
  - Clients have greater choice and control
  - Concerns over need for more flexible delivery of service
  - Service provision infrastructure pressures and sustainability a concern
  - How can we enhance the delivery of efficient, effective, and flexible services that meet the expressed needs of clients?

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Consumer Directed Care models require aged care providers to be more responsive to clients' expressed needs, to provide individualised care planning, and to maintain a more flexible service delivery infrastructure

Opportunity

- Integrated Care
  - A coherent set of methods and models on multiple levels, to create connectivity, alignment, and collaboration between care providers, in order to improve outcomes for clients and other service users
  - Demonstrated impact on older adults internationally

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A network of multiple professionals and organisations across the health and social care system that provide accessible and comprehensive services to a population in the community

Integrated care programs for frail elderly populations have demonstrated an impact on the number and duration of short-term hospitalisations, drug use, mortality, cost of services, and a smaller proportion of older people wishing to be institutionalised

Information and Communication Technology (ICT)

- ICT has a role to play in effective integration of care
- It has been identified as one of the key components of achieving integrated care
  - Clinical information systems
  - Client assessment classification databases
  - Information management about clients
- Information can be used to identify client needs and deliver services in coordinated and efficient ways
- The aged care sector has been a slow adopter of ICT, despite preliminary evidence suggesting its use in coordinating multidisciplinary service providers, often distributed across wide geographic regions

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- in Australian residential aged care systems, the information exchange process is typically associated with coordination of care, and often occurs across multiple channels (telephone, face to face, emails, etc) depending on the information that is being communicated

- When this information exchange works well, care is usually efficiently and effectively provided. When this information is exchanged poorly, the quality of care can be reduced

Rationale and Aims

- Aim: We undertook a case study to describe CareLink+, a centralised client service management system implemented by Uniting, a large community aged care service provider in NSW / ACT, Australia
- We sought to explicate the care-related information exchange processes associated with CareLink+

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Evidence about how to design, deploy, and maintain information and communication technology applications in community aged care is sparse

Barriers to successful ICT implementation include a failure to account for the interdisciplinary nature of aged care, the community environment in which it is based, and the difficulty this introduces in exchanging information across multiple care providers servicing the same client

There is a limited understanding of the workflow processes on the frontline of care that might impact on ICT design and implementation in aged care

CareLink+ Roster

Date	Service	Client Name	Employee Name	Start Time	End Time	Duration
06/04/15	Personal Care	Kent, Clarke	ALLOCATED, To	09:00	10:00	1.00
06/04/15	Domestic Assistan	Baboon, Benny	Barnes, Jimmy	09:00	10:00	1.00
06/04/15	Personal Care	Cat, Sylvester	Jett, Joan	09:30	10:15	0.75
06/04/15	Social Support	Bennet, Elizabeth	Cumberbatch, Bre	09:30	11:30	2.00
06/04/15	Personal Care	Bunny, Bugs	ALLOCATED, To	10:00	11:00	1.00
06/04/15	Social Support	Tyler, Rose	Holiday, Billie	17:00	19:00	2.00
07/04/15	Domestic Assistan	Baboon, Benny	Barnes, Jimmy	09:00	10:00	1.00
07/04/15	Social Support	Flinstone, Fred	Morrison, Jim	14:00	15:00	1.00
08/04/15	Personal Care	Bunny, Bugs	ALLOCATED, To	08:00	09:00	1.00
08/04/15	Domestic Assistan	Baboon, Benny	Barnes, Jimmy	09:00	10:00	1.00
08/04/15	Personal Care	Cat, Sylvester	Jett, Joan	09:30	10:15	0.75
08/04/15	Social Support	Bennet, Elizabeth	Cumberbatch, Bre	09:30	11:30	2.00
08/04/15	Personal Care	Cat, Tom	ALLOCATED, To	10:00	11:00	1.00
08/04/15	Domestic Assistan	Bennet, Elizabeth	Charles, Ray	10:00	12:00	2.00
08/04/15	Domestic Assistan	Mouse, Mickey	Cook, Peter	11:00	12:00	1.00
08/04/15	Personal Care	Flinstone, Fred	Page, Jimmy	11:30	12:30	1.00
08/04/15	Transport	Kent, Clarke	ALLOCATED, To	12:30	13:00	0.50
08/04/15	Domestic Assistan	Sheriff, Woody	Sayer, Leo	12:30	14:00	1.50
08/04/15	Social Support	Runner, Road	Richie, Lionel	12:45	13:45	1.00
08/04/15	Social Support	Janeway, Kathryn	Idol, Billy	13:00	14:00	1.00

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Prior to the introduction of CareLink+, client information records were paper-based, and regional Uniting service centres maintained separate documentation systems for all client records

CareLink+ was introduced to support a single client record, containing information about clients receiving services, their needs, and the care workers scheduled to complete these services. It supports electronic record keeping and information sharing across all clients across the organisation, including care workers who provide support to clients, and Case Managers who coordinate the support services that clients need at the point of care delivery. The system was also introduced to enable better risk management through enhancing the visibility over client activity.

The centralised service centre and CareLink+ were tested at two regional test sites in late 2012. The roll-out of the system across the entire organisation was handed over to business as usual operations on 20th March 2015, and it is now a part of the new integrated care model across all regions of the Uniting operating regions in NSW and the ACT.

Design

- CareLink+ was explored from the perspective of different individuals within the organisation
- Purposive sampling to ensure adequate representation of different users within the organisation
- Sample
  - 4 Customer Service Officers (CSOs) who operate the service centre and use CareLink+ as their primary ICT system
  - 1 Service Manager at the service centre, responsible for the training, development and support of CSOs using CareLink+
  - 1 Information Architect, working to provide a holistic view of Uniting's work processes, information, and ICT assets
  - 2 Implementation Analysts, who ensure that new deployments of ICT are carried out correctly, and that existing ICT assets are maintained
  - 1 Program Manager for Continuous Service Improvement, responsible for successful delivery of the new integrated care model at Uniting

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Data Collection and Analysis

- Seventeen interviews and eleven observation sessions over January – November 2014
- Multiple interviews were conducted with some of the same participants to capture the changes in work processes over time that were associated with CareLink+
- Each professional described and demonstrated their tasks related to introducing CareLink+ to support the new integrated care model at Uniting, maintaining the structure underlying CareLink+, navigating the CareLink+ user interface, and explaining a sample of data extracted from the CareLink+ database
- A general inductive approach was used to derive a model of the information exchange processes associated with CareLink+
- The perspective of the CSOs as the primary frontline users of CareLink+ were used to model the information exchange occurring through CareLink+ at the frontline of care

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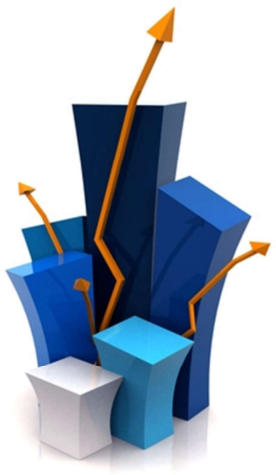
RESULTS



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So what did we find?

Interactions with CareLink+

- Accessed by all community care staff
  - Care Workers, Case Managers, CSOs, through to the Community Care Director
  - Care Workers enter information about services provided to clients
  - Care Managers enter information about client assessments and updates to care plans
  - CSOs use information entered by Care Workers and Case Managers to manage changes to client care service rosters
  - CSOs were identified as the central point of contact for all staff using CareLink+
- Community Care Service Manager identified a need to explicitly model the way frontline staff work, including their knowledge of CareLink+
  - "…lack of available information and knowledge [about working with CareLink+]. It's all in people's heads…there's been a lot of change in staff as well. So when we do start making traction and getting information, [it] gets lost or not transposed."

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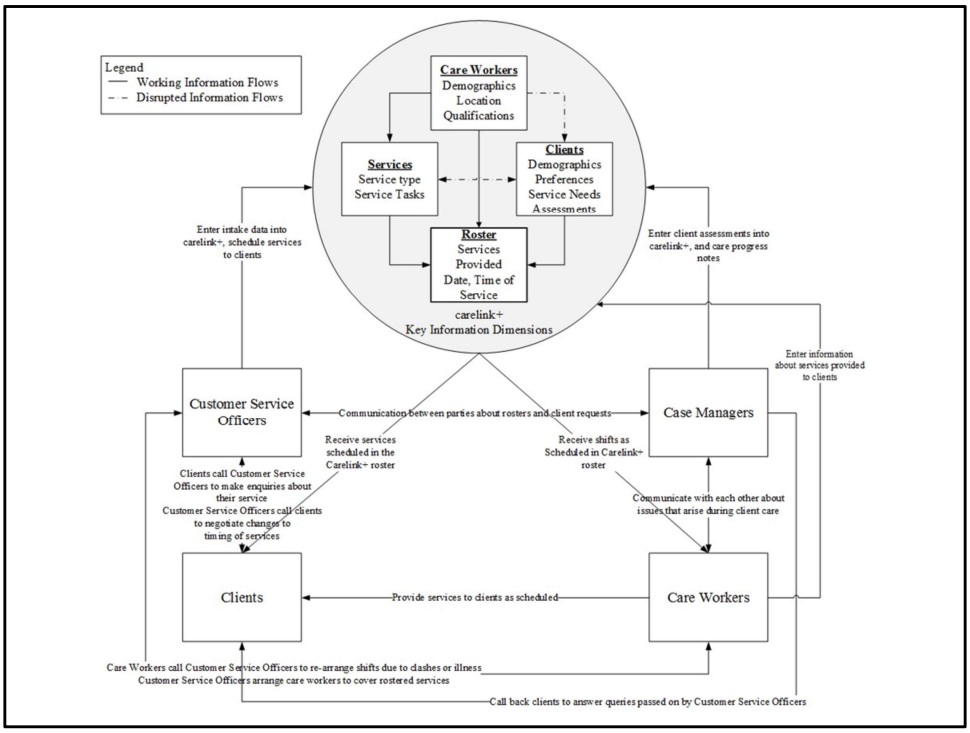

- The service provision roster is a high volume activity supported by CareLink+ (shown in the CareLink+ key information dimensions section of the Figure)
- Main information dimensions that support the roster are the preferences of clients receiving services (Clients), the services available from Uniting (Services), and the preferences of Care Workers who provide services (Care Workers)
- An algorithm within the software combines these dimensions to produce the service roster by considering the service needs of the client, and which Uniting employees are qualified to provide the services
- The quality of entered information has an impact on how effectively each information dimension within CareLink+ links together to produce appropriate service provision rosters

Barriers to Information Exchange

- Introduction of the call centre led some staff to believe they could not contact clients, care workers and case managers directly anymore
  - "…not all team members were clear on who to contact, resulting in unnecessary call contacts to consumer care direct [the customer service centre]. Case Managers and Care Workers at the proof of concept sites had stopped directly communicating with one another, because they had been told that the centralised service centre would manage their communication instead. After the unmanageable volume of calls to the service centre became apparent, care staff at these sites had to be instructed to resume contacting each other directly."

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Customer Service Officers were the primary contact for all parties about the service provision roster. Clients called them to raise issues with their service arrangements, for example if a Care Worker had not arrived for a planned service. Care Workers called them if they were unable to work, or if they arrived to deliver a service and the client was not home. Case Managers called Customer Service Officers to ask questions about the roster for particular clients, or to request changes to the Care Worker assigned to a client. Conversely, Customer Service Officers called clients to renegotiate service times if a Care Worker was unable to cover their scheduled service. They called Care Workers about providing additional services that were not already allocated to a Care Worker. Finally, Customer Service Officers notified Case Managers when clients requested to speak with them, when a Care Worker could not be found to cover a service, or when a Care Worker was having trouble providing a scheduled service.

Barriers to Information Exchange

- Data Quality
  - The information entered about Care Workers was originally not in a format needed for the algorithm in CareLink+ to produce an appropriate roster
    - CSO: "…that feature is not working at this stage. It has got issues and apparently the developers of the program say …the data in carelink+ is not clean. And that is why it is not able to generate that list."
    - Program Manager for Continuous Service Improvement: "…now that they've had those few experiences of it not working properly they're a little less excited until it's proven…"

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Barriers to Information Exchange

- File formats inhibit the visibility of client data
  - Original assessments received from the original referring body were stored in CareLink+ as a PDF
    - "…the ACAT assessment that we download from the Medicare website, it's a 10 page [form], and I can't really attach it to carelink+, because carelink+ wouldn't allow me more than two megabytes, and that is about 10 [megabytes]. So what I need to do every time, is I need to print it out, scan it and…compress it, and then save it on my computer and then attach it to carelink+."
  - The old operating model of scanning and faxing information to the Australian government department [Medicare] and aged care service provides was not compatible with CareLink+

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Key Lessons for ICT-enabled Integration of Care

1. Transforming implicit experience gained by frontline ICT users into explicit knowledge will have a significant impact on the efficiency of an aged care organisation. Explicitly modelling the information exchange processes occurring between frontline staff is particularly important to determine barriers to efficiency.
   a) Work as performed is often quite different from work as imagined.
   b) There are large benefits to organisations who transform the implicit knowledge of frontline information and communication technology users into explicit knowledge that is integrated into service provision practices and organisational policy.
   c) By understanding the factors influencing how they were originally providing care, and the performance of their workflow and finances, Uniting were well placed to introduce a new centralised operating model supported by an information technology tool.

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Key Lessons for ICT-enabled Integration of Care

2. The introduction of ICT on service provision models can have unexpected effects that continue beyond the implementation phase. Constant evaluation of ICT as it is integrated into normal business operations is important to identify these effects.
    a) Prior to the introduction of CareLink+ across the organisation, service centres had their own processes for dealing with their client information records, which they maintained themselves. This presented complications for Uniting introducing CareLink+ and the associated centralised service centre.
    b) Uniting immediately realised the benefits of increased visibility associated with their client record, and are now working to improve the data quality within CareLink+ to support increased efficiency and effectiveness in their service provision.

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Key Lessons for ICT-enabled Integration of Care

3. The benefits of ICT will take time and multiple rounds of evaluation to emerge. Aged care organisations who continually evaluate their ICT, and respond to the lessons learned, can achieve more efficient information exchange. This should lead to more effective integrated care for aged care clients.
    3. A limitation in CareLink+ associated with file attachments created additional work for Customer Service Officers and did not allow access to the information in the file at a future date. Uniting have identified and addressed these limitations to the extent they are capable.
    4. These findings highlight the importance of designing information and communication technology solutions that support work as it is actually performed by frontline staff, and the value to service provider organisations of explicating these work processes.

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Thank You