Enabling Caring Communities – Longmont, CO

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With thanks to:
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Bruno Sobral – Colorado State University
Dixon Dick – Archethought, Inc.
Kaylee Rivera - CCTSI
Today’s vocabulary lesson:

• Socio-technical design
• Infrastructure
• Conversations of care
• Human Middleware
• Middleware
The problem: medicine cannot achieve health

The current popular solution

- Let’s integrate social and health care!
- But...
  - When in human history has integration between two cultures resulted in a harmonious union of equals?
- Social care has a unique culture distinct from that of health care
  - It is not a culture that runs on “screen, detect and treat or refer”
  - Imposing our culture on social care will have negative consequences
- “I don’t want a system to help me refer people. I want a system to help me communicate and make connections.”
Healthcare

We’re from the University. We’re here to help!
Longmont, CO – 4984 ft, pop. 86,270

NextLight™, the community-owned high-speed fiber-optic network, has soared into the spotlight with its gigabit service to homes and businesses. In Ookla Speedtest named
Longmont, CO

37mi N of Denver
1 city, straddles Boulder & Weld Counties
2.1%+ unemployment rate
$58,698 median household income
24.6% Hispanic
14.7% below poverty line
Longmont’s request

• “We have lots of great organizations in the community and within the City’s infrastructure…Help us help them communicate better.”

• “Help us with a system that provides real time information such that whenever someone is presented with a client or patient, they have what they need to provide the best services.”
Socio-technical design

• The term socio-technical was first introduced by the UK Tavistock Institute in the late 1950s to oppose Taylorism — reducing jobs to efficient elements on assembly lines in mills and factories (Porra & Hirschheim, 2007).

• Socio-technical design puts social needs above technical wants. The argument is that human evolution involves social and technical progress in that order, e.g. today's vehicles could not work on the road without today's citizenry. Technology structures like cars also need social structures like road rules.

• For our work this meant:
  • Designing with the community involved at all steps
  • Building an infrastructure that can evolve through governance
SOCIO-TECHNICAL DESIGN

SOCIO

- convening the parties responsible for all of the bits of caring
- defining the roles, duties and relationships – together

TECHNICAL

- building the data infrastructure that embodies these
- using the reference architecture

SHARED, LOCAL GOVERNANCE

MEANINGFUL CARE CONVERSATIONS

INSERT YOUR ORGANIZATION HERE!
Infrastructure

• Infrastructure is magic
  • One flexibly designed element that can serve many needs
  • Has the ability to evolve as needs change
  • Rarely requires wholesale demolition and replacement
  • Examples: telecommunications & roads
APPLICATION VS INFRASTRUCTURE

• Rather than focusing on fancy new IT solution for (one) problem, promote building a shared platform to solve (most) problems.
Conversations of care

• In Healthcare we have decades of established norms:
  • Office visit
  • Hospital admission
  • X-ray
  • Hospital visit on rounds
  • Discharge
  • Referral

• We know the roles, responsibilities and duties of each actor

• They are so ingrained, they are unconscious
  • “How can I help you today?” “I have a slight cough…”

• Our infrastructure needs to support these conversations of care within and across the cultures of social care & health care
Conversations of Care

I need some help

Tell me more...

A client needs help

Tell me more...

How is he doing now?

I think it's still tough.

We should coordinate!
Information Services

Service Providers

Requests & reservations

Care Co-ordination

Discussing & Planning

Gathering information

Delivering & Monitoring

Care plan

Metrics and feedback

Delivery notifications

Conversation of care

Service Specific Information

Contact

Assessing outcomes

Conversations of care
Hub

User Identifiers Service & Component Identifiers
Portal Registering and correlating relationships.

Registering Identities and issuing credentials.
- People and roles
- Physical Resources Documents.

Index
Marshalling and dispatching: Getting things to the right place, on time and in the right order.

Switch

Index
Identity (user and device), role, relationship, context

User Identifiers

Service & Component Identifiers
Registering and correlating relationships.

Hub

Switch
Portal

Middleware

A User Session

Applications & Information Services

Applications & Information Services

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Middleware supporting conversations of care

• This is a *communications* architecture not a *relational database* architecture

• Goal: facilitate and enable more and better communication among carers
  
  • This: equipping front line carers with better communication tools will result in better coordination

  • Not this: create a data capture and storage platform for coordination & referral

  • *The traffic across the system is the information that will be used to govern and evolve the system*
## What we’ve been doing since December 2017

<table>
<thead>
<tr>
<th>Meeting Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2017</td>
<td>Introducing the project, listening to feedback</td>
</tr>
<tr>
<td>May 2018</td>
<td>Beginning to map stories and pathways</td>
</tr>
<tr>
<td>August 2018</td>
<td>Discussions of data gaps that impede conversations of care</td>
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<tr>
<td>October 2018</td>
<td>Explore data gaps and technical next steps</td>
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<tr>
<td>January 2019</td>
<td>Discussed infrastructure design ideas</td>
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<tr>
<td>July 2019</td>
<td>Review funding proposal ideas and obtain feedback</td>
</tr>
<tr>
<td>November 2019</td>
<td>Clarify “signals” desired by each group</td>
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<tr>
<td>February 2020</td>
<td>Reviewed technical specs</td>
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</table>
Mapping
Small Group Exercises

- Collaborations: Imagine in the Longmont infrastructure we will design together...
  - What do each of your organizations know [about the resident] that needs to be shared?
  - What does your organization want to know [about the resident]?
  - What does [the resident] need to know?
  - What don’t you need to know?
  - When does your organization need to know [it]? – Timeliness

- Outcome: lists of chunks of data [things] to be analyzed into pathways
# Surveys – Social Data that your organization collects VS needs

## Social Data Collected

<table>
<thead>
<tr>
<th>Options</th>
<th>n</th>
<th>%</th>
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<tbody>
<tr>
<td>Personal Contact Information</td>
<td>28</td>
<td>96.6</td>
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<tr>
<td>Basic demographics</td>
<td>27</td>
<td>93.1</td>
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<tr>
<td>Family contact information</td>
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<tr>
<td>Languages</td>
<td>17</td>
<td>58.6</td>
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<tr>
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<tr>
<td>Transportation</td>
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<tr>
<td>Assistance programs (applied)</td>
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<td>Public safety contacts</td>
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## Social Data Needed

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“It sounds like you are building something to do what we used to be able to do for ourselves when this community was smaller.”

• Yes! We are building an infrastructure to make that possible again.

• We are using:
  • Engagement
  • Ethnography
  • Technology
  • Socio-technical design principles
  • Community governance
Discussion