Exploring Data at the Intersection of Health and Transportation

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How Does Lack of Transportation Affect Healthcare

+ **3.6 Million** Americans miss or delay medical care because they lack appropriate transportation to their appointments (2005)¹

+ **3rd** most commonly cited barrier to access health services for the elderly (2004)²

+ **7% of children** (10% in rural) in low income homes miss or do not schedule a medical appointment because transportation is inaccessible (2011)³
1st Case Study: Family Health Center Worcester, MA

FHC – Provides primary care and social services to traditionally underserved and culturally diverse populations networked with 600 community health centers nation wide

How big is the problem in Worcester?

- Population of Worcester (2013): 182,544
- 80% Prebooked appointments in earlier visits
- 10% of Worcester households are below poverty line
- 85,000-105,000 patients visits per year
- 15% Rate of missed appointments
Primary Research

51% of respondents mentioned they had some type of transportation problem.
Reasons for Transport Problems

- It is too far to walk to the hospital
- It is difficult to walk in the winter
- Buses are late
- Buses don't show
- Don't have money to pay the bus fare
- Don't know how to use bus transport
- Don't have money to pay for taxi rides
- Need someone else to help me

86% are interested in scheduling a ride to the FHC at the same time they are scheduling their doctor’s appointment.
The Current Scenario
The Patients’ Perspective

+ The patient deals with TWO WORLDS APART
  - They need to schedule their appointment and decide/figure out which transportation option they will use

+ There is a lot of confusion from the patient’s perspective on which service to use and when it is appropriate to schedule their ride through various demand-response services and depending on their eligibility for transportation benefits

Very complex process: there is no centralized transportation scheduling management
What is the FHC Cost for Missed Appointments?

FHC has approx. **800** missed encounters /month at **$154** per person/visit

**$1,478,400**

per year loss to FHC solely on missed appointments

51% missed their appointments due to transportation

**$739,200**

per year loss specifically related to transportation problems

Hidden cost questions ….

- What % of missed appointments are not re-booked?
- What critical needs were not served / revenue not received for folks on the FHC waiting list?
- Cost of emergency room visits due to these missed appointments?
- Other operational cost of unproductive FHC staff time?
- What % of missed appointment are for real transportation barriers vs. perceived transportation barriers?
- What is the cost of appointments not made at FHC due to barriers to access?
Subsidize specific transportation options for target patients…..

- Providing WRTA one day passes to 180 FHC patients will cost FHC $158,130/year or only 10.7% of the total $739,200/year in losses due to transportation related missed appointments

- Fixed route pass will not solve all the transportation challenges identified

Provide dedicated transportation access……

- 82% of respondents said they would use a dedicated FHC shuttle if available

- Operating a dedicated FHC shuttle services was cost prohibitive and unsustainable

Provide better access to transportation information at the time of appointment booking…. 

- 51% of respondents missed appointments due to transportation; 59% of respondents did not use any kind of technology when trying to figure out transportation options

- Improve appointment booking (less overbooking, fewer missed appointments); solve more than one transportation challenge; sustainable and affordable; provide more options; remove technology barriers; provides opportunity for new data collection
The Future Scenario
Solution Proposed

+ The patient calls-in to schedule their doctor’s appointment AND their ride at the same time

+ Solution could evaluate across **any or all:**
  - Fixed route
  - Paratransit
  - Community / faith based
  - TNC (Uber/Lyft)
  - Carpool
  - Volunteer
  - Taxi
  - Walk/bike
  - Amtrak
Feasibility of Solution

+ The underlying technology already exists in 1-Click: an open-source multi modal demand response trip planner built on OpenTripPlanner with the VTCLI One-Call / One Click grant program (http://camsys.software/)

+ There are only a few major providers of health care scheduling software - only a few interfaces needed

+ An open-source technology solution is lower cost and more flexible than an operational solution, and will provide new data that can be used to target investments in transportation that will provide the best outcomes for that specific community
Increased Collaboration

The Smart Transit idea can get health care providers and transit providers talking….what are the mutual benefits that can come out of local/regional partnerships…..

Potential Benefits

+ Greater access to information
  - Raise awareness about new options and increase the likelihood of finding a mode of transportation that works.

+ Intelligent appointment scheduling
  - Health centers think about the ‘total appointment time’ when scheduling. Make transportation part of the process.

+ Better health outcomes
  - Studies show that increased access to preventative healthcare will create better health outcomes for individuals, especially vulnerable populations.

+ Increased Collaboration

+ Better Manage Demand Response Ridership
  - Use the data and customer interface to suggest the alternatives that work best for the community, better manage the challenges facing demand response ridership in the region.
Low Income Group Study Among PVTA riders

PVTA is the largest regional transit authority in MA with 186 buses, 132 vans, 24 member communities serves a population of over 600,000 residents

- Low Income Family who are transit dependent
- Families in Springfield who live below poverty line
- Low Income Family who are transit dependent

Over 2/3 of PVTA’s ridership is transit dependent: most transit customers lack transportation options
Partnerships in Pioneer Valley

massDOT
Massachusetts Department of Transportation

CAMBRIDGE SYSTEMATICS
Transportation leadership you can trust.

Baystate Health

U Mass

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GRiD

COOLEY DICKINSON HEALTH CARE
MASSACHUSETTS GENERAL HOSPITAL AFFILIATE

Hilltown Community Health Center

Smart Transit
For Healthcare
Questions?

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Thank you!