Using fRAP to uncover barriers and facilitators of diabetes care in the Lehigh Valley: A mixed-method geospatial mapping and rapid qualitative analysis approach

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Using fRAP to Uncover Barriers and Facilitators of Diabetes Care in the Lehigh Valley

A Mixed-Method Geospatial Mapping and Rapid Qualitative Analysis Approach

Presented by Susan Hansen, MA

Lehigh Valley Health Network

Your health deserves a partner.

Conflicts/Competing Interests

- None from me or the research team
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Background

- Disparities prevalent
  - Level of control
  - Access to care
  - Standard of care
- Cost of Care: $245 billion in 2012

UNITED STATES	10.5% living with diabetes
Pennsylvania	9.9%
Lehigh County	10.7%
Northampton County	9.7%
Berks County	10.1%

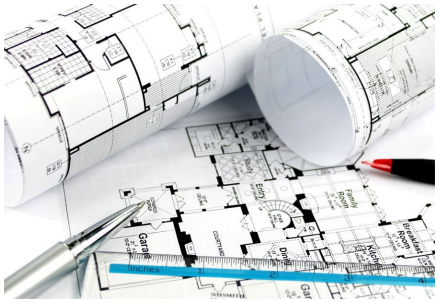
Study Objective

- To mobilize medical records data and technology systems to identify variation in barriers and facilitators of diabetes care in neighborhoods served by LVHN's primary care network.

Study Design

- Used fRAP (focused Rapid Assessment Process) method
- Quant → Qual → Policy Change/Intervention

Kieber-Emmons AM, Miller WL, Rubinstein EB, Howard J, Tsui J, Rankin JL, Crabtree BF. A Novel Mixed Methods Approach Combining Geospatial Mapping and Qualitative Inquiry to Identify Multilevel Policy Targets: The Focused Rapid Assessment Process (fRAP) Applied to Cancer Survivorship. *J Mixed Meth Res*. 2021 Jan. https://doi.org/10.1177/1558689820984273

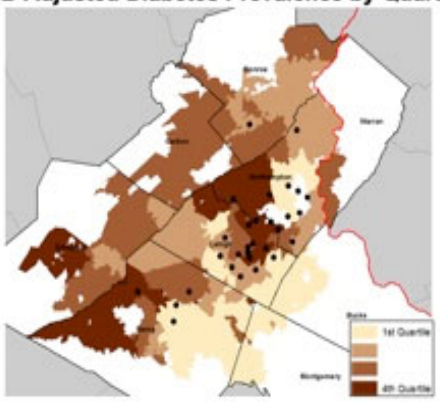


Study Design: fRAP Methods

Methods: GeoLVH Mapping

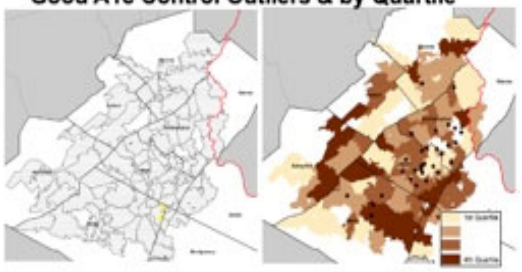
Priority Areas	Bright Spots
Top 25th Percentile Diabetes Prevalence	Top 25th Percentile Diabetes Prevalence
AND	AND
Poor A1c Control Outliers	Good A1c Control Outliers
(> 2 SDs above mean)	(> 2 SDs above mean)
OR	OR
Poor A1c Control Hot Spots (Spatial Clusters)	Good A1c Control Spatial Outliers

SEB-Adjusted Diabetes Prevalence by Quartile



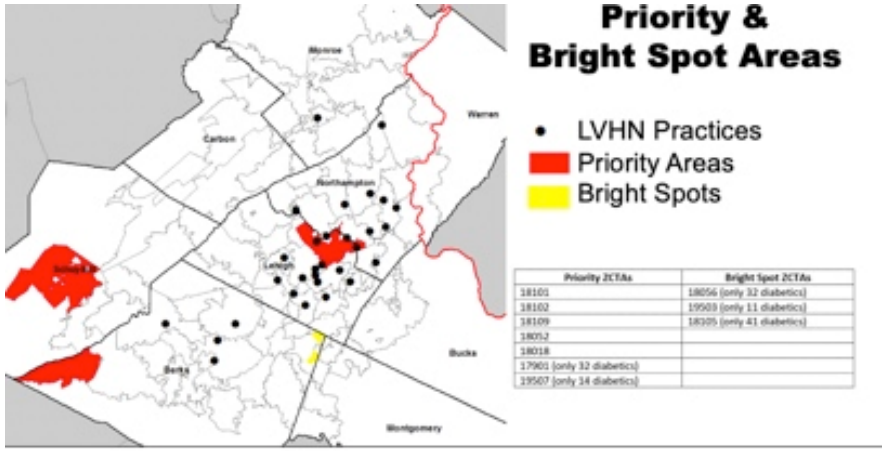
Poor A1c Control Hot Spots & by Quartile

Good A1c Control Outliers & by Quartile



Methods: Focus Groups

- 12 FGs conducted with patients in 5 identified ZIP codes
  - 3 Priority Areas
  - 2 Bright Spots
- Stratified by:
  - Ethnicity (Hispanic vs. non-Hispanic)
  - Language (Spanish vs. English)
  - DM status (controlled vs. uncontrolled)
    - Controlled with/out insulin



Methods: Focus Group Analysis

- A priori coding (using NVivo) based on question guide
- Inductive analysis on distilled list of themes specific to primary care intervention
- Identification of exemplar quotes

Nodes

Name	Sources	References
Demographics	12	233
DM Care Access	12	639
DM IMPACT	12	328
DM Knowledge	12	547
DM MGMT BARRIERS	12	763
DM MGMT FACILITATORS	12	481
DM MGMT STRATEGIES	12	605

Methods: Focus Group Analysis

PRIORITY AREAS				BRIGHT SPOTS
Controlled		Uncontrolled		Controlled
18101-2	18109	18101-2	18109	
A1, A14-15, A30, B5, B10-14, B19, C7,C9, D14-16	G10, G40-41, G45, H19, H27-28, H36 (church support group), H37-38, J8, J35*(didn't go), J36, K1, K3, K7, K11, K13-17, K23-26, K27-28, K29, K34*(don't go)	E13-14, E18, E32-39, E52, F14, F15-18, F48	L34-36?	M6-7, M9, M14*(classes too long), M15, M16-17(workplace group), M20, M39-40, M41*(no classes), M42-43, M44*(no to nutritionist), M66*(nutritionist would be helpful), M69, M91-93*(no cooking classes), M95 (yoga through church), M100-101
A38-39,A3, B5, B6, B16-18 D36	G50-53, H39-46, J4, K2 (research study - insulin pump)	E3-7, E55-58	L4 (Omnipod), L67-71	M21 (supplements), M102
A4, A29, D5, D7-10	G3, G4-7, G36, H7-8, H9-12, J9, K36-39 (app)	F8, F19-23	L13, L19-21, L77, L78-79&84*(not tech savy)	M8, M9, M10-12, M13, M75-88 (portal - labs & appt, not knowledge)
A6, A8, A10, A11-13, A17, A18-21,24,27-28, A42-44, B21, B23, C6, C15, C16, D1, D20, D18, D28-25	36, G37-39 (therapist), H1-3, H13, H16-18, H23-24, H32-34, H54, J4, J10, J13-14, J19-20, J22-	E2, E19-21,23-24, E29, E31, E46, E69, F2-7F9-13, F30, F34	L32&34 (therapy), L36-37, L47-52, L53, L57-58*&59 (case managers), L73-74, L75	M5-7, M18-19(natrualist?), M34-38*(no endocrinology), M45-50 (case manager), M54-64, M67-68, M70-71, M73-74 (free pedicures?), M102
A13		E1		
A: 6/18/2019 - Non-Hispanic, No insulin	G: 7/16/2019 - Non-Hispanic, Insulin	E: 8/22/19 - Non-Hispanic	L: 7/18/2019 -Combine (Non-Hispanic?)	M: 7/25/19 - Combined
B: 6/20/2019 - Non-Hispanic, Insulin	H: 7/23/19 - Non-hispanic, No insulin	F: 10/24/19 - Hispanic		
C: 10/10/19 - Hispanic, No insulin	J: 10/29/19 - Hispanic, No insulin			
D: 10/23/19 - Hispanic,	K: 11/6/19 - Hispanic, Insulin			

Results: Overview

- Barriers to DM Control
  - Medical, Food-Related, Physical Activity, Social/Emotional
- Impact of DM Diagnosis
  - Symptoms, Witnessing DM, Motivation, Emotions
- Facilitators to DM Control
  - Health Care Providers, Insurance, DM-specific Services, Knowledge
  - Self-Efficacy, Family & Friends, Exercise, Community Resources

Results: Barriers to DM Control

Medical-Related

- **Medications, Co-Existing Conditions, Provider Interactions**
  - Side Effects, Appointment Fatigue, Cost, *Lack of Insurance,* Transportation Issues**
    - *"There's the neurologist, there's a cardiologist … I'm seeing a lot of doctors. In fact, I'm, I'm busier seeing doctors now than I was when I was working."*
    - *"Had to get that from CVS, but CVS isn't on the bus route."*
    - *"My doctor always made it look like it was my fault for not listening."*

Food-Related

- **Cost, Nutritional Knowledge, Dietary Restrictions**
  - Social Gatherings, Cultural Norms, Food Prices/Availability
  - *"I wasn't taught that by my mother because she was never taught it. And how far does it go back, you know? What kind of foods we should be eating and shouldn't be eating?"*

Results: Barriers to DM Control

Physical Activity

- **Mobility Limitations, Access to Exercise Facilities**
  - *"My leg is so bad they won't let me walk."*
  - *"Well, you can't walk when it's 104 [degrees] out there."*
  - *"There's a Planet Fitness right up the street, but I don't have the 20 bucks to cover for it."*

Social/Emotional

- **Stress**
  - *"When I'm stressed out, forget it, everything just goes."*
- **Social Needs/Context**
  - *"Now it's mostly just bread. [The food bank] used to give meat."*
  - *"I just don't trust packages coming to my house in my neighborhood."*

Results: Impact of Diabetes Diagnosis

Symptoms and Witnessing DM in Others

- **Descriptions of Physical Experience of Disease**
  - *"I felt that I was very thirsty, and my saliva was cut off."*
  - *"I know I urinate a lot, a lot, a lot."*
- **Poor Outcomes in Family & Friends**
  - *"I've seen how my nephew had his leg cut off first, then his toes cut off."*

Have Reasons to Stay Healthy

- **Enjoying Life, Spending Time with Family, Avoiding Unwanted Treatments**
  - *"I don't want diabetes to be the reason my life ends. … I gotta die on a roller coaster and die happy."*
  - *"My husband and I like to travel. … He's also younger than me, so I wanna be around while he's still around."*
  - *"I don't want to use insulin or pills … so I try to do whatever I can, so I don't get to that point."*

Results: Impact of Diabetes Diagnosis

Emotions and Feelings

- **Fear**
  - *"My sister takes 4 insulin shots a day. That would be enough to spook me. … I hate needles."*
- **Despair/Disbelief/Surprise**
  - *"I felt alone in the world."*
  - *"Like my world was coming to an end."*
  - *"Why me? I can't believe it."*
- **Apathy: Diabetes is not serious (PRIORITY AREAS ONLY)**
  - *"It was no big deal. It was just more pills I had to take."*
  - *"They said, 'You could drop dead at any moment.' I'm like, 'Cool, you know. It could happen.'"*
  - *"I'm gonna join the club now?"*

Stigma (BRIGHT SPOTS ONLY)

- *"You just -- sometimes you get a look when you say, 'I have diabetes.' I just get a look. It's like, hello? It happens."*

Results: Facilitators to DM Control

Primary and Acute Care Providers

- **PCPs, specialists, hospital staff**
  - Advice/Support, Self-Management Strategies, Clarification of Disease Process
    - *"How my sugar affects these body parts. So that really kinda opened my eyes, because I didn't know that having diabetes ... affected so much in your body."*
    - *"They gave me some literature on dieting and explaining types of diabetes...I got drinks and stuff like Glucerna and things like that from the doctor's office. And then they highly encouraged me to take the diabetes class."*
    - *"[My doctor], like, pushed me to be, like, the best person I could be."*

Behavioral Health Specialists

- *"Another person who's been really, you know, on my side with diabetes, um, is my therapist."*

Results: Facilitators to DM Control

Knowledge Resources

- **Internet, food labels, patient education sheets**
  - *"I get books of that from … the hospital."*
  - *"I went to the University of Google."*
  - *"We picked up a brochure, it got every fast-food restaurant in there and what carbs or calories or sugar were in their food."*

Diabetes-Specific Services

- **Nutritionists, Support Groups, Diabetes Educators, Cooking Classes**
  - *"That's when they told me: 'Do you want to do a class about diabetes?' I said, 'Of course I'm interested.' So, I took the class and … they explained everything to me."*

Results: Facilitators to DM Control

Self-Efficacy

- **Desire to be Independent; Body Knowledge; Problem-Solving Capacity**
  - *"Willpower more than anything."*
  - *"I know when my sugar is high, and I know when my sugar is low."*
  - *"I'm always at it. I'm always finding out new things."*

Family & Friends

- **Support, Encouragement, Reminders about Rx, Exercise, Food Choices**
  - *"If she didn't stay on me, I'd be dead."*
  - *"My son calls me every night, 'Ma, you took your pills?' "*
  - *"My sister-in-law tries to make plans to have a low-sodium. low-sugar dessert for me. So, she's actually trying to help."*

Results: Facilitators to DM Control

Access/Capacity

- **Exercise:** Nearby Facilities; Insurance Benefit; Exercise Partners
- **Health Care/Medication Coverage:** Health Insurance, Rx Benefits, Home Delivery
  - *"I'm pretty fortunate I have good insurance. So, I mean … I don't have to pay for my Metformin, you know?"*

Social Services/Community Resources (PRIORITY AREAS ONLY)

- **Mobile health units, community center, public transportation**
  - *"Twice a year, they bring, like, a bus and they check you for, for diabetes. They check your blood pressure."*

Limitations

- Enrollment for FGs lower than hoped (N=54)
- FG stratification more granular than necessary
- FG participation not aligned with practices in identified ZIP codes
  - Revealed how far people travel from home to physician offices
  - Few participants from each office, therefore difficult to customize results for specific practice sites
- Resources (e.g., turnover of personnel, time)

Next Steps

- Synthesize findings for primary care practices
- Present key take-aways to practices as recommended starting points for interventions
- Seek buy-in for quality improvement project or community intervention for practices in priority areas

Key Takeaways for Primary Care

- **Diabetes 101:** People don't always understand what it does to the body
- **Nutrition Knowledge Not Universal**: Help patients find food options, nutrition information, educational materials
- **Uplifts:** Connect with patient values to help encourage self-management (grandkids, rollercoaster, independence, self-efficacy)
- **Context is key:** Social needs (e.g., porch delivery of Rx, transportation issues, food bank usage)
- **Appointment Overload:** Chronic illness=need for coordination/navigation
- **Lasting Impact:** Interactions/relationships matter (e.g., "It's all my fault" vs. "made me the best person I could be")

LEHIGH VALLEY HEALTH NETWORK

Thank you!

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