

Case Study 2: Mapping Clinical Data and Community Resources

Learning Objectives

- **Map point addresses using an online mapping tool**
- **List two challenges to connecting patients with community resources**
- **Describe one benefit and one cost of mapping clinical data**

Welcome to the virtual huddle! This is a safe place to share ideas, learn from others, and try new approaches as we collectively try to improve the health of our communities.

You are a provider seeing patients in your busy urban clinic. During a recent team meeting, you found out that, compared to your peers, you had more prediabetics and diabetics in your patient panel and that your diabetics were more likely to be uncontrolled (hemoglobin A1c > 9) (Table 1).

Table 1: Your diabetes measures compared to your peers

	Number of patients	Number of patients with prediabetes (%)	Number of diabetics (%)	Number of diabetics with hemoglobin A1c > 9 (%)
You	1278	511 (40%)	166 (13%)	33 (20%)
Clinic average	1139	410 (36%)	102 (9%)	13 (13%)

Your care team reviewed clinic data at the last team meeting, and your colleagues discussed their approaches for their diabetic patients. One colleague mentioned that she was using the Population Health Assessment Tool to map those with prediabetes, controlled diabetes, and uncontrolled diabetes and then referring her patients to community resources, like Diabetes Prevention Programs.

You work with your practice administrator and community health worker to map your patients with prediabetes and diabetes.

Now, it's your turn:

Task: Map your patients with prediabetes and diabetes

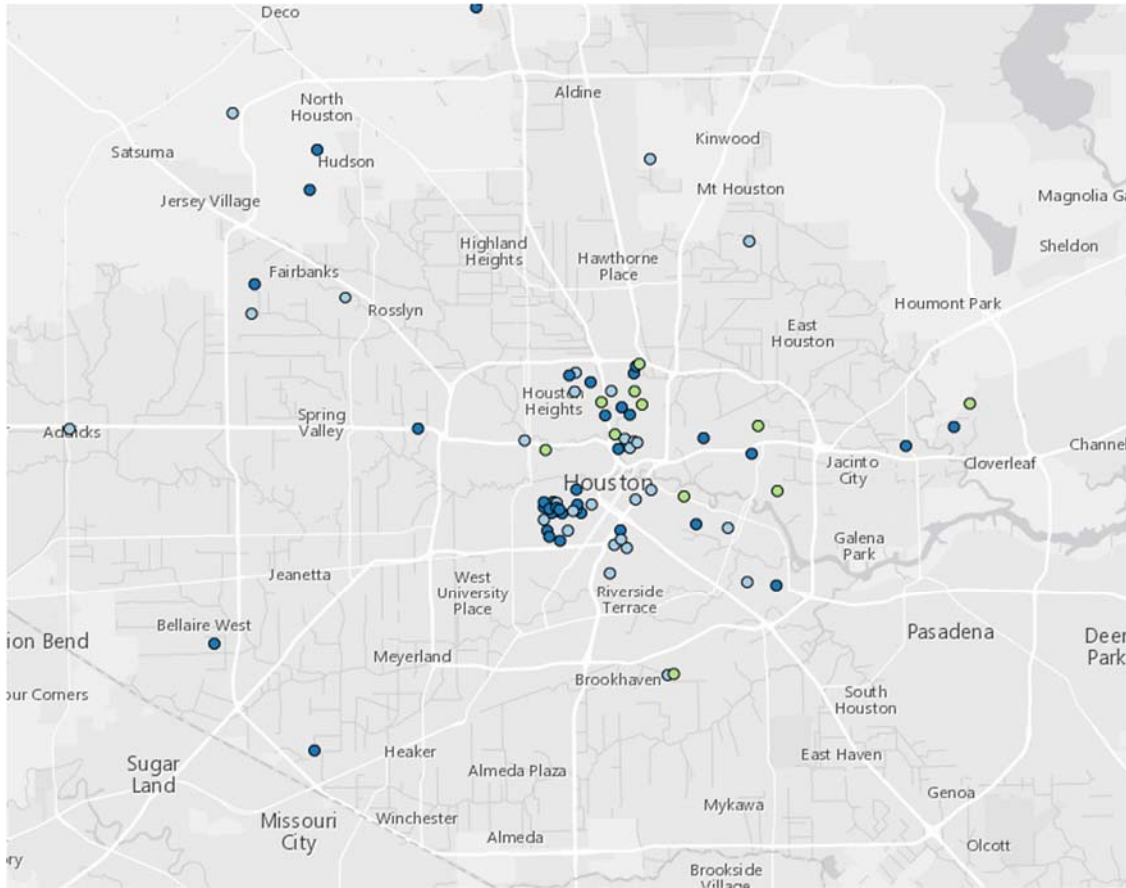
Refer to the document "How to Geocode and Extract Data in HealthLandscape" for instructions on how to upload data. This document is located on this website:

<http://www.graham-center.org/rgc/maps-data-tools/tools/copc.html>

Go to http://www.healthlandscape.org/map_Project500Cities.cfm.

Map the data on the file "Case Study 2 – Mapping Clinical Data – Data", worksheet "Prediabetics and Diabetics".

Under the question, “Do any columns represent a”, select “Group / Category: Diabetes Status



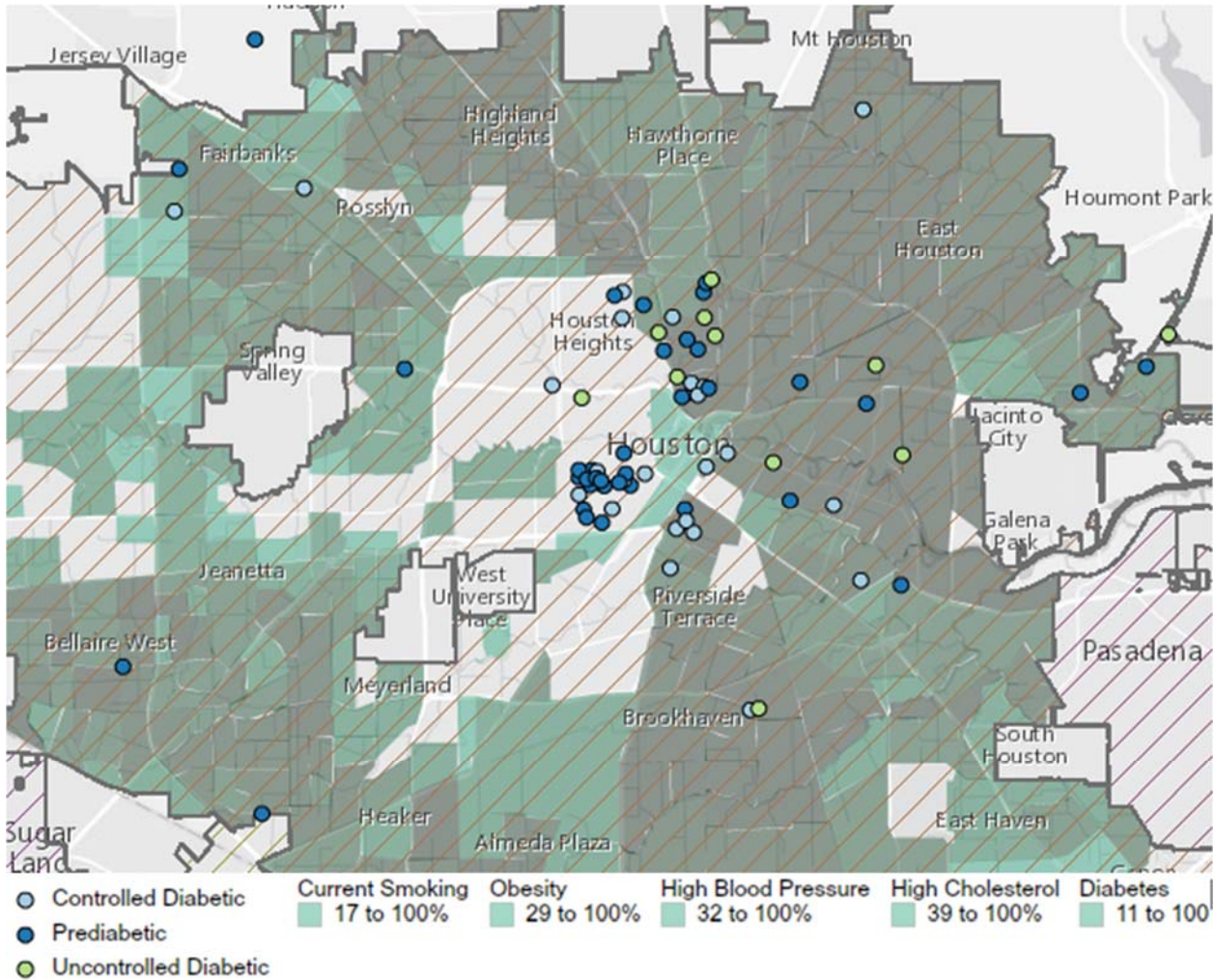
- Controlled Diabetic
- Prediabetic
- Uncontrolled Diabetic

Discussion questions:

- 1) What are the benefits and costs of compiling the data on your diabetics? What are the benefits and costs of mapping the data?
- 2) How would you describe the distribution of those points? Are they grouped? Dispersed? Can you identify any pattern?
- 3) Do the patterns differ for the prediabetics, controlled diabetics, and uncontrolled diabetics?
- 4) What factors do you think could explain the distribution you have observed?

While in the 500 Cities mapping tool, select the “500 Cities (Tract)” header on the right side navigation pane. Select the indicators “Current Smoking”, “Obesity”, “High Blood Pressure”, “High Cholesterol”, and “Diabetes”.

Your map should look similar to this:



Discussion questions:

- 1) How would you describe the distribution of those points relative to the community data?
- 2) How does the additional information change your understanding of where your patients live?

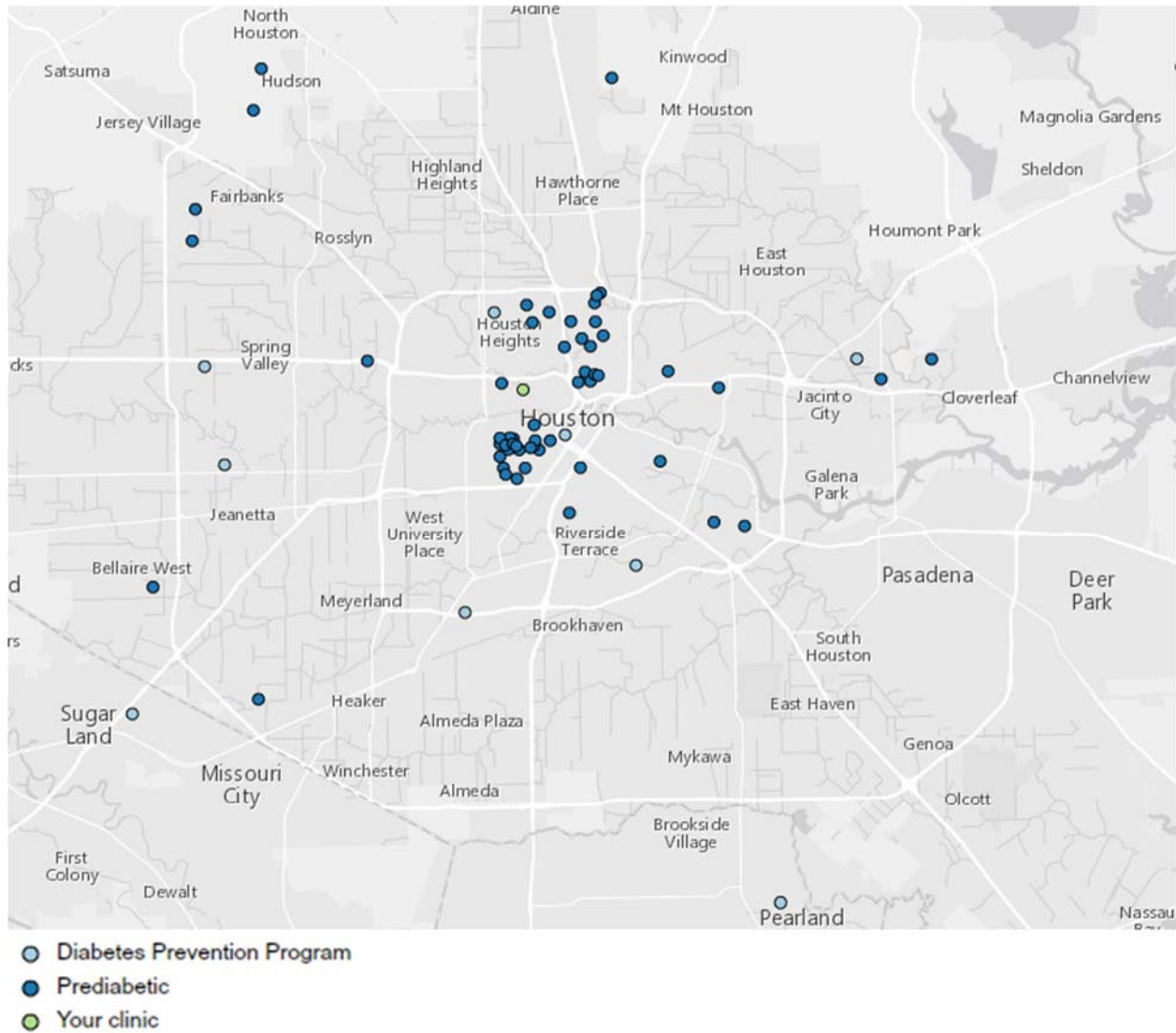
The community health worker on the team mentions that several patients have used community-based Diabetes Prevention Programs and reported encouraging results. After researching these programs, you conclude that these programs can be effective although getting patients to complete all sessions has been challenging.¹⁻⁴ The Centers for Disease Control and Prevention developed the year long lifestyle change program, which delivers lifestyle education, connects participants with a lifestyle coach, and offers a support group of people with similar goals and challenges.⁵

Now, it's your turn:

Task: Overlay the maps of patients with prediabetes and the locations of the Diabetes Prevention Programs

Map the data on the file “Case Study 2 – Mapping Clinical Data – Data”, worksheet “PRE – Prediabetics and DPPs”.

Under the question, “Do any columns represent a”, select “Group / Category: Location Type



Discussion questions:

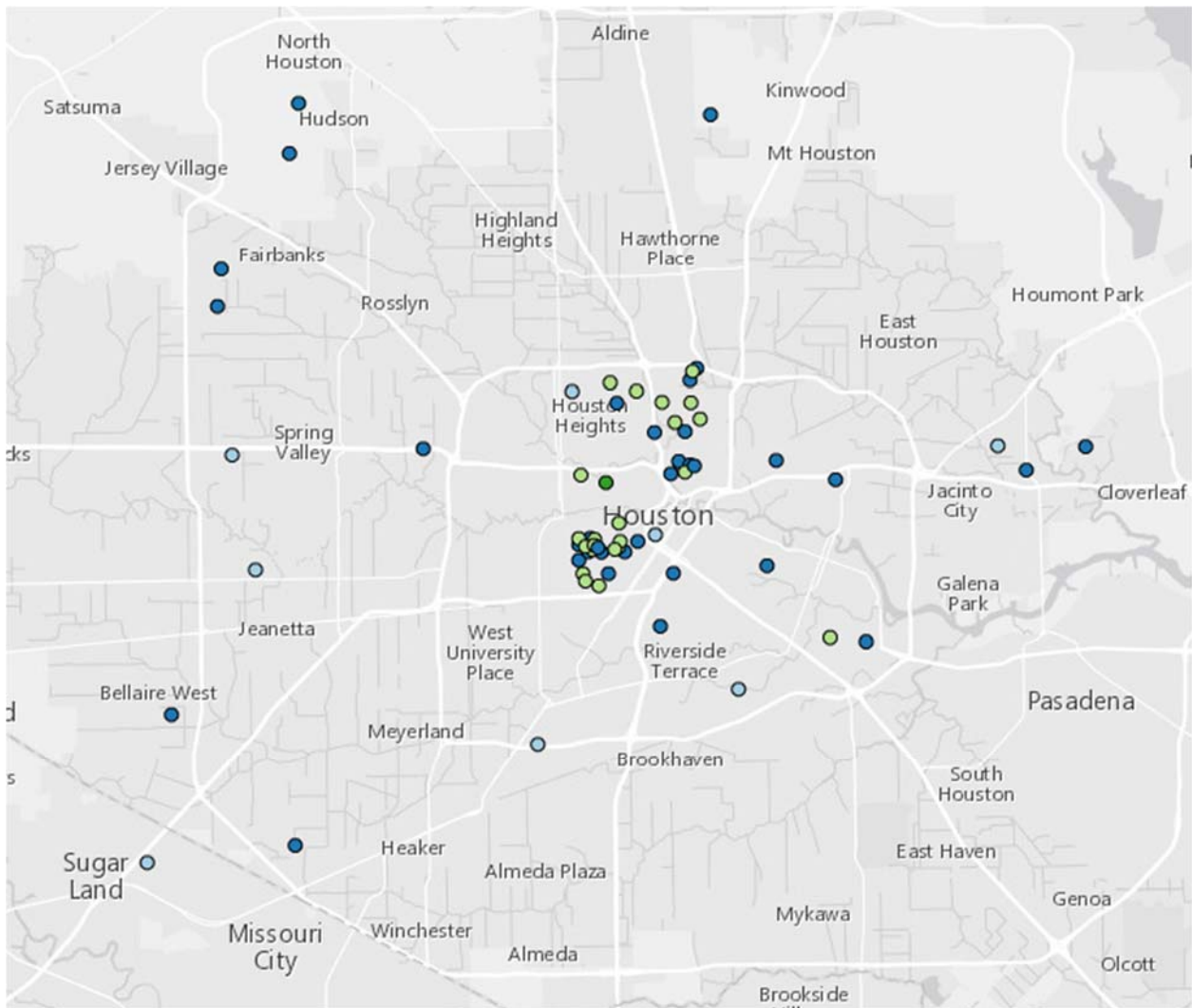
- 1) To what extent do the prediabetics live near Diabetes Prevention Programs?
- 2) Which patients would you expect to have difficult accessing the Diabetes Prevention Programs?

You look at the map of Diabetes Prevention Programs and your prediabetics. Your community health worker refers prediabetics to the program closest to their address. Three months later, your community health worker generates a list of patients who have registered for a program.

Task: Map the prediabetics, by whether or not they have registered for the program.

Map the data on the file “Case Study 2 – Mapping Clinical Data – Data”, worksheet “POST 1 – Prediabetics and DPPs”.

Under the question, “Do any columns represent a”, select “Group / Category: Referral Status.”



- Diabetes Prevention Program
- Not Registered
- Registered
- Your clinic

Twenty-three percent of your prediabetics registered for the program.

Discussion questions:

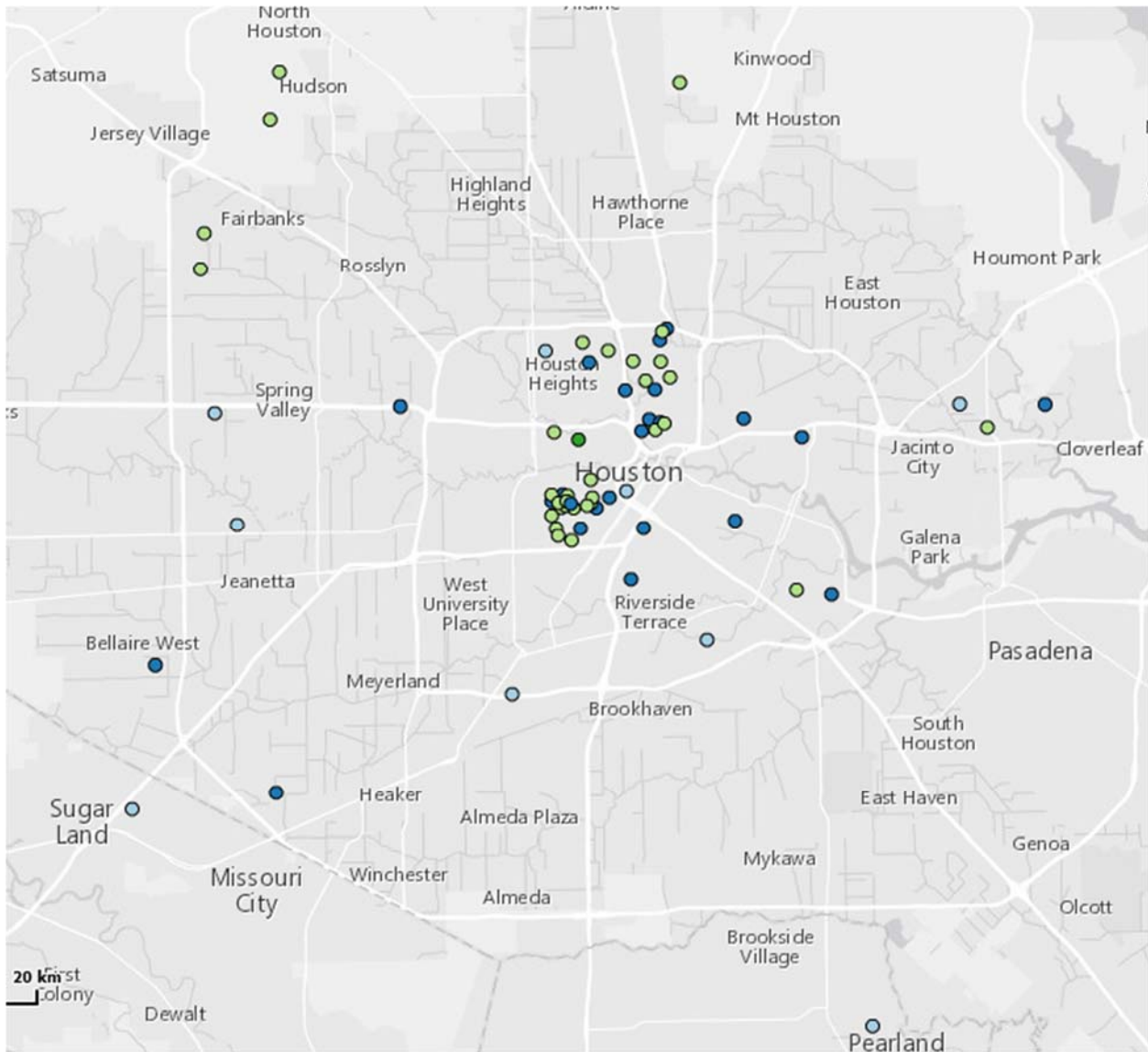
- 1) Do you observe any patterns with respect to those prediabetics registering and not registering for the program? If so, how would you describe the pattern?
- 2) What are potential explanations for why prediabetics did not register for the program?
- 3) What changes can you make to your referral process?

Your community health worker mentions that several patients indicated that they could not attend the classes because the classes took place when they were at work. You and your community health worker change the referral process. Instead of connecting patients with the programs closest to their home addresses, your community health worker shows them a map of locations and asks them to select their preferred locations. Three months after changing the referral process, your community health worker generates a list of patients who have registered for a program.

Task: Map the prediabetics, by whether or not they have registered for the program.

Map the data on the file “Case Study 2 – Mapping Clinical Data – Data”, worksheet “POST 2 – Prediabetics and DPPs”.

Under the question, “Do any columns represent a”, select “Group / Category: Referral Status.



This change has increased adoption of the program with 35% of your prediabetics registering for the program.

Discussion questions:

- 1) How has the distribution of prediabetics registering and not registering for the program changed?
- 2) What additional interventions could you do to increase the number of prediabetics registering for the program?

3) What additional numbers could you track to determine the success of this intervention?

References

1. Davies MJ, Gray LJ, Ahrabian D, et al. A community-based primary prevention programme for type 2 diabetes mellitus integrating identification and lifestyle intervention for prevention: a cluster randomised controlled trial. *Programme Grants Appl Res*. 2017;5(2):1-290. doi:10.3310/pgfar05020.
2. Community Preventive Services Task Force. *Diabetes Prevention and Control: Combined Diet and Physical Activity Promotion Programs to Prevent Type 2 Diabetes Among People at Increased Risk.*; 2015.
3. Siu AL, on behalf of the U.S. Preventive Services Task Force. Screening for Abnormal Blood Glucose and Type 2 Diabetes Mellitus: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med*. 2015;163(11):861. doi:10.7326/M15-2345.
4. Alva ML, Hoerger TJ, Jeyaraman R, Amico P, Rojas-Smith L. Impact Of The YMCA Of The USA Diabetes Prevention Program On Medicare Spending And Utilization. *Health Aff (Millwood)*. 2017;36(3):417-424. doi:10.1377/hlthaff.2016.1307.
5. Centers for Disease Control and Prevention. Lifestyle Change Program Details. <https://www.cdc.gov/diabetes/prevention/lifestyle-program/experience/index.html>. Published January 14, 2016. Accessed March 31, 2017.

Appendix A: Relevant Family Medicine Milestones – Mapping Clinical Data and Linking to Community Resources

Family Medicine Milestones	Case Study 2
Integrates practice and community data to improve population health.	X
Collaborates with other practices, public health, and community- based organizations to educate the public, guide policies, and implement and evaluate community initiatives.	X
Uses an organized method, such as a registry, to assess and manage population health.	X
Facilitates patients’ and families’ efforts at self- management of their chronic conditions, including use of community resources and services.	X
Integrates in-depth medical and personal knowledge of patient, family and community to decide, develop, and implement treatment plans.	X
Understands the importance of the health care team and shows respect for the skills and contributions of others.	X
Uses experience with patient panels to address population health.	X
Collaborates with the participants necessary to address important health problems for both individuals and communities.	X
Uses quality markers to evaluate the care of patients with chronic conditions.	X
Understands the role of registries in managing patient and population health.	X
Continually uses experience with patients and evidence-based medicine in population management of chronic condition patients.	X
Mobilizes team members and links patients with community resources to achieve health promotion and disease prevention goals.	X
Tracks and monitors disease prevention and health promotion for the practice population.	X
Partners with the community to improve population health.	X
Maintains key patient-specific databases, such as problem lists, medications, health maintenance, chronic disease registries.	X
Engages the appropriate care team to provide accountable, team-based, coordinated care centered on individual patient needs.	X
Recognizes inefficiencies, inequities, variation, and quality gaps in health care delivery.	X

Appendix B: Relevant Nurse Practitioner Competencies – Mapping Clinical Data and Linking to Community Resources

Competency	Case Study 2
Synthesize concepts, including psychosocial dimensions and cultural diversity, related to clinical prevention and population health in developing, implementing, and evaluating interventions to address health promotion/disease prevention efforts, improve health status/access patterns, and/or address gaps in care of individuals, aggregates, or populations.	X
Develop and evaluate care delivery approaches that meet current and future needs of patient populations based on scientific findings in nursing and other clinical sciences, as well as organizational, political, and economic sciences.	X
Anticipates variations in practice and is proactive in implementing interventions to ensure quality	X
Leads interprofessional teams in the analysis of complex practice and organizational issues.	X
Uses technology systems that capture data on variables for the evaluation of nursing care.	X
Applies clinical investigative skills to improve health outcomes.	X
Develops new practice approaches based on the integration of research, theory, and practice knowledge	X
Use conceptual and analytical skills in evaluating the links among practice, organizational, population, fiscal, and policy issues.	X
Analyze epidemiological, biostatistical, environmental, and other appropriate scientific data related to individual, aggregate, and population health.	X
Use information technology and research methods appropriately to collect appropriate and accurate data to generate evidence for nursing practice, inform and guide the design of databases that generate meaningful evidence for nursing practice, analyze data from practice, design evidence-based interventions, predict and analyze outcomes, examine patterns of behavior and outcomes, and identify gaps in evidence for practice.	X
Demonstrate the conceptual ability and technical skills to develop and execute an evaluation plan involving data extraction from practice information systems and databases.	X