Implementing a Prediabetes Screening Algorithm in the Primary Care Setting

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INTRODUCTION

Prediabetes and type 2 diabetes are global health concerns

- 541 million adults worldwide have prediabetes & projections increase to 730 million by 2045[1]
- 38% of U.S. population has prediabetes, 80% are unaware of it [2]
- 26-50% of patients with prediabetes will progress to type 2 diabetes in 5 years if left unmanaged [1,3]
- Diabetes is the 7th leading cause of death in the U.S. [2]
- Costs exceed $327 billion dollars annually → most expensive chronic condition in the nation [4]
- Lifestyle change programs & medication have proven effectiveness [5,6]

1 OUT OF 3 PEOPLE has prediabetes.

PROBLEM STATEMENT

There are inconsistent screening and referral practices among primary care providers. Healthcare providers must improve their screening processes to identify prediabetes so that referral to lifestyle intervention to prevent or delay the onset of type 2 diabetes can take place.

OBJECTIVES

Project Goal:
Improve prediabetes identification and referrals

Project Model:

PLAN
ACT   DO
STUDY

Project Aims:

1. Develop a prediabetes screening algorithm and provider education plan

2. Implement and evaluate the screening algorithm to compare the number of patients identified as having prediabetes, and the number of patients referred for lifestyle intervention to two prior recent years

3. Sustain and scale the prediabetes screening algorithm
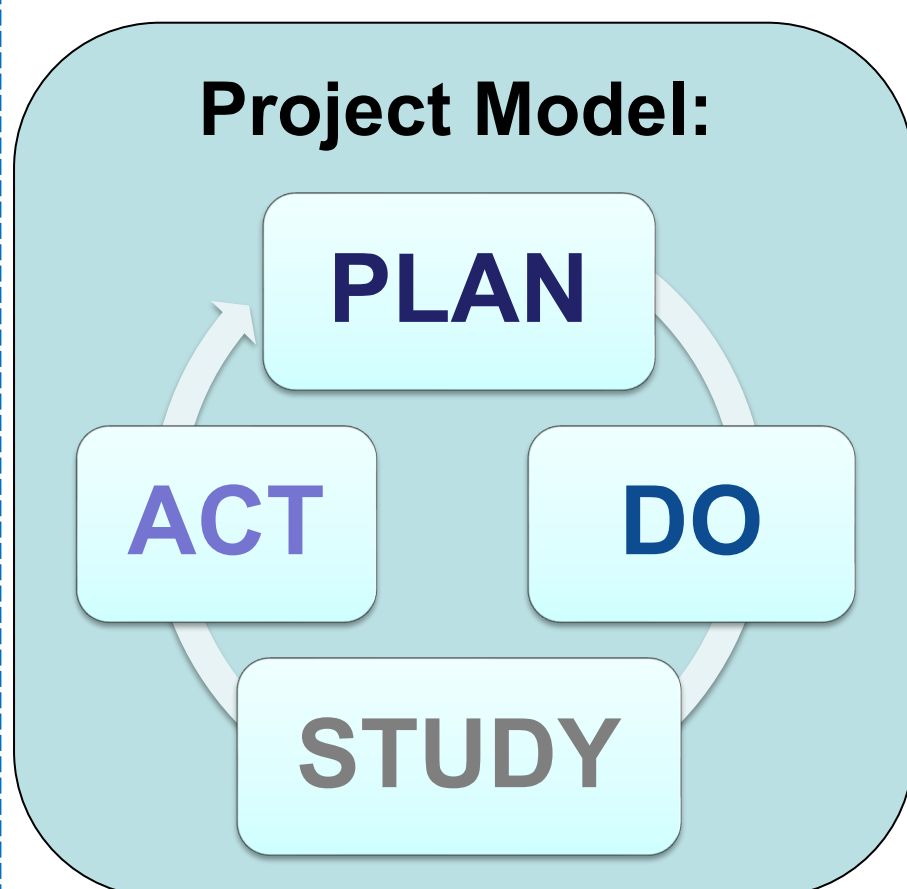
METHODS

Aim 1: Develop Screening Algorithm and Tool

Prediabetes Risk Test — NATIONAL DIABETES PREVENTION PROGRAM
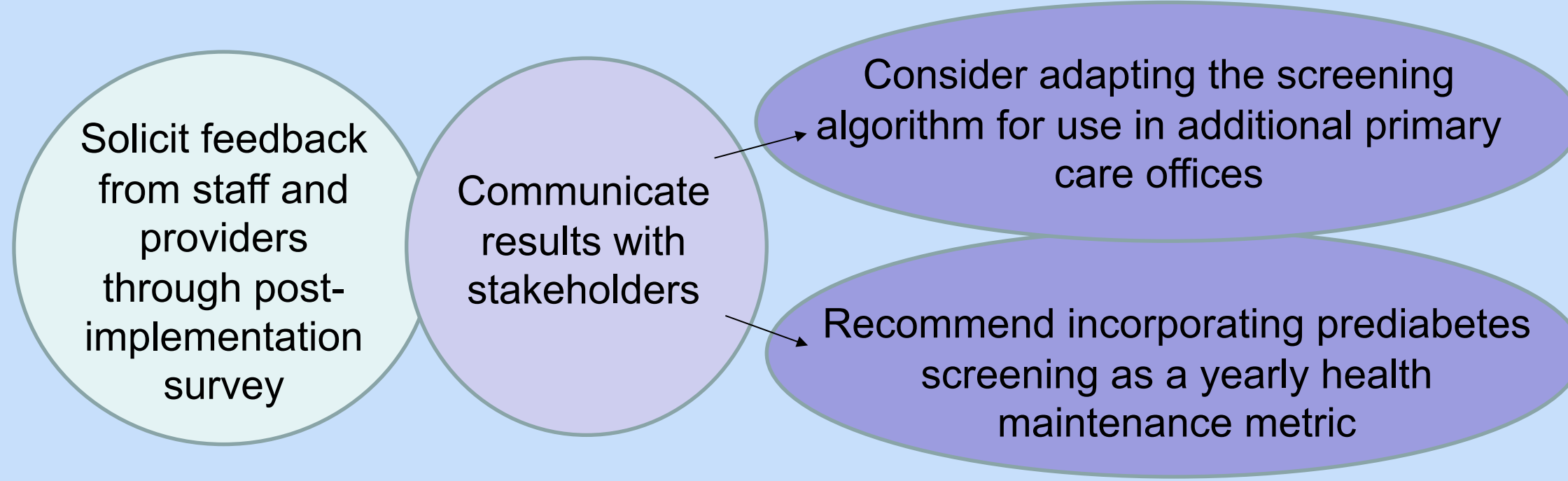
https://www.cdc.gov/prediabetes/takethetest/

Algorithm included validated screening tool & point-of-care hemoglobinA1c testing for those identified as high risk, with guidance for intervention based on results
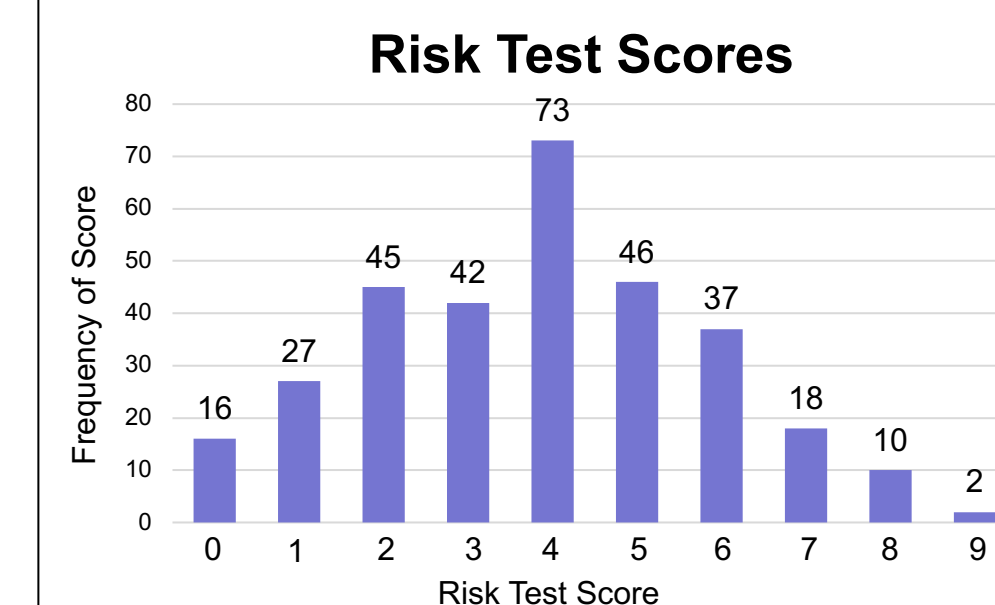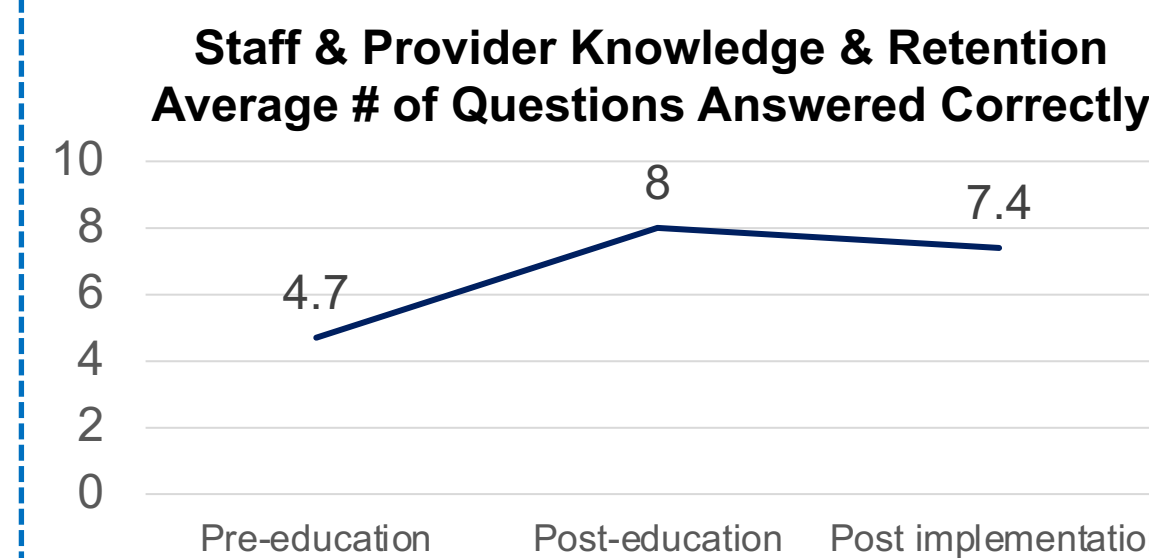
Aim 2: Implement and Evaluate

Project implemented in a Primary Care Practice, that is part of a large multi-specialty care organization in New England

- Education session with a pre- and post-test, re-administered following implementation to assess retention of knowledge
- Evaluate number of patients identified with prediabetes & number of referrals placed during implementation
- Compare implementation data to pre-algorithm implementation data from corresponding time frame in 2019 and 2021
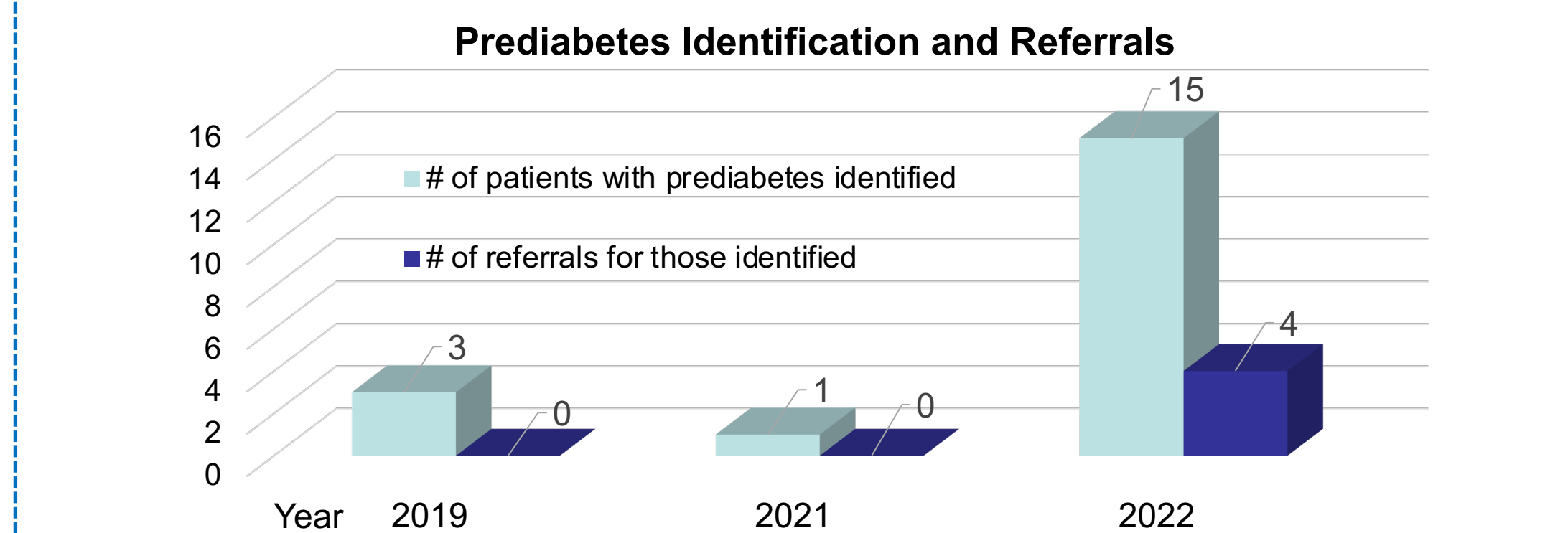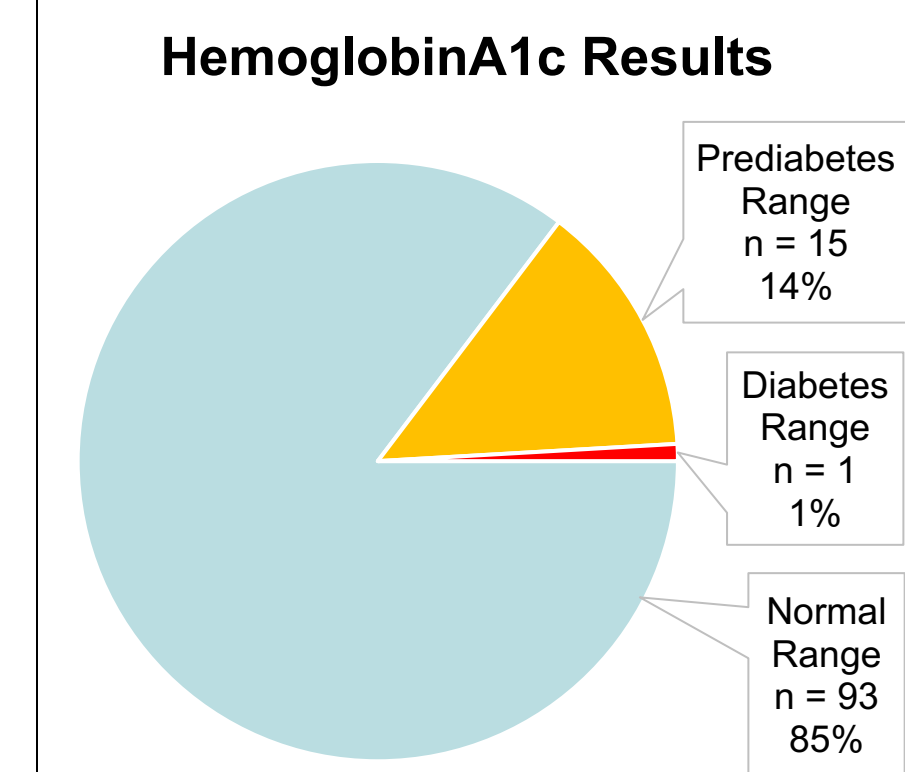
Aim 3: Sustain and Scale

Solicit feedback from staff and providers through post-implementation survey

Communicate results with stakeholders

Consider adapting the screening algorithm for use in additional primary care offices

Recommend incorporating prediabetes screening as a yearly health maintenance metric

RESULTS

Staff & Provider Knowledge & Retention
Average # of Questions Answered Correctly

- Pre-education: 4.7
- Post-education: 8
- Post implementation: 7.4

Risk Test Scores

Risk Test Score	Frequency of Score
0	16
1	27
2	45
3	42
4	73
5	46
6	37
7	18
8	10
9	2

Practice & Project Demographics

Age	Practice n (%)	Project n (%)	Project Compared to Practice
Under 39	1345 (24%)	84 (27%)	+3%
40-49	634 (11%)	48 (15%)	+4%
50-59	843 (15%)	71 (22%)	+7%
60 or older	2814 (50%)	113 (36%)	-14%
Total	5636	316	

Gender	Practice n (%)	Project n (%)	Project Compared to Practice
Male	3019 (54%)	170 (54%)	=
Female	2617 (46%)	146 (46%)	=

HemoglobinA1c Results

- Prediabetes Range n = 15, 14%
- Diabetes Range n = 1, 1%
- Normal Range n = 93, 85%

Prediabetes Identification and Referrals

- # of patients with prediabetes identified
- # of referrals for those identified

Year	patients identified	referrals
2019	3	0
2021	1	0
2022	15	4

PRACTICE IMPLICATIONS

Algorithm feasible & cost-effective with a marked increase in prediabetes identification and referrals	Inconsistent screening criteria & definition of prediabetes among organizations	Conduct additional studies on more diverse populations & patients' readiness for change

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