



Actions Outcomes Resulting from Positive Hemoglobin A1C Screenings Conducted in a Family Medicine Clinic

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Background:

Approximately 29.1 million people in the US have diabetes mellitus, which cost the economy \$245 billion in 2012. It is also the country's 7th leading cause of death and is associated with high consequences of both microvascular and macro vascular complication, particularly when chronically uncontrolled. Guidelines recommend screening for diabetes in both adults and children as age increases and when combined with various risk factors. However, screening for diabetes alone does not lower the risk of developing long term complications. Rather, there must be action taken in response to positive screening outcomes in efforts to decrease the likelihood of developing these long-term complications and improve quality of life.

Purpose:

To assess frequency and type of timely interventions made by physicians in response to elevated point-of-care (POC) A1C screening results.

Methods:

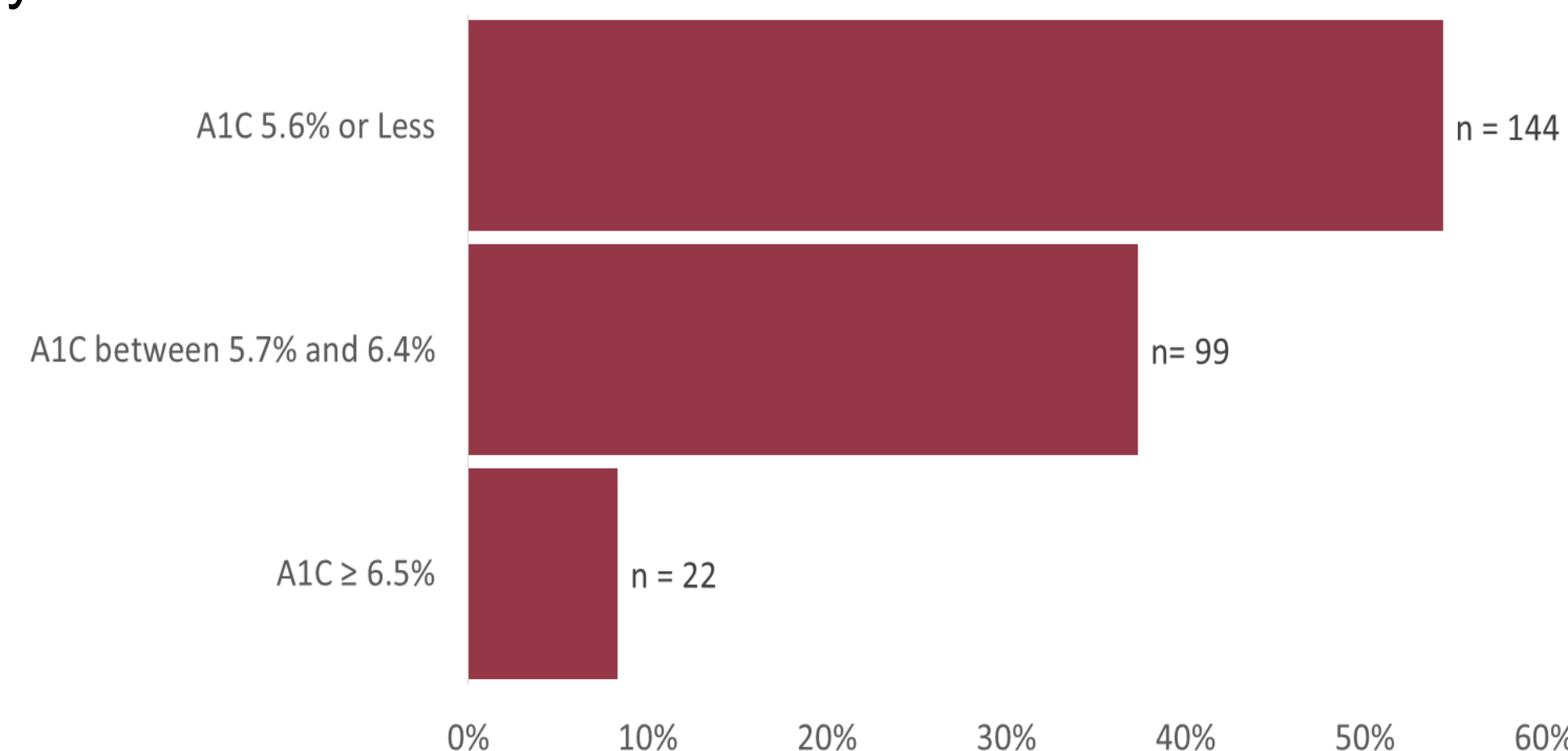
Observational retrospective cohort study used grant-funded POC A1C tests to screen patients at a family medicine clinic between August 2015 and 2016.

Prior to the study, a Certified Diabetes Educator educated the physicians about current American Diabetes Association (ADA) screening guidelines, diagnostic methods, and glycemic thresholds. Clinic physicians (n=26) self-identified patients without a PMH of diabetes to screen based on patients' pre-existing risk factors. A1C outcomes were documented in the electronic medical records (EMR). Patient's EMR with A1C outcomes $\geq 5.7\%$ were retrospectively reviewed for actions taken by the physician such as verification by a secondary screen, addition of diabetes or prediabetes specific ICD-10 code, lifestyle and/or pharmacological interventions.

Results:

During the study interval, 333 patients were screened and 265 were analyzed after removing 68 patients due to a preexisting diabetes diagnosis or recent prediabetes result. The 121 A1C outcomes were elevated, either in the prediabetes range (5.7-6.4%) or diabetes range ($\geq 6.5\%$). These EMRs were reviewed for physician action.

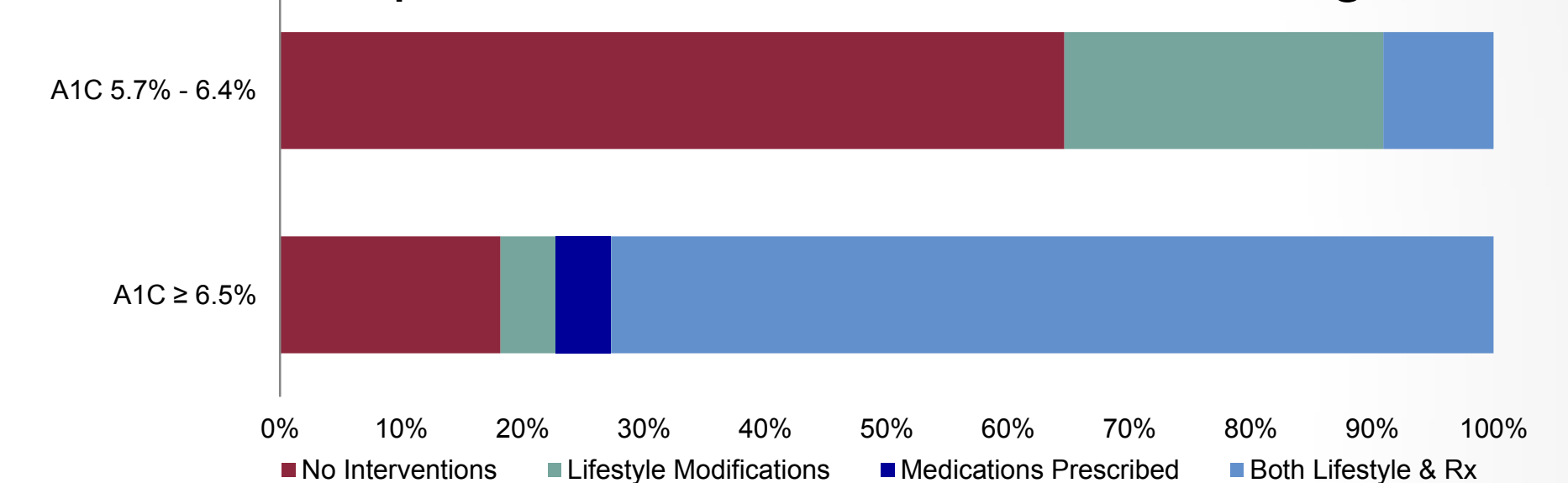
A1C Screening Outcomes of POC test



Diagnostic Actions Based on A1C Outcome

Patient's HbA1c Outcome	Avg. HbA1c \pm St. Dev	Total Patients	Diagnosis ICD 10 code	A1C Test Repeated Later	Lifestyle Modifications Prescribed	Medications Prescribed	Both interventions (Lifestyle & Rx)	No interventions given
A1C 5.7-6.4%	5.9 \pm 0.19	99	28 (28%)	20 (20%)	26(26%)	0(0%)	9 (9%)	64(65%)
A1C > 6.5	7.9 \pm 1.96	22	20 (91%)	17 (77%)	1 (5%)	1(5%)	16 (73%)	4 (18%)
Total	6.3 \pm 1.14	121 (100%)	48 (40%)	37 (31%)	27 (22%)	1 (1%)	35 (29%)	67 (55%)

Therapeutic Interventions Based on Diagnosis:



Discussion:

Per POC A1C outcomes, 45% of those screened were unknowingly living in chronic hyperglycemia.

A1C outcome 5.7-6.4%: Provider interventions were made only 35% of the time, leaving 65% without recommendations for even lifestyle interventions.

A1C outcome $\geq 6.5\%$: Most were provided therapeutic interventions of either lifestyle modifications, medications, or both, leaving 18% patients without therapeutic action despite an elevated A1C outcome.

Conclusion:

Though 45% of those screened were identified as unknowingly living in chronic hyperglycemia, the overall implementation of lifestyle modification and medication administration was not as robust as was expected. It is important to reinforce family physicians' knowledge about actively screening for hyperglycemia, utility of repeat test confirmation, and importance of lifestyle modifications as the therapeutic cornerstone.