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Implementation of a Toolkit to Improve Education for Hospitalized Diabetes Patients

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Background

Deficits in diabetes knowledge and self-management skills contribute to poor health outcomes and higher hospital readmission rates of patients with diabetes [6, 7]. Recommendations for inpatient diabetes education prioritizes survival skills teaching to facilitate safe self-management after discharge [5]. Nursing staff who historically provide much of diabetes education during hospitalization report several barriers to providing quality diabetes patient education including time constraints, perceived lack of knowledge, and limited education resources [7].

There is no standardized diabetes education training for nurses and no formal resource exists for providing diabetes education, resulting in inconsistent diabetes patient education [5]. Diabetes patient education toolkit models have demonstrated healthcare improvements including:

- Reduced diabetes complications.
- Cost savings.
- Improved patient knowledge and medication adherence.
- Improved glycemic control.
- Lower 30-day readmission rates.
- Reduced nursing barriers to providing education [2, 3, 4, 5].



Purpose & Aims

Purpose: Improve diabetes patient education provided by staff nurses to hospitalized patients with type 2 diabetes (T2DM) by developing and implementing a diabetes education toolkit on an inpatient general surgery unit.

Aims:

1. Assess diabetes education provided by inpatient nursing staff on a general surgery unit to hospitalized patients with T2DM.
2. Improve unit nurses' ability to provide evidence-based diabetes survival skills education to hospitalized patients with T2DM who have Hemoglobin A1c (HbA1c) values 7-9%.

Rationale

Vermont medical expenses for diabetes and prediabetes ~\$409 million annually [1]. Implementing quality improvement processes to identify and provide education to those with poorly managed diabetes can help to address the burden of diabetes and gaps in patient care.

Over a 12-month time period, **45% of patients** with HbA1c values available prior to discharge from a post-surgical unit had **abnormal HbA1c values** (M. Lasage, personal communication, July 7, 2020).

Inclusion criteria of HbA1c values of 7-9% were chosen based on the American Diabetes Associations' recommendations <7% and to avoid overlap with education provided to patients with HgbA1c values >9% by the inpatient diabetes nurse educators [1].

Teach-Back Method chosen for assessment because of its positive effects with:

- Patient satisfaction and perceptions.
- Post-discharge readmissions.
- Disease knowledge and self-management.
- Health-related quality of life [8].

UVMMC heart failure patient education toolkit model in 2015 successfully reduced the 30-day readmission rate of patients with heart failure from 20.5% to 8% (R. Hamble, personal communication, April 10, 2020).

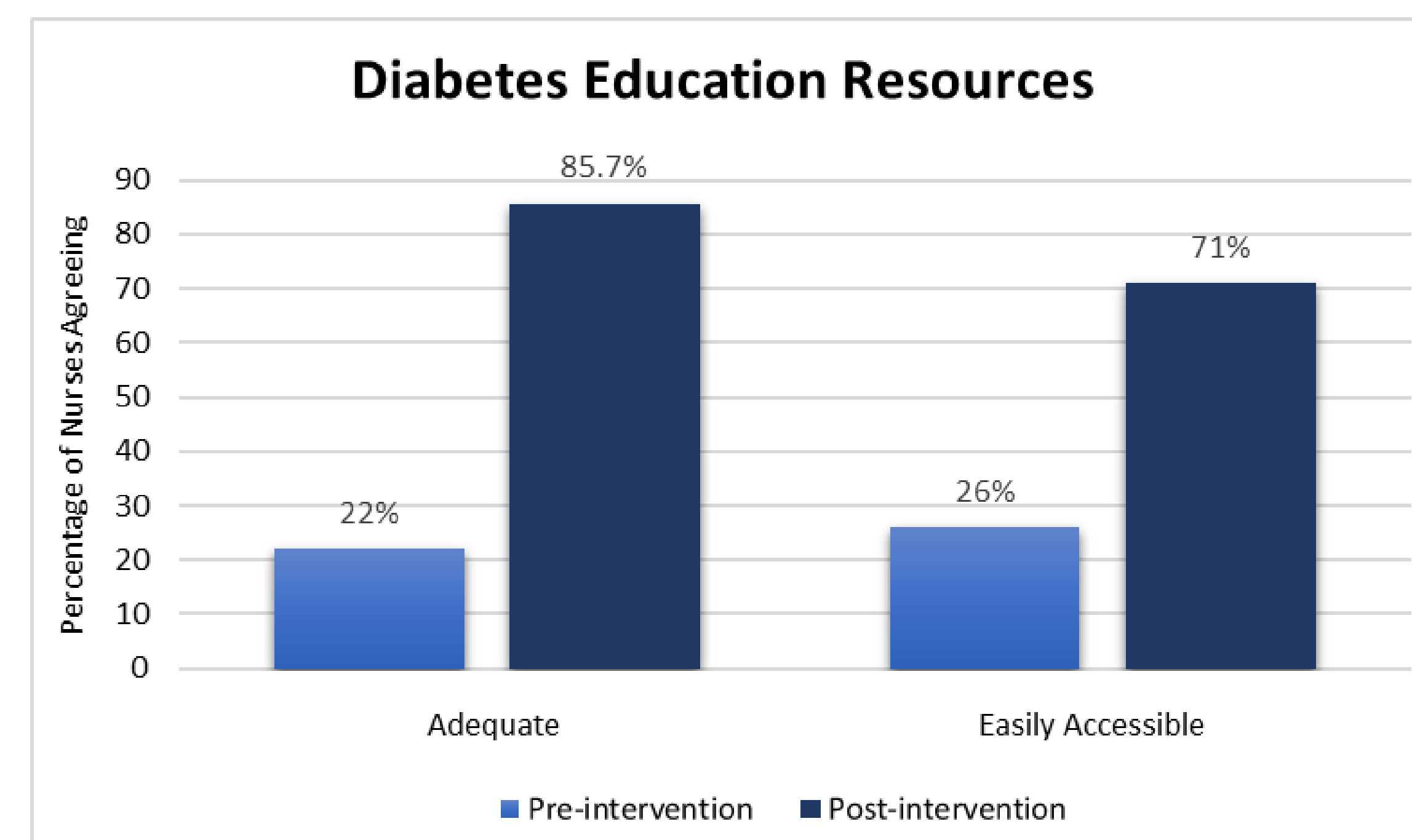
Using the **Health Belief Model** one can predict that:

- Improving diabetes education resources will reduce perceived barriers and improve patient education provided by nurses.
- Enhancing diabetes education for hospitalized patients will reduce patient barriers to diabetes self-management by altering perceptions and improving management self-efficacy.

Interventions

An anonymous survey was administered to nursing staff regarding diabetes patient education confidence and practices. A diabetes education toolkit was created utilizing existing education materials provided by the diabetes nurse educator. Survival skills education was provided in-person to nursing staff before implementation. Eligible patients were identified using an electronic health record. Nursing staff provided education to patients utilizing the toolkit folder on a post-surgical unit. Standardized teach-back questions were created and administered to patients prior to discharge to assess effectiveness. Toolkits were sent home with patients to provide reference materials and reinforcement of education. Knowledge retention was assessed by re-administering teach-back questions with 15-20% of patients two-weeks post-discharge.

Results



Diabetes Education Resources:

- Nurses reporting **DM education resources as adequate increased by 63.71%**.
- Nurses reporting **DM education resources as easily accessible increased by 45%**.

Reduced and Eliminated barriers to providing education reported by nurses:

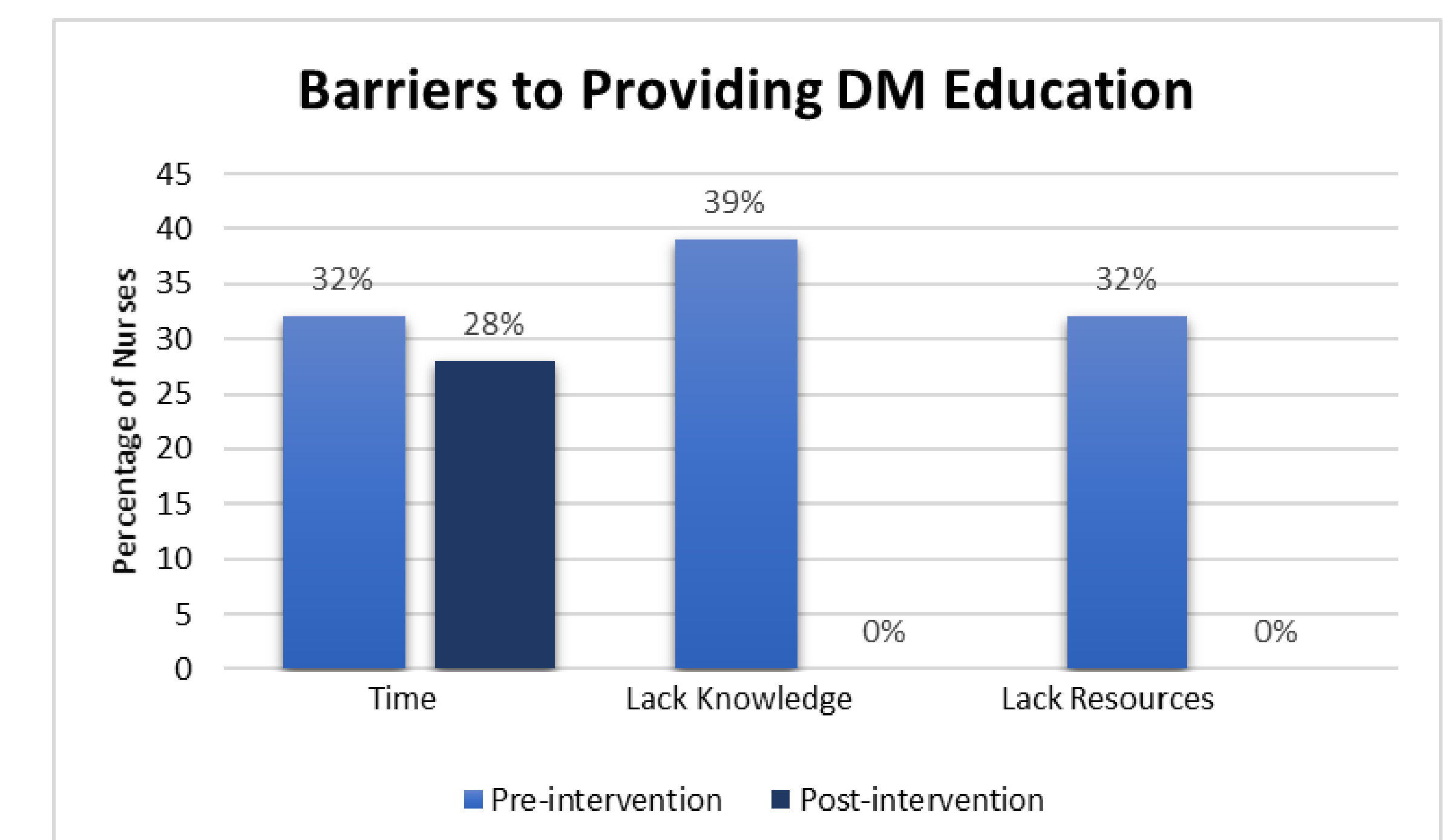
- **Time – 4% reduction** (32% vs 28%)
- **Lack of resources – Eliminated** (32% vs 0%)
- **Lack of knowledge – Eliminated** (39% vs 0%).

Patient comprehension demonstrated by:

- Average **teach-back score of 86.4%**.
- Average **retention rate of 93% at 2 weeks post-discharge**.

Post-intervention, staff nurses reported increased:

- **Confidence** providing education of all diabetes topics, by **11.8%**
- **Resource utilization**, by **25%**.



Conclusions & Implications

Utilizing an education toolkit folder to provide diabetes survival skills education to patients with T2DM and HbA1c values between 7-9% on an inpatient general surgery unit demonstrated:

- Patient comprehension and retention of education.
- Improvement in self-reported nursing staff confidence.
- Improvements in resource utilization.
- Reduction in barriers to providing inpatient diabetes patient education.

Educational toolkits are effective for improving inpatient diabetes survival skills education to hospitalized patients with T2DM. This toolkit model has potential to be adopted hospital-wide and/or outpatient settings. Additional data including the effects on HbA1c values and readmission rates are required to determine the return on investment. An interprofessional approach in patient education could provide further valuable information for patients aiming to improve their diabetes.

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