Determining the needs for pediatric diabetes education among nurses

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INTRODUCTION

- Inpatient care of children and adolescents with diabetes requires a cohesive multidisciplinary team well-informed of the needs of patients requiring insulin.
- Previous studies have reported diabetes-related knowledge deficiency in adult-medicine nurses, however there is limited literature in pediatric nurses.
- Researchers have trialed various diabetes education (DiabEd) programs but encountered barriers with small cohorts and study retention.
- At our hospital, pediatric patients with diabetes are often, but not always, admitted to a specific unit (8 East, 8E), which leads to unequal experience in nurses caring for these children on other units.

OBJECTIVES

- Our objective was to evaluate pediatric nurses' experience, comfort, and knowledge related to insulin and diabetes care.
- We also sought to understand the distribution of patients with insulin needs across units of the hospital.
- We intended to use data from this needs assessment to create a diabetes education curriculum for pediatric nurses.

METHODS

- A needs assessment was conducted consisting of surveys to nursing representatives on non-acute care units (nonACUs), review of diabetes resources available on each nonACU, and data regarding insulin usage and incident reports pertaining to diabetes or insulin.
- Surveys assessed current DiabEd provided for nurses and interest in further DiabEd.
- A pretest consisted of 2 validated tools: the modified Diabetes Self-Report Tool (mDSRT) and modified Diabetes Knowledge Test 2 (mDKT2).
  - The mDSRT used a 4-point Likert scale for 10 items covering confidence in aspects of inpatient diabetes care, with higher scores reflecting higher confidence.
  - The mDKT2 consisted of 15 multiple choice questions.

RESULTS

- Of 8 nonACUs, 25% had routine DiabEd for new nurses and none had ongoing DiabEd after orientation.
- 7 units expressed desire for additional DiabEd.
- Unit resources were outdated or absent in 63% of nonACUs.
- Although nonACUs outside of 8E were responsible for only 16% of insulin usage over the prior 24 months (outlined in **Table 1**), they were referenced in 25% of incident reports.

Table 1: Insulin usage (01/01/21 – 01/01/23)

Pediatric Unit (Inpatient Service)	Patients	Percent	Relative Percent
8 East (Hospitalist)	558	45.4%	45.4%
Emergency Department	246	20.0%	20.0%
7 East (PICU)	168	13.6%	13.6%
7 West Pod B (Hospitalist / PICU)	57	4.6%	4.6%
9 West (Gastroenterology)	41	3.3%	
8 West (Pulmonary)	37	3.0%	
5 East (Stem cell, Nephrology)	35	2.9%	
5 West (Hematology, Oncology)	29	2.3%	
3 West (Cardiology, CV-NICU)	16	1.3%	**16.2%**
9 East (Surgical services)	12	1.0%	
7 West Pod A (Hospitalist)	10	0.8%	
Inpatient Rehabilitation	8	0.7%	
Behavioral Health	7	0.6%	
3 East (CVICU)	4	0.3%	0.3%

CV, Cardiovascular; ICU, Intensive care unit; NICU, Neonatal ICU; PICU, Pediatric ICU

RESULTS

- 27 nurses received no DiabEd in the prior 2 years (**Fig.1**), 85% of whom cared for $\geq$1 patient with diabetes in that timeframe (**Fig.2**).
- Of 55 nurses, 14 (26%) missed $\geq$1 hypoglycemia-related question and 36 (66%) missed $\geq$1 ketone-related question on the mDKT2.
- There were no differences in mDKT2 scores between nurses who received DiabEd within the prior 2 years (12.9±1.5, 9-15) and those who had not (12.9±1.8, 7-15; p=0.94).
- Nurses on 8E scored higher on the mDSRT compared to nurses on other nonACUs (p<0.001), reflecting increased confidence.
- There was a positive correlation between mDSRT and mDKT2 scores (p<0.001, r=0.500) representing increased confidence correlating with higher diabetes knowledge scores.

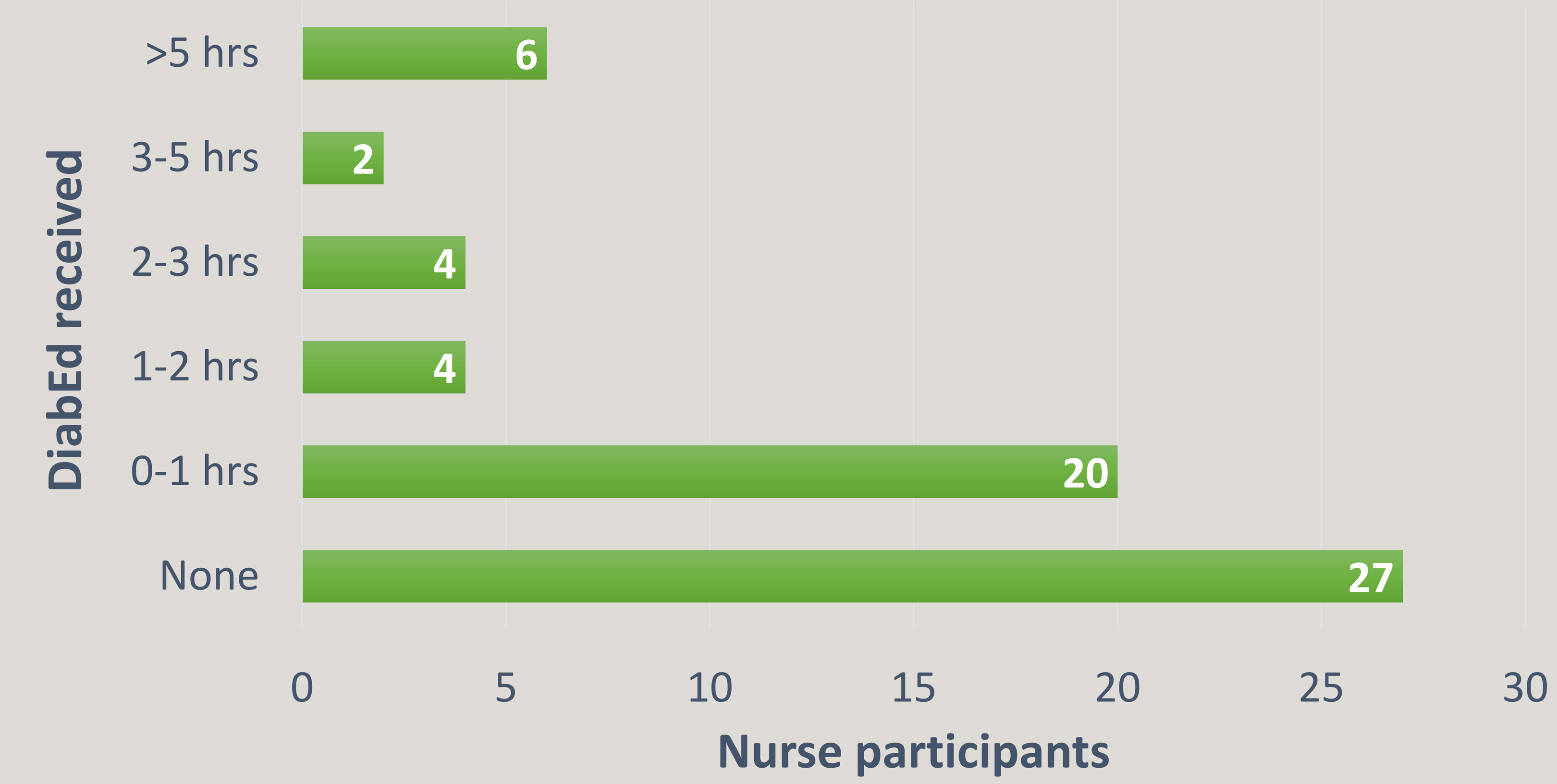

Figure 1: DiabEd received by nurses in prior 2 years

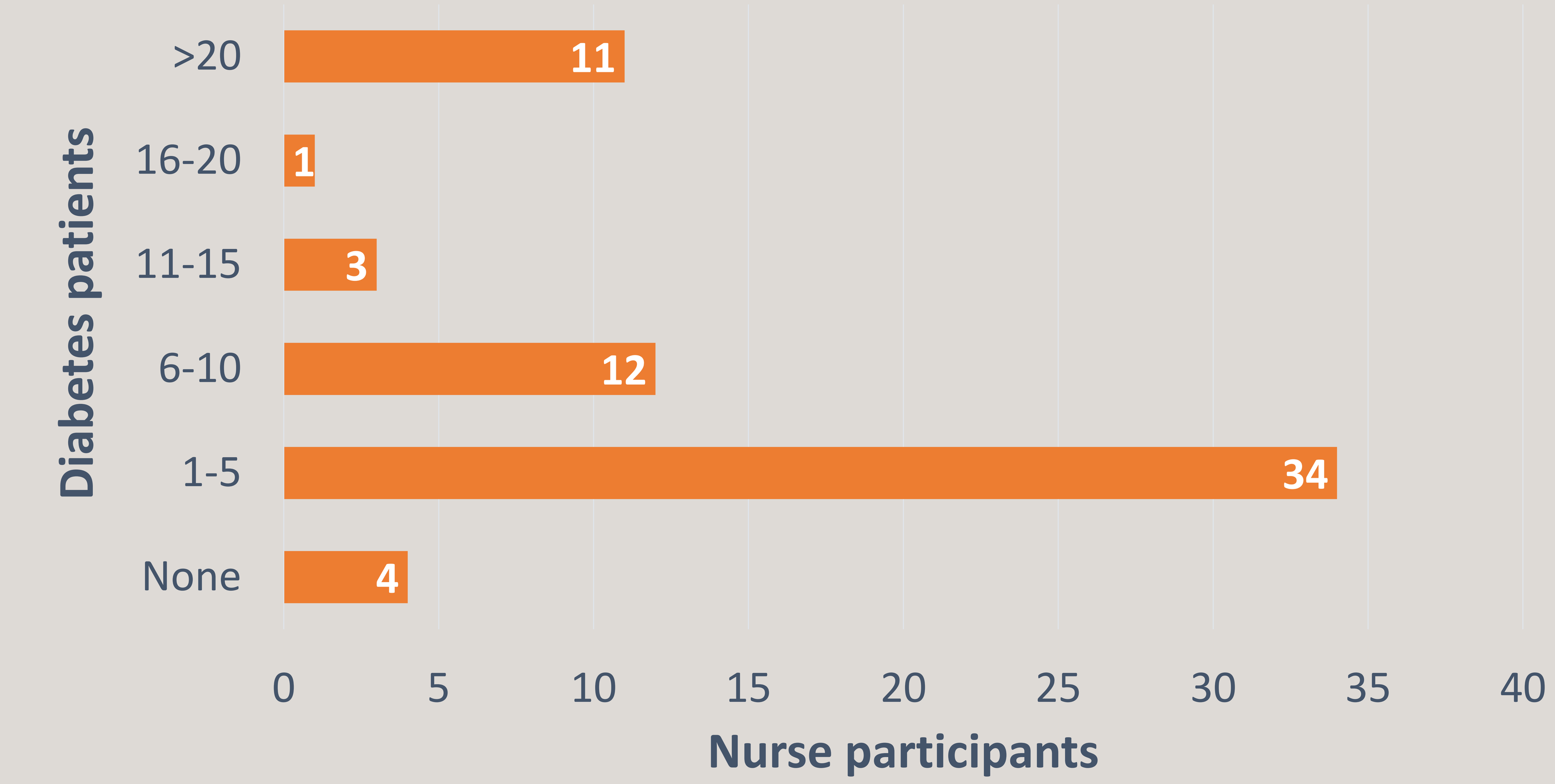

Figure 2: Patients with diabetes taken care of in prior 2 years

CONCLUSIONS

- Data from the needs assessment are consistent with previous studies in adult-medicine nurses and support the need for ongoing DiabEd for pediatric nurses.
- To our knowledge, this is the first study to evaluate educational needs of nurses related to diabetes care in children and adolescents.
- These findings have been used to create a new DiabEd curriculum for pediatric nurses using Thomas et al's "Curriculum Development for Medical Education", with posttest data planned (see separate poster).