Essentials for Integrating Diabetes Technology into the Clinical Paradigm: The DCES at a Technology Champion

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What is a Diabetes Technology Champion?

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What is a Technology Champion?

Technology champions lead efforts to integrate technology into the clinical paradigm to improve outcomes and quality of care. They design systems that motivate stakeholders to work together to achieve shared goals.

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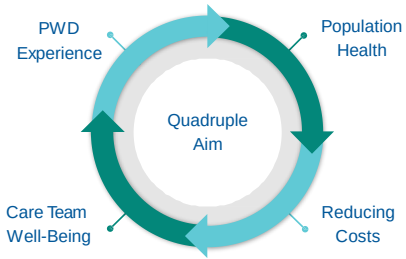
Benefits

Positive impact on achieving Quadruple Aim of Care



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How does Technology Utilization Impact Health Outcomes?

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Diabetes Technology and Outcomes: T1DX

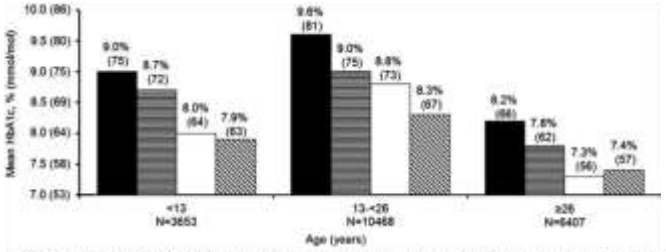

FIG. 3. Mean HbA1c by technology use in 2016–2018. Solid black represents injection only. Horizontal stripes represent pump only. Solid white represents injection+CGM. Diagonal stripes represent pump+CGM. Foster et al, 2019

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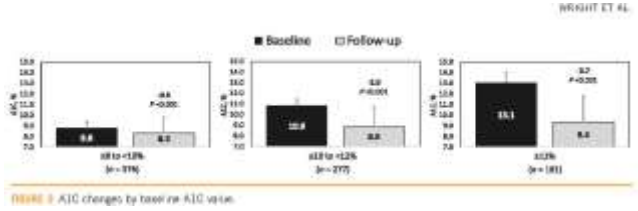
Diabetes Technology and Outcomes: Flash CGM and T2D



Use of Flash Continuous Glucose Monitoring Is Associated With A1C Reduction in People With Type 2 Diabetes Treated With Basal Insulin or Noninsulin Therapy
Eugene E. Wright, Matthew S.D. Kerr, Ignacio J. Reyes, Yelena Nabutovsky, Eden Miller
Diabetes Spectrum May 2021, 34 (2) 184-189; DOI: 10.2337/ds20-0069

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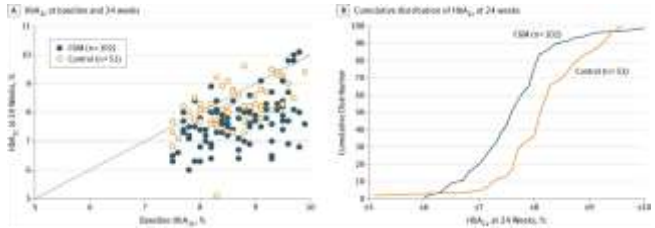
Diabetes Technology and Outcomes: DIAMOND



Beck et al, 2017

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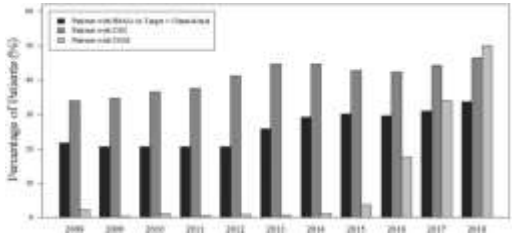
Diabetes Technology and Outcomes: SWEET



Gerhardsson, et al 2021

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What are the Barriers to Technology Adoption and Durable Use?

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Disparities Exist in Technology Utilization

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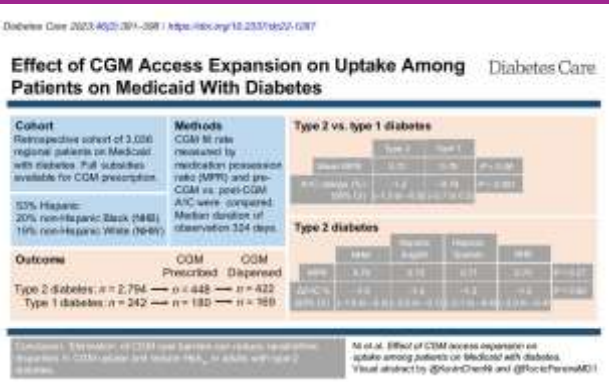
Disparities in Access = Disparities in Outcomes?



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Technology Gatekeeping Still Exists

Implicit Bias: Race or Ethnicity

Implicit Bias: Insurance Type

Implicit Bias: Diagnosis Type

Addala et al., 2021, Odugbesan et al., 2022; Fitzgerald, 2017

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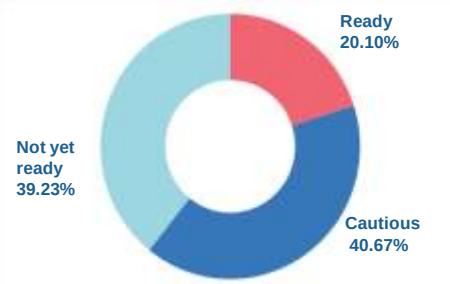
HCP Readiness is Variable in Technology Adoption

- Survey of 209 Diabetes Specialists (Physician in specialty care + CDCES)
- Readiness to Promote CGM Adoption



Tanenbaum ML, Adams RN, Lanning MS, et al. Using Cluster Analysis to Understand Clinician Readiness to Promote Continuous Glucose Monitoring Adoption. *J Diabetes Sci Technol*. 2018;12(6):1108-1115. doi:10.1177/1932296818786486

Source: Using Cluster Analysis to Understand Clinician Readiness to Promote Continuous Glucose Monitoring Adoption(nih.gov)

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"Our inability or unwillingness to offer diabetes technology to every person with diabetes, and to provide appropriate education, training and support will exacerbate disparities and inequities in care and outcomes."

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What do the Clinical Guidelines Say About "Gatekeeping"?

"Encourage uptake and refrain from having youth and families "earn" the right to use devices."

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What are the Barriers to Becoming a Diabetes Technology Champion?

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Personal Barriers

- Lack of training
- Unfunded time
- Fear of failing
- Communication
- Standing in the clinic or organization

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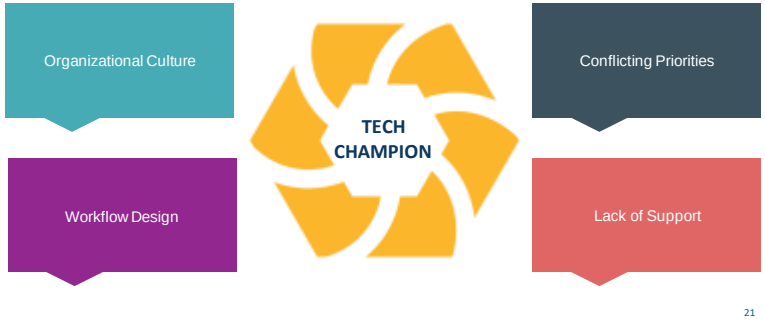
Organizational Barriers



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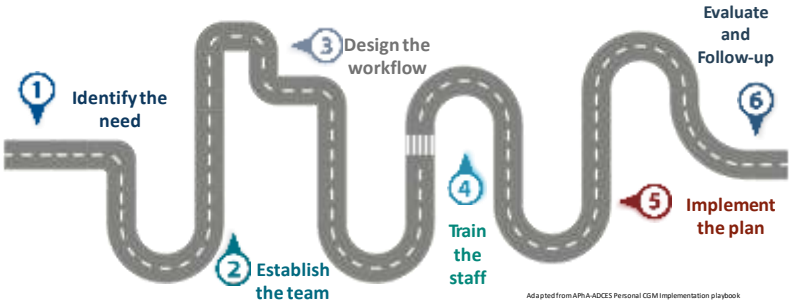
Getting Started: Try a Pilot!

Step-by-step roadmap is crucial



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Workflow is Central to Your Success

A Case Study for CGM

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The Year: 2016

The Place: Gainesville, FL

- CGM training exclusively provided in conjunction with pump starts
- No Process for Training on CGM
- No education materials

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First a CGM Pilot and then a Clinic-wide Program

2016 → 7%

2019 → 75%

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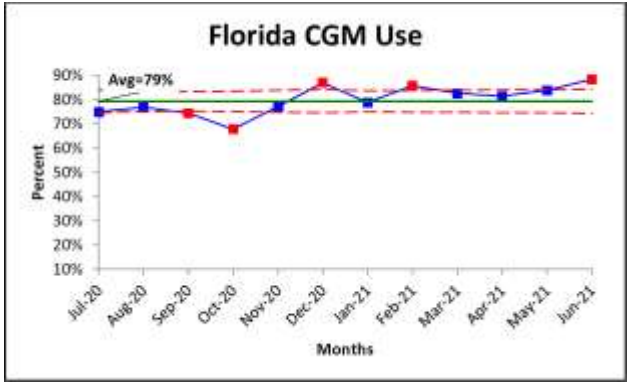

T1D Exchange

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Diffusion of Knowledge Takes Time!
Current Adoption Rates in the T1D Exchange QIC

Patient Demographics and Clinical Outcomes Among Type 1 Diabetes Patients Using Continuous Glucose Monitors: Data From T1D Exchange Real-World Observational Study

- **First appeared in the clinical guidelines in 2018**
- By 2023, **48% of PwD in large centers used CGM (n=11469)**
  - Non-Hispanic White (50%), Non-Hispanic Black (18%), Hispanic (38%)
  - Private insurance (57.2%), public insurance (33.3%)
  - CGM users had lower median HbA1c(7.7%) compared to nonusers (8.4%).
  - Rates of DKA and severe hypoglycemia were significantly higher in nonusers

Chiang JL, Maahs DM, Garvey KC, Hood KK, Laffel LM, Weinzimer SA, Wolfsdorf JI, Schatz D. Type 1 Diabetes in Children and Adolescents: A Position Statement by the American Diabetes Association. Diabetes Care. 2018 Sep;41(9):2026-2044. doi: 10.2337/dci18-0023.
DeSalvo DJ, Noor N, Xie C, Corathers SD, Majidi S, McDonough RJ, Polsky S, Izquierdo R, Rioles N, Weinstock R, Obrynba K, Roberts A, Vendrame F, Sanchez J, Ebekozien O. Patient Demographics and Clinical Outcomes Among Type 1 Diabetes Patients Using Continuous Glucose Monitors: Data From T1D Exchange Real-World Observational Study. J Diabetes Sci Technol. 2023 Mar;17(2):322-328. doi: 10.1177/1932296821049783.

Net Collection Rates (Baseline 2015)

CPT Code*	Type of Insurance	Net Collection Rate
95250	Private	100%
95250	Public (Medicaid)	0%
95251	Private	N/A
95251	Public (Medicaid)	N/A

*95249 (personal CGM) was not available

Net Collection Rates 2019

CPT Code	Type of Insurance	Net Collection Rate
95249	Private	80.3%
95249	Federal/Military	94.9%
95249	Public (Medicaid)	80.2%
95250	Private	N/A
95250	Federal/Military	98.1%
95250	Public (Medicaid)	0%
95251	Private	91.1%
95251	Federal/Military	97.2%
95251	Public (Medicaid)	87.3%

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The Journey

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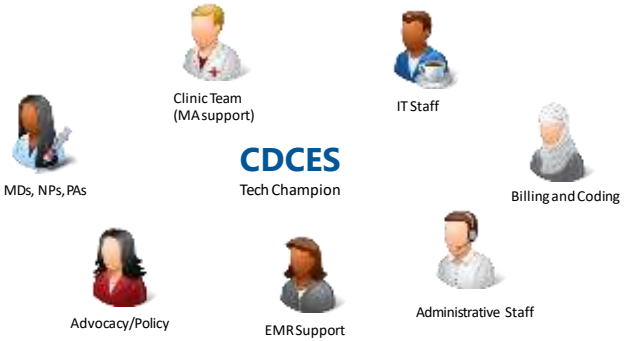
Identify the Team



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Building a Process

- Define Metrics
- EHR Integration and Data Transfer
- Administrative Paperwork
- Standard Operating Procedures
- Standardized Templates
- Share Your Success

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Which Metrics?

QI Metrics in Total T1D population: implementation schedule

Stage 1: Monitoring	Stage 2: Insulin Management	Stage 3: Self Management
A1c	Time in Range[1]	Adjusting insulin doses between visits[2]
CGM use [1]	Timing of insulin bolus [3]	Reviewing data/pattern management between visits[4]
BG Check X4 [5]	Bolus 3X among pump [6]	Additional PRDs
Pump use [6] & MDI use [7]	DKA events [8] DKA admissions[9]	Bolus 3X among MDI [10]
Depression Screening [9]	LTFU (follow up based on days between visits and care) [11]	
	Documented transition plan from peds to adult care[12]	
	SDOH Screenings[13]	

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Which Metrics?

Clinical Outcomes

- Year 1-2 Metric: CGM Use (Durability)
- Year 3-4 Metric: Active CGM Time, Time in Range
- Year 5 Metric: Change in HbA1c, Equity/Disparities
- Ancillary: Satisfaction, Reduction in Hypoglycemia, Skin Integrity

Sustainability Outcomes

- Net Collection Rates for Placement, Education, and Interpretation
  - Private and Public Insurance
- Grant Funding
  - Universal CGM during COVID Pandemic (Equity/Access) and Beyond
- Medicaid Coverage for

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Standard Operating Procedures

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EHR: Simplified Referrals and Backend Workflow

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EHR: Standardized EHR Templates

CGM Placement AND Education

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EHR: Standardized Templates -- Interpretation

CGM Interpretation Template (AGP pasted into note)

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EHR: Instruction Templates

Template Instructions for CGM Users that Can Be Customized and are available in the patient portal for easy access

Data Transfer: Which Platform?

Carelink
Dexcom Clarity
Glooko
LibreView
t:connect Portal
Tidepool

Objective Data Must Be Available!!

Create a process to login/access and review data

- No clinic account
  - Document individual username and passwords for login
- Shared clinic-wide login
- HCP Portal: Individual staff accounts with administrator

Practice Requirements

- Is risk assessment required at your Institution?
- Who can install software on computers?
- Privacy

Most Clinic Portals Are Free!

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Wouldn't it be easier if data automatically flowed to the EHR?!

The Integration of Continuous Glucose Monitoring Data into the Electronic Health Record (iCoDE) Project is a consortium whose purpose is to facilitate efficient uploading and integration of continuous glucose monitor (CGM) data into the Electronic Health Record (EHR).

The two goals of the iCoDE project are to:

1) develop technical specifications to integrate CGM data into the EHR and
2) develop workflows and guidelines to facilitate data integration efforts

https://www.diabetestechnology.org/icode/

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EHR: EPIC Flowsheets to collect metrics

- CGM Use
- Time in Range
- Active CGM Wear Time

Data entered into the chart in a flowsheet can easily be extracted!

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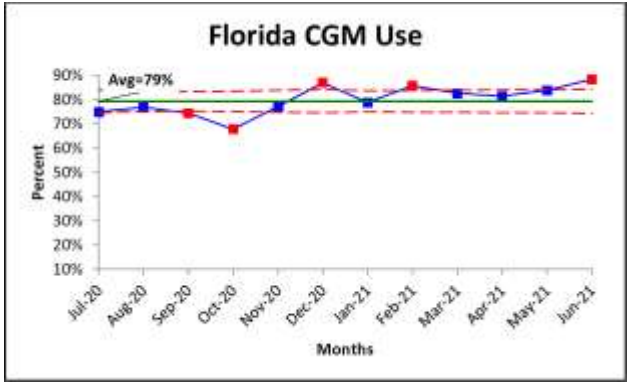

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Flowsheet Data Populates Templates

Anastasia uses a Dexcom G6 CGM. She changes the sensor every 10 days and reported placing the CGM in her arms. Time in range over 14 days was 57%.

[AGP pasted here]

I reviewed more than 72 hours of continuous data and my interpretation based on review of the CGM data is that the average CGM weartime over 14 days was 92%. [Additional specific interpretation here]

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Paperwork, Prior Authorizations and Pain Points

Create a Prior Authorization Process

- CoverMyMeds, SureScripts, Others
- Build checks into your system

Assess the process to reduce inefficiencies

- Avoid duplicated efforts and angry staff!
- Train back up staff

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What will Improve my Likelihood of Success?

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Strategies to Achieve Buy In

- Identify a fellow champion in your setting
- Share the evidence
- Provide an “on body” experience
  - Include the diabetes care team + staff + other interested parties
    - “Wear and Share”
    - Utilize internal and external experts
- Determine metrics, create a pilot workflow
  - Start with a pilot to demonstrate feasibility, acceptability, and efficacy
  - Internal and external grant funding

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Strategies to Keep People on Board

- Encourage and reward consistent use of clinical processes (SOP, EHR templates, referrals)
  - Update as needed
- Make sure the devices software works
- Review metrics and update to reflect progress
- Thank your team!
- Share your success
- Remember that leaders can be found at all levels in an organization

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This process can be applied to the diabetes technology that best meets the need of people with diabetes in your practice setting.

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Finally, keep in mind:

“If you didn’t document it, it didn’t happen.”

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Share Your Success! Present and Publish

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What Resources are available to me?

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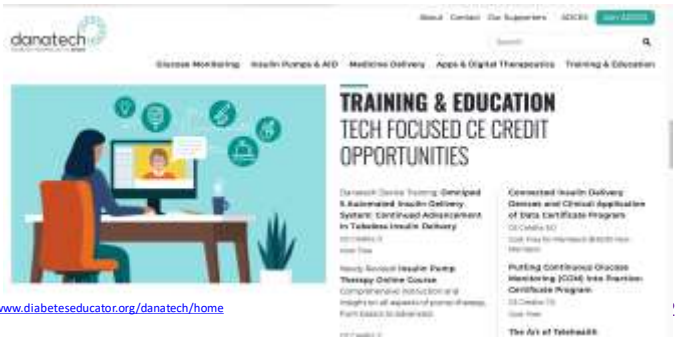
danatech from ADCES



https://www.diabeteseducator.org/danatech/home

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Panther Program

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Diabeteswise.org

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Consensus CGM Targets

Clinical Targets for Continuous Glucose Monitoring Data Interpretation: Recommendations From the International Consensus on Time in Range

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Consensus Automated Insulin Delivery Recommendations

Consensus Recommendations for the Use of Automated Insulin Delivery Technologies in Clinical Practice

Moshe Phillip, Revital Nimri, [...], and Tadej Battelino

Endocr Rev. 2023 Apr; 44(2): 254–280. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9985411/

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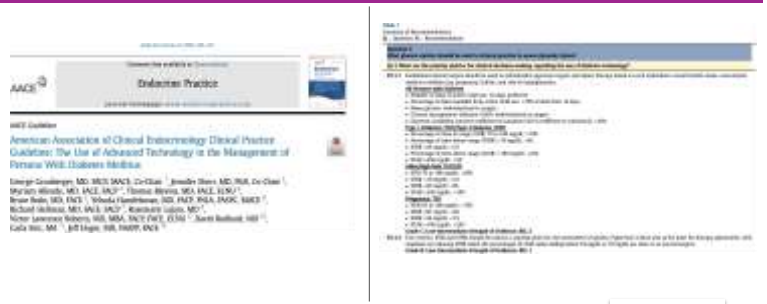
AACE Guidelines on Advanced Technologies



https://marlin-prod.literatumonline.com/pb-assets/Health%20Advance/journals/eprac/EPRAC180.pdf

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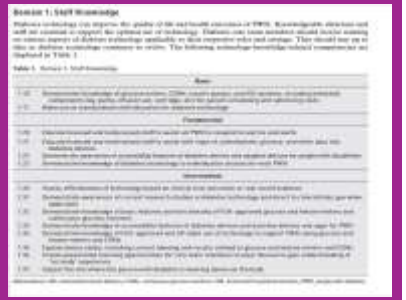
ADCES Diabetes Technology Competencies


Professional Competencies for Diabetes Technology Use in the Care Setting



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The ADCES Diabetes Technology Competencies

- A comprehensive set of role-based competencies designed for:
  - Health care professionals
  - Diabetes care and education specialists
  - Other members of the multidisciplinary care team
  - Staff
- The competencies can be utilized to initiate and support sustained use of diabetes technology to achieve improved outcomes


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Diabetes Technology Competency Domains

Domain 1:	Staff Knowledge
Domain 2:	Device Data
Domain 3:	Glycemic Targets and Diabetes Management
Domain 4:	Patient Education, Preparation for Onboarding, and Durability of Use
Domain 5:	Clinical Processes, Billing, Coding
Domain 6:	Psychosocial
Domain 7:	Schools and Camps

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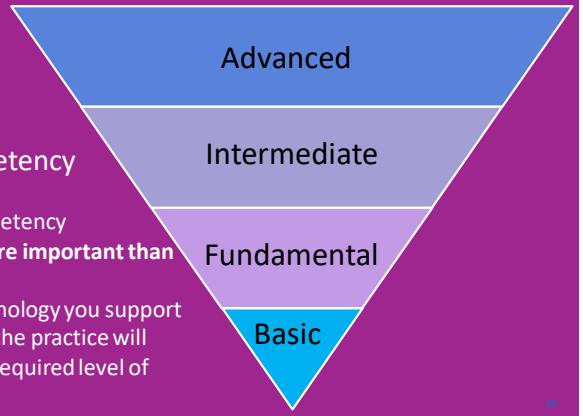
Levels of Competency

- 4 Levels of Competency
- **"The floor is more important than the ceiling!"**
- The type of technology you support and your role in the practice will determine your required level of competency



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Setting Matters

- The setting where diabetes care and education is provided informs the level of competency required
- Not ALL settings can support ALL diabetes technologies or ALL aspects of diabetes technology support (yet!)
  - **This is OK!**

Settings
Pediatric and Adult Specialty Care (Endocrinology Practices)
Pediatric and Adult Primary Care
Other Settings (Schools, Camps, Long-term Care Facilities, etc.)

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Example: Automated Insulin Delivery

Role	Competency Level	Example
Prescriber	Advanced	Demonstrate working knowledge of automated insulin insulin delivery system algorithms and the predicted effect of changes to device settings on glycemic outcomes (3.44)
CDCES	Advanced	Demonstrate ability to set up and change settings in insulin pumps and automated insulin delivery systems
Psychologist	Intermediate	Evaluate technology-specific and general diabetes burnout potential with ongoing surveillance (6.32)
Clinic Manager	Fundamental	Create and utilize a streamlined process for obtaining technology supplies (5.24)
Call Center Staff	Basic	Demonstrate knowledge of glucose meters, CGMs, insulin pumps, and AID systems, including individual components (e.g., pump, infusion set, cartridge, etc.) for patient scheduling and optimizing visits (1.10)

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Summary

- Being a technology champion contributes improved quality of care for PWD
- The DCES is well positioned to be champion and lead initiatives to increase access and optimize the use of technology in diabetes management regardless of practice setting
- The development of an effective work plan which addresses the needs of the organization and PWD is key to success
- Continuing education and support is critical for long term success

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THANK YOU!

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