
 **Embracing the Power of Technology to Help Emerging Adults with Type 1 Diabetes**




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Disclosure to Participants


- **Notice of Requirements For Successful Completion**
 - Please refer to learning goals and objectives
 - Learners must attend the full activity and complete the evaluation in order to claim continuing education credit/hours
- **Conflict of Interest (COI) and Financial Relationship Disclosures:**
 - Presenter: Neesha Ramchandani, PNP, CDE – No COI/Financial Relationship to disclose.
 - This study was supported by funds from Jonas Philanthropies and the Jacqueline Fawcett Nursing Science Award.
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Objectives

- At the conclusion of this session, attendees will be able to:
 1. Identify challenges faced by emerging adults (18-29 years old) in diabetes self-management.
 2. Understand how technology can help overcome some of the challenges faced by this group.
 3. Apply the knowledge gained from this presentation to their clinical practice.

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 **Background**


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Developmental Issues & Emerging Adulthood (18-30 yrs old) 21,22

Definition (Arnett) 23

- Identity exploration
- Instability
- Self-focus
- Feeling in-between
- A time filled with optimism where anything seems possible




Developmental Transition Tasks 14,23

- Establishing independence
- Defining who they are
- Making important educational and/or vocational-career choices

Additional Developmental Challenges with T1D 14


- Physiological changes
- Decreased adherence to diabetes self-management (DSM) tasks
- Desire to appear "normal"


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Situational Transition Issues: Emerging Adults with T1D

<p>Challenges</p> <ul style="list-style-type: none"> • Changes in support systems • Living apart from one's parents • Irregular schedules • Different eating behaviors • Fear of hypoglycemia • The desire to be "normal" • (Refs 21, 24-28) 	<p>Consequences</p> <ul style="list-style-type: none"> • Effect on academics • Effect on job performance • Effect on DSM practices • Decreased frequency of diabetes follow-up visits • Ensuing deterioration in glycemic control • (Refs 11, 12, 24, 26-28, 39-43)
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Introduction to the Problem

- **Emerging adults (18-30 yrs old) with type 1 diabetes (T1D) at especially high risk of suboptimal glycemic control** ¹³⁻¹⁷
 - Competing life demands/multiple demands of emerging adulthood
 - Unstable living conditions
 - → lost to F/U
 - Usually do not keep up with complex diabetes regimen sufficiently well to maintain good glycemic control
 - Too busy to schedule or attend appointment for diabetes care
 - Time constraints
 - Geographical distance



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Purpose

To explore developmental, situational, and organizational challenges experienced by a diverse group of emerging adults with T1DM, and their perspectives on creating a supplemental developmentally-informed diabetes management program that will support navigation of DSM in collaboration with their health care providers as they transition to adult care (undergirded by Meleis' Transition Framework).

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Aim of this Presentation

To describe benefits and challenges of using insulin pumps and continuous glucose monitors in emerging adults (18-29 years old) with type 1 diabetes.

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Methods


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Methods

- Design**
 - Qualitative descriptive study
 - Focus groups with supplemental interviews
- Sample**
 - Purposive sample of emerging adults recruited from NYULMC pediatric & adult diabetes clinics and snowball/referral sampling
 - Stratified by gender, attempted to stratify by age

Inclusion Criteria	Exclusion Criteria
18-29 yrs old with T1D	Pregnant or breastfeeding
Internet access	Unstable renal or thyroid disease
English-speaking	On corticosteroid therapy
Able to function independently	Cancer actively being treated

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Methods (contd.)

Setting

- Focus groups held in a conference room of a major medical center
- Interviews done by phone

Data Collection & Management


- Focus groups**
 - 4 focus groups held:
 - 4 females, 19-25 years old
 - 3 females, 20-23 years old
 - 8 females, 22-29 years old
 - 3 males, 20-25 years old
 - 3 interviews held (19-21 year-old males)
- Focus Group Question Topics**
 - DSM practices
 - Facilitators and barriers to performing DSM tasks
 - Unmet needs in the participants' current healthcare services



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Methods (contd.)

- Informed consent obtained before any study-related procedures occurred
- De-identified data
- Demographics and Clinical Data form collected from each participant
- PI both moderated and took notes during the focus groups
- Field notes also maintained by the PI


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Methods (contd.)

Data Analysis

- Scientific adequacy of findings ensured with:
 - Peer debriefing
 - Employing reflexivity
 - Member checks
 - Audit trail
 - Rich descriptive data
 - Triangulation of data sources
- Informational redundancy reached except for the following:
 - Issues specific to Black females
 - Males




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Methods (contd.)

- **Data Analysis (contd.)**
 - Descriptive statistics: Microsoft Excel
 - Focus group qualitative data:
 - Krueger note-based method, with audio tape corroboration
 - Analyzed for themes using Meleis' Transition Framework as a guide
 - Also analyzed for themes regarding their perspectives and recommendations on what types of supportive services and/or resources they would be interested in using to help them navigate DSM during this time
 - Interviews analyzed for themes, collapsed into one group, then analyzed alongside the focus groups

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Methods (contd.)

- **Trustworthiness**
 - Credibility, transferability, dependability, and confirmability of the findings for qualitative data
 - Focus group field notes/transcripts reviewed by a second person for corroboration of identified themes and to ensure trustworthiness of the data
 - Member checking – all 4 who responded (3F, 1M) confirmed findings were accurate
- **Reflexivity**
 - Employed
 - 3 objective researchers read study transcripts to ensure transparency and objectivity

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Results

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Demographics

45% of those approached enrolled in this study.

Data entered as Average \pm SD (Range)

*The one study participant who is not checking BG's regularly is on a Dexcom G6 CGM that does not require fingerstick calibrations.

Non-Hispanic White (NH White) includes 1 transgender female, 1 religious Jewish female, and 1 male of immigrant parents.


	F/H1 Green	Females	Males
N	21	15	6
Age (yrs)	23.0 \pm 2.6 (19.7-28.3)	23.8 \pm 2.6 (19.9-28.3)	21.7 \pm 2.1 (19.7-25.8)
Sex	15 F/ 6 M	15 F	6 M
Race/ Ethnicity	14 NH White (67%) 3 Hisp. White (14%) 3 NH Black (14%) 1 Hisp. Black (5%)	9 NH White 3 Hisp. White 2 NH Black 1 Hisp. Black	5 NH White 1 NH Black
Duration of T1D (yrs)	14.7 \pm 5.0 (1.3-21.4)	14.4 \pm 5.4 (1.3-21.4)	15.5 \pm 4.3 (8.1-19.8)
HbA1c (%)	7.4 \pm 1.4 (5.5-11.0)	7.5 \pm 1.2 (5.5-9.2)	7.9 \pm 1.8 (5.8-11.0)
BGM/day	3.4 \pm 2.1 (0 ^a -10)	3.6 \pm 2.4 (0 ^a -10)	2.8 \pm 1.4 (1.5-5)
Pump use	100%	100%	100%
CGM use	71.4%	67%	83%
CGM wear (days/month)	27.3 \pm 3.9 (20-30)	27.0 \pm 4.1 (20-30)	27.3 \pm 3.9 (21.4-30)
Education	10 - Some college 7 - College grad 2 - In grad school 2 - Completed grad school	5 - Some college 6 - College grad 2 - In grad school 2 - Completed grad school	5 - Some college 1 - College grad
Employment status (could pick more than one)	8 - Employed F/T 1 - Employed P/T 2 - Unemployed 10 F/T student 2 - P/T student	6 - Employed F/T 1 - Employed P/T 2 - Unemployed 6 - F/T student 2 - P/T student	2 - Employed F/T 4 - F/T student
Living Situation (could pick more than one)	12 - With parents 9 - With roommates 4 - Alone without roommates	7 - With parents 6 - With roommates 4 - Alone without roommates	5 - With parents 3 - With roommates

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Benefits of Diabetes Technology


- Insulin pumps and continuous glucose monitors (CGM, aka glucose sensor):
 - Made diabetes management much easier overall
 - Minimized both fear of and incidence of hypoglycemia
 - "Nightmare" being off of their pumps and sensors

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Insulin Pumps


- 2 on DIYP
- Handful on MM670G, with a range of likes and frustrations about it

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Continuous Glucose Monitors (CGM)


- Gave "a little more confidence" in their ability to manage their diabetes
- BG's better on CGM
- "How much do you check your CGM?" – "Too much!" (20 year-old F, more)
- Younger females who had not attended diabetes camp were especially anxious when they were away from their CGMs because they were so heavily reliant on them:
 - "I get anxiety when I don't have my Dexcom." (20 year-old F)
 - "I'm to the point where it makes me nervous how much I rely on it." (25 year-old F)
 - CGM in the bathroom!

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Sharing CGM Readings


- Highly appreciated by the females
- Seen as "a safety thing, a sort of insurance that someone knows you're alive, they can watch you and see/intervene if there is a problem." (26 year-old F)
- CGM readings not always shared with parents or significant others because of the added angst it could create
 - "You don't let your parents follow you[r Dexcom]?" "Oh, absolutely not!" (20 year-old F)
- Re: sharing with a significant other: "It's like moving in." (19 year-old F) – very personal information being shared

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Diabetes Technology - Challenges


- Younger females who had not attended diabetes camp:
 - Constant reminder they had diabetes
 - Difficulty finding clothes that sufficiently concealed pumps, CGMs, and insertion sites
- Males: bothered by having bulging pockets from all of the devices they needed to carry
- Technical issues:
 - Pump and sensor sites falling out before they were due to be changed
 - Pain or bleeding at insertion sites

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Diabetes Technology – Challenges (contd)

- Females: establishing trust with the technology
- More mental burden and pressure from CGM:
 - "If you're outside of them [the lines that define the target range], you fail." (26 year-old F)
- 2/3 Black females & 1 male:
 - Added stress from CGM
 - Became annoyed by any inaccuracy
 - → chose not to use CGM
- Wanted to be able to choose their devices

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Conclusions

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Conclusions


- Insulin pumps and CGMs are powerful tools to help emerging adults with T1D do better with their DSM
- The ability to share CGM readings is an invaluable tool and security blanket
- It is important to work with the emerging adults to understand what they want the technology to do for them and frustrations they have with it and help them overcome any barriers they face
- Device choice is important – you want something the emerging adult will use, even if it's not the most state of the art device available

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Limitations

- Difficulties with recruitment
 - Males
 - Data redundancy not reached with males
- Communication
 - E-mail
 - Text messaging and Facebook messenger
- Study participants may be a self-selected group of motivated volunteers
 - Findings consistent with what is in the literature
 - Findings add the perspective of ethnic minorities

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Questions?

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Thank you!



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 **When you first get diagnosed with Type 1 Diabetes.**

I HAVE NO IDEA WHAT I'M DOING



Many years later...

I STILL HAVE NO IDEA WHAT I'M DOING



Diabetes Matters

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