Continuous Glucose Monitoring Adoption and Barriers Among Primary Care Providers
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Background
- Current guidelines recommend offering continuous glucose monitoring (CGM) to youth with type 1 and type 2 diabetes on multiple daily insulin administration and to adults with diabetes and the following:
  - multiple daily administrations of insulin,
  - continuous subcutaneous insulin infusion, or
  - basal insulin.¹
- Known benefits of CGM include A1C reduction, fewer hypoglycemic and hyperglycemic episodes and improved treatment outcomes.²
- Third party coverage of CGM is variable with many payors utilizing restrictive prior authorization criteria that contribute to disparities in diabetes technology access.²,³
- In Illinois, state-funded plans require that prescribers of CGM are endocrinology specialists or are in consult with endocrinology.⁴

Objectives
To assess CGM past and future prescribing, comfort initiating and utilizing CGM in diabetes management, and identify barriers to CGM use and resource needs that would increase CGM adoption among Illinois primary care providers (PCPs).

Methods
- A cross-sectional survey was administered to Illinois-practicing PCPs.
- The study protocol received exempt status approval by the Institutional Review Board.
- Study participants were recruited from state, regional, and local organizations and health systems that represent or employ PCPs.
- The Qualtrics platform was used to administer the 26-item web-based survey and collect responses.
- Likert scales and multiple answer items were used to collect the following information: demographics and practice information, prescribing experiences, comfortability with providing CGM training, comfortability utilizing CGM-generated data, barriers to CGM use, willingness to participate in CGM-related education, and desired educational topics.
- Descriptive statistics were used to report characteristics and responses of participants.

Results
Characteristics of Respondents

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>N (%)</th>
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</thead>
<tbody>
<tr>
<td><strong>Type of Primary Care Provider</strong></td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>13 (43)</td>
</tr>
<tr>
<td>Physician Assistant/Associate</td>
<td>5 (16.7)</td>
</tr>
<tr>
<td>Nurse Practitioner</td>
<td>12 (40)</td>
</tr>
<tr>
<td><strong>Specialty</strong></td>
<td></td>
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<tr>
<td>Family Medicine</td>
<td>30 (100)</td>
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</tbody>
</table>

Practice Setting
- Federally Qualified Health Center
  - 20 (66.7) (FOHC) or FOHC look-alike
- Private Practice                     - 3 (10)
- Rural Health Center                  - 3 (10)
- Military Health System               - 2 (6.7)
- University Medical Center            - 1 (3.3)
- School Based Health Center           - 1 (3.3)

Location
- Suburban                             - 17 (56.7)
- Urban                                - 10 (33.3)
- Rural                                - 4 (13.3)

Desires Education on the Topic

- Prescribing/ordering CGM supplies    - Extremely Uncomfortable: 10 (33.3)
  - Somewhat Comfortable: 40 (133.3)
- Training patients on use of CGM     - Extremely Uncomfortable: 10 (33.3)
  - Somewhat Comfortable: 26.7 (88.9)
- Using CGM-generated reports         - Extremely Uncomfortable: 10 (33.3)
  - Somewhat Comfortable: 26.7 (88.9)

Desires Education on the Topic

Educational Needs Assessment

<table>
<thead>
<tr>
<th>Percentage of Primary Care Providers</th>
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<tbody>
<tr>
<td>Percentage of Providers</td>
</tr>
<tr>
<td>Interpretation of glucose reports &amp; clinical decision-making</td>
</tr>
<tr>
<td>Patient selection and clinical benefits</td>
</tr>
<tr>
<td>Prescribing and guidance with insurance processes, coverage, ...</td>
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<tr>
<td>General overview of CGM</td>
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Results, continued

Barriers to CGM Use

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<tr>
<th>Barrier</th>
<th>N (%)</th>
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<tbody>
<tr>
<td>High out-of-pocket costs</td>
<td>22 (73.3)</td>
</tr>
<tr>
<td>Lack of insurance coverage</td>
<td>25 (83.3)</td>
</tr>
<tr>
<td>Complicated +/- burdensome insurance coverage criteria/prerequisites</td>
<td>25 (83.3)</td>
</tr>
<tr>
<td>Lack of comfort prescribing CGM supplies</td>
<td>11 (36.7)</td>
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<tr>
<td>Lack of time to learn about CGM</td>
<td>12 (40)</td>
</tr>
<tr>
<td>Lack of time to learn patients how to use CGM technology</td>
<td>15 (50)</td>
</tr>
<tr>
<td>Lack of time to review and interpret glucose reports</td>
<td>9 (30)</td>
</tr>
<tr>
<td>Lack of patient access to specialists care (i.e. endocrinology)</td>
<td>13 (43.3)</td>
</tr>
<tr>
<td>Lack of staff support to assist with integration of CGM into the workflow</td>
<td>16 (53.3)</td>
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Conclusions
- The majority of PCPs have taken steps to enhance their knowledge of CGM technology and have prescribed CGM supplies.
- Opportunities to increase PCP adoption of diabetes technology include:
  - advocating for the expansion of third-party payor coverage of CGM supplies, including removal of overly restrictive prerequisites, and
  - connecting providers and clinical staff in primary care settings with CGM-focused educational programs and resources that comprise best prescribing practices, guidance with insurance processes, patient selection, clinical benefits, and interpretation of CGM-generated data.

Limitations
- Small sample size (30 participants).
- Response rate is unknown as researchers did not receive follow-up information from organization/health system administrators who distributed the survey invitation at their discretion.
- All participants include family medicine specialty, within the state of Illinois.
- Majority of respondents are Illinois-based Family Medicine specialists practicing in Federally Qualified Health Centers.

References

Current State of Practice:
- PCPs report an average of 65 (range 4-200) encounters with people with diabetes per month.
- The majority of patients served by respondents have Medicare or Illinois Medicaid (20.5% and 45%, respectively).
- Half of PCPs currently recommend CGM to the majority of people with any type of diabetes treated with insulin.
- 73% of PCPs prescribed CGM supplies in the past year.
- Over half (56%) of PCPs currently refer to endocrinology to initiate CGM.
- 70% of PCPs are likely to recommend and/or prescribe CGM in the next year.

Educational Needs Assessment:
- 70% of PCPs have completed CGM education or training, including self-directed learning.
- Most PCPs (97%) are willing to participate in CGM education and/or training.
- The majority of PCPs (62%) selected 2 hours of CGM-related education as adequate to meet their needs.