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• Give 3 examples of how MPT components provide clinical decision support.
• Describe implementation opportunities for MPT in a variety of practice settings.
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Mobile Phone Use

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  – 2011: 35% American adults owned a smartphone
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  http://www.pewinternet.org/2015/04/01/chapter-one-a-portrait-of-smartphone-ownership

Mobile Technology & Health

• Element of exploding medical app market
• mHealth (mobile health) can empower patients to improve their own care
• Patients are challenged to find and use technology resources for diabetes self-management

Mobile health apps

• 500 million Smartphone users globally are using health apps and by 2018, 50 percent of the more than 3.4 billion smartphone and tablet users will have downloaded mobile health applications (Research to Guidance 2010)
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Mobile Medical Apps: FDA Regulation

As of May 2015, there are approximately 100 Mobile Medical Apps that have been cleared by the FDA.

Mobile Technology for health

Few apps with evidence-based studies to demonstrate
– Effectiveness and outcomes
– Safety
– Application of clinical, behavioral, and user interface expertise
– Workflow and practice integration into the current health care delivery system

(Reckart, et. al. Annals tech Med 12(8)
Mobile Prescription Therapy: How is it different?

- Requires physician prescription
- Outcomes demonstrated through clinical trials (Quinn, 2008, 2011)
- Clearance from FDA
- Patient-level clinical decision support for HCP

MPT: Tool for Patient Engagement

- Supports Stage 2 and 3 of federal meaningful use program requirements
- Connect consumers to clinical information
- Ownership across all ages (74% in the over 65); populations (90% in white and African-Americans, 92% Hispanic); socioeconomic and educational groups (Lee, Diabetes Res Clin Pract. 2014 Nov;106(2):390-2.)
- Consistent self-monitoring blood glucose (SMBG) improves glycemic control
- Smart phones are useful method for logging/managing SMBG results

Barriers to patient engagement

- Limited access to providers
- Confusion about expectations
- Lack of tech knowledge
- Limited resources
- Limited positive feedback: Must wait to see and hear results, so regimen adherence is limited

Technology as a Barometer for Patient Engagement

- 64% have smart devices (Pew, 2104)
- But most apps simply provide and store information
- MPT feedback in the form of coaching messages: “CDE on my shoulder” with non-judgmental guidance
- Supports patient-educator communication and collaboration

MPT in a Academic Diabetes Center

Debra Nelson, MA, RN, CDE
**MPT Messaging**

- Real-time feedback
- Longitudinal/trending messages
- Prompts/reminders
- Touchpoint & motivational messages

**MPT Message Examples**

- Bill tags a reading as “Before Breakfast”
- The Virtual Coach knows that this is before breakfast and Bill has recently started insulin
- Bill tags a high BG as “After Breakfast”
- The Virtual Coach feedback incorporates Bill’s actual BG value and offers a couple of suggested behaviors

**MPT Provider Visit Report**

- Medication list includes the addition of insulin as well as the other metabolic meds
- Decision Support Summary:
  - Glycemic Recommendations:
    - A1c and glucose are improved on current regimen. Fasting glucose is well controlled with basal insulin. Still with fluctuations in post-prandial glucose values. Consider adding short acting insulin at mealtimes. Continue to reinforce exercise and proper diet. Refer for medical nutritional therapy if needed.

**MPT Case Studies**

- **Academic Medical Center Diabetes Program**
  - Clinic workflow
  - Patient training on MPT use
  - Integration with DSME/S classes
- **Pharmacy-Based Diabetes Program**
  - Patient assessment
  - Pharmacy workflow
  - Patient experiences and lessons learned

**MPT in a large academic medical center**

- Patients identified during triage/intake by Medical Assistants
- Identified patients are indicated to providers and educators
- Importance of using MPT as an opportunity for patients to engage with their self-care discussed by providers and educators
- Training provided by clinic educators at time of appointment or at follow up education appointment

**MPT in a large academic medical center: Integrated into DSME/S**

- DSME/S classes utilize MPT for pattern management and goal setting
- Reports sent by patients to educators and providers improve feedback and communication; ease of changes in treatment plan
- Treatment adjustments can be made in real time without waiting for in person follow up appointments
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- Success in large clinic setting provides positive “trickle down” translational success to out-lying clinical locations
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- MPT is at the forefront of changing the landscape for the practice of diabetes educators
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MPT in a Pharmacy Practice
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Apple Discount Drugs
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Initial Impression
- When MPT was initially introduced, I used it mostly to assess the patients’ involvement in their diabetes self-management.
- If they were not using it after our 30 day follow up, I felt they chose not to be part of their self-management or I did not explain the product appropriately.
- I was about 95% correct in my assessments—this allowed me to have another chance to encourage them to be part of their diabetes care team.

How I Progressed Using MPT and What I Learned
- Most patients not using the app needed more encouragement and information on how to use the product and its benefits.
- They were not “sold” on the idea of diabetes being a “self-managed” condition. They were not taking ownership of their diabetes.
- 85% of them had chosen not to attend our monthly classes.
- 95% of the “users” had attended our 9 hour class sessions.

Key Learning After 6 months of Use
- Since a recent app upgrade, more patients are using the app, engaged in their care improving their A1C and medication adherence.
- More physicians are referring patients for MPT.
- More patients in the 55-70 year old age group are using the app.
How I introduce MPT

• To newly diagnosed patients, I offer MPT as an easy tool to help them better understand diabetes by using the resource tab so they can review/look at the quick video clips and understand what diabetes is.

• For those who have had diabetes for a while and not doing well, I present MPT as a tool to help arrange or manage all the “stuff” needed to become a successful manager of their condition.

MPT Features

MPT Features

MPT Features

MPT Features: Provider Visit Report

Patient Successes

• A 64 yr. old who was having issues figuring out how many carbs to eat a day and how to calculate them and was missing her evening medications.
  – After 3 months on Blue star Diabetes, she told me it’s the “best thing I have used to help me with my diabetes management. It’s so easy to use”
  – “I love the daily coaching messages I receive and the messages I get to remind me to take my medications”
Patient Successes, Continued.

• “I love having the convenience to add information to both my smartphone and my desktop. It’s so easy; I have no excuses not to take better care of myself”
• “My physician really appreciates the reports I can send him just by touching one button—he’s been able to monitor my meal time insulin dose changes without me coming into the office each week”

Key Learnings

• Do not assume who will or will not be candidates for mobile prescription therapy and other apps.
• Establish MPT as a tool for patient to take ownership of their diabetes.
• “Garbage in, garbage out”.
• Encourage provider to ask for patient use of app.
• Follow up with new patients within 30 days to assess use of tool—identify issues of non-compliance early.

MPT: Additional Benefits

• MPT opportunity for population health
• Value of patient-generated data for practice efforts …...we are just beginning to learn
• Paradigm change from fee-for-service to value-based care will support the adoption of technology-based services

MPT: Population Data

<table>
<thead>
<tr>
<th>Age group</th>
<th>Percent of total users</th>
<th>Percent of total engagements</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-49</td>
<td>32%</td>
<td>34%</td>
</tr>
<tr>
<td>50-59</td>
<td>43%</td>
<td>63%</td>
</tr>
<tr>
<td>60-69</td>
<td>29%</td>
<td>19%</td>
</tr>
</tbody>
</table>

Engagement was seen across all age groups with higher than expected engagement in the older age groups.

MPT Population Data: Early Experience

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<thead>
<tr>
<th>Data collection period</th>
<th>Number of prescriptions</th>
<th>Number retained</th>
<th>Mean A1C (%)</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sep 1, 2015 - Mar 28, 2015</td>
<td>246</td>
<td>198</td>
<td>8.3%</td>
<td>53 (range 27 - 77)</td>
</tr>
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Average age is 53 years old. Both male and females were equally engaged. Most MPT users had uncontrolled diabetes and were older than expected.

Engagement with various MPT features was high among active users.

Over half of users were continuing to use this MPT product at 3 months.

Users entered BG values across all meal types.

The mean BG value of users was lower after 120 days of use. Fasting BG improved more than post-prandial BG.

Reductions were seen in MPT users in extreme BG value entries over time (low BG<70 mg/dL, critical low BG<50 mg/dL, high BG>300 mg/dL, critical high BG>400 mg/dL).

The users who were in target at baseline maintained their target; as expected, the most improvement was seen in users with high baseline A1C values; users with A1C greater than 8% at baseline, improved by 1.4%.
**References**


**Resources**


Thank You!

Questions?

Kathy kathy@kathygoldcde.org

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MPT in a Academic Diabetes Center

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MPT Is Comprehensive

- Supports logging
  - Blood glucose levels
  - Carbohydrate consumption
  - Medication use
  - Labs values
- Provides real-time coaching
  - Hypoglycemia (timer for re-checking and hyperglycemia
  - Positive reinforcement for BG entry and problem-solving
  - Stress Management/Mindfulness
- Provides educational content (videos, tips, recipes, etc) mapped to AADE7
- Security shares data with diabetes providers
  - Medication adherence
  - BG Logbook
  - Nutrition/Metabolism

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MPT: Population Data

MPT Population Data: Early Experience*

Average age is 53 years old. Both male and females were equally engaged. Most MPT users had uncontrolled diabetes and were older than expected.

MPT Population Data: Engagement

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<td>24%</td>
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<td>Number of prescriptions</td>
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</tr>
<tr>
<td>Number initiated</td>
<td>170</td>
</tr>
<tr>
<td>Average age</td>
<td>53 (range 23 – 71)</td>
</tr>
<tr>
<td>Mean A1C</td>
<td>8.9%</td>
</tr>
<tr>
<td>Percentage A1C &gt; 7%</td>
<td>29%</td>
</tr>
<tr>
<td>Gender</td>
<td>39%M</td>
</tr>
</tbody>
</table>


MPT Population Data: Engagement

| Total engagements      | 66,242                     |
| PM features            | 25,077                     |
| BD entries             | 11,149                     |
| User notes             | 5,710                      |
| Labs/tears/screenings | 1,521                      |

Over half of users were continuing to use this MPT product at 3 months.

Users entered BG values across all meal types:
- Fasting (F)
- Before breakfast (BB)
- After breakfast (AB)
- Before lunch (BL)
- After lunch (AL)
- Before dinner (BD)
- After dinner (AD)
- Bedtime (BT)

The mean BG value of users was lower after 120 days of use. Fasting BG improved more than post-prandial BG.

Reductions were seen in MPT users in extreme BG value entries over time (low BG<70 mg/dL, critical low BG<50 mg/dL, high BG>300 mg/dL, critical high BG>400 mg/dL).

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Data on file
MPT Conclusion

• Evidenced-based patient engagement tool
• Win-Win-Win for patients/educators and providers
• The future is now

References


Thank You!

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