Background
The electronic health record (EHR) and use of computers in today’s exam rooms is a dramatic change in medicine from decades past. There are concerns about how the computer and EHR might adversely affect patient-provider interaction and that it may be detrimental to PCC. Patient-centered care (PCC) (Figure 1) promotes active involvement of the patient in their medical care. Several positive outcomes have been associated with PCC, including: better emotional health, improved symptom burden, improved recovery, and fewer diagnostic tests and referrals both at the time of the visit and in the subsequent 2 months. PCC can therefore help to decrease medical expenditures while improving patient outcomes and satisfaction. It has been proposed that certain exam room and computer configurations combined with uses of the EHR may enhance PCC.

If we can better determine how different types of computers affect this interaction, it would help suggest improvements for increasing PCC, thus gaining the aforementioned benefits of decreased cost and improved health outcomes.

Research Question
How does type of computer monitor and room configuration affect how physicians provide patient-centered care, contrasting users of laptops with those of desktops?

Sample & Data Collection

<table>
<thead>
<tr>
<th>Setting</th>
<th>Participants (M.D.)</th>
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<tbody>
<tr>
<td>Green Meadows</td>
<td>5</td>
</tr>
<tr>
<td>Gold Team</td>
<td></td>
</tr>
<tr>
<td>Smiley Lane Family Medicine</td>
<td>7</td>
</tr>
<tr>
<td>Clinical Director</td>
<td>1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>13</td>
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</table>

- Qualitative semi-structured interviews
- Approximately 45 minutes in length
- Audiotaped and professionally transcribed

Data Analysis
- Dedoose® qualitative web application used to organize, code, and analyze the interview data
- Data was coded using grounded hermeneutic editing methodology
- 2 researchers reached agreement, double coded all transcripts, and defined themes.

Results

<table>
<thead>
<tr>
<th>Theme</th>
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<td><strong>Potentially beneficial themes emerged:</strong></td>
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- "They’re watching and I don’t think they perceive it as a waste of time. I think they perceive it as being involved."
- "I think going patients access to their own EMR, I mean, that is a better way to build transparency than to have them watch notes while I do their orders."- Smiley Physician

- "You know, visual information displays things a bit faster than text. I did that before but the [30" screen] reinforced that behavior. If I’m able to present a picture to try to discuss a concept with a patient I think it helps make it easier for them in terms of health literacy and, having the computer in the room certainly gives you lots of opportunities to do that."- Smiley Physician.

- "They get to see me clicking through and seeing what I’m doing compared to if you have a laptop and you’re sitting here and it looks like you’re on email. So they know that I’m actually doing medical stuff as they watch."- Smiley Physician

- "The laptop was a hindrance to being patient-centered. All that person did was type the whole time I talked."- Gold Physician

Results (continued)

Themes involving potential harms or areas for improvement emerged:

- "Yeah, it’s just right there. I mean, I don’t have to do anything extra to have them be involved. They’re involved because of the way the room is set up. They are looking at the giant 30-inch screen. It’s just a matter of how we’re going to involve them, whether I’m going to involve them."
  - Smiley Physician

- "Handiness of computer relative to room setup.

Discussion

- Modern exam rooms should aim to include the patient using technology and appropriate room configuration.

- Design and arrangement within the clinic room should take into account ergonomics and usability by physicians.

- Some arrangements force physician to have back to patient.

- Physicians need to be trained to maximize the potential of the room design and EHR features.

- Exemplars: visual display of graphs, orders, and images; videos for children; educational videos while patients wait; self-check in.

Conclusion

- Collaborative viewing of the EHR on the 30-inch screens may invite the patient into physician workflow, as opposed to the disengagement that occurs with laptop use.

- Collaborative viewing may make the patient an active participant in their care, which can potentially increase engagement and shared decision making.

Bibliography