ABSTRACT
The poster presents an evaluation results of a new designed obstetric ultrasound report. Using a design thinking approach, we developed a prototype of a Smart Patient-Oriented Obstetric Ultrasound Report (SPOUR) to help pregnant women understand their reports, close the information gap about the obstetric ultrasound exam, meet pregnant women’s information needs, and enhance patients’ experience when dealing with their radiology reports.

INTRODUCTION
One of the important aspects in improving the quality of care is to provide a service that meets the needs of both healthcare providers and patients. Studies have discussed patients’ information needs and their health information-seeking behaviours. As medical records have become more readily available through patient portals, patients have sought health information more actively. Different studies showed that the patients can not easily read or understand the radiology reports. We conducted a qualitative content analysis study to explore the women information needs and gaps of obstetric ultrasound exam, and we found that a lot of women ask questions about the results in their reports or posting their reports to seek information from their peers. In addition, we found that most of the women questions are accompanied with negative emotions such as being worried, confused, or anxious. We used the findings of our preliminary study to design a new obstetric ultrasound report that is more friendly and can be read by a lay person.

In this report, we adopted ideas related to artificial intelligence applications such as Natural Language Processing (NLP) to define medical terminologies and provide Infobuttons to extract context-related information. In addition, we added new sections (About ultrasound report, What’s next) to improve women knowledge about the exam and their pregnancy health.

METHODOLOGY
This is an interventional study conducted between September 9th and November 14th 2021, in which we evaluated our new designed report by comparing it with a traditional designed report. There were two groups assigned to complete the survey. The control group had access to a traditional design and the interventional group had access to the new design. Our target population was women of childbearing age (between 18-49) who are or were pregnant. We used Muark to recruit participants and collect the results through Qualtrics.

We used five constructs to evaluate the new designed report (Figure 2) by comparing it with a traditional report (Figure 1). The five constructs are: understating, perceived ease of use, perceived usefulness, intention to use, and perceived aesthetics. We used Mann Whitney U to compare between the two designs since the data was not normally distributed. In addition, we isolated the new components we developed in SPOUR and, in a Likert scale, we asked our interventional group about the perceived ease of use and perceived usefulness of these components.

RESULTS
As shown in table 1, our new designed report improved women’s understanding of the report content (p < 0.003). Our new designed report is perceived to be easy to use compared to the traditional report (p < 0.001). Additionally, the new designed report was perceived to be useful compared to the traditional designed report (p < 0.001). In addition, there is a significant difference of the intention to use the reports, with participants intending to use the new designed report more than the traditional report (p < 0.004). Finally, participants found our new designed report more aesthetic, compared with the traditional report (p < 0.001).

All the components we added in the new report perceived to be easy to use and useful to majority of the participants. The graphs below show participants responses of some of the components we added.

CONCLUSION
Numerous papers have discussed difficulties in reading radiology reports in general and the importance of providing patients easy access to radiology reports with detailed information. When women undergo thorough obstetric ultrasound exams, their experiences can be trying if uncertainties are involved. This new designed report will allow women to gain understanding of their case and may reduce the level of anxiety and increase their satisfaction about the healthcare service.

REFERENCE

Evaluating a Prototype of a Smart Patient-Oriented Obstetric Ultrasound Report (SPOUR): User Centered Approach
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University of Wisconsin- Milwaukee

Figure1: Research hypothesis and conceptual elements used for the evaluation

Figure2: Sample of a traditional obstetric ultrasound report and images

Table1: Five constructs to compare between traditional and new designed obstetric ultrasound report (Interactive Design)

<table>
<thead>
<tr>
<th>Group</th>
<th>Understandability</th>
<th>Perceived Ease of Use</th>
<th>Perceived Usefulness</th>
<th>Intention to Use</th>
<th>Perceived Aesthetics</th>
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<tr>
<td>Mean</td>
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<td>5.4</td>
<td>6.4</td>
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<td></td>
<td>1. Mean:</td>
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<td>11.87</td>
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<td></td>
<td>2. Mean:</td>
<td>6.4</td>
<td>5.4</td>
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<td>Mean - Difference</td>
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<td>&lt;0.001</td>
<td>-0.004</td>
<td>&lt;0.001</td>
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<td>Mann Whitney U (P value)</td>
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<td>0.001</td>
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<td></td>
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</tr>
</tbody>
</table>

Figure3: Overcoming barriers and seeking improvement

Figure4: Feedback from users about the new report

Figure5: Aesthetic, ease of use, usefulness, and intention to use comparison