

# Individual Project Proposal Reducing the Mortality Rates of African American Women in Childbirth

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## 1 AREAS OF FOCUS

Unit(s) of Focus: Unit 1 and 3

External Mentors: Tia Pope, GT Topic's Primary Area of Focus Domains: Patient Centered Care

## 2 BACKGROUND AND SIGNIFICANCE

According to Centers for Disease Control and Prevention research, African American women are three to four times more likely to have pregnancy-related deaths compared to white women, CDC, 2019. These findings suggest that the disparity observed in pregnancy-related death for minority women is a complex national problem that needs to be addressed seriously. In past decades, the overall rate of pregnancy-related deaths has kept climbing over in the US, thus making maternal mortality rate in the United States the worst in any industrialized country. Thus, having a way to be able to reduce this maternal mortality with the help of current technology would be a very Significant task that could prevent deaths and reduce the health disparity.

## 3 PROBLEM

Based on these backgrounds, some of the problem that's going to be specifically addressed is based on the work completed previous semester. I'm planning to continue developing applications features to help support women during this critical time during pregnancy and postpartum.

The details of the previously applications hasn't been decided and disclosed yet. I'm thinking of some specific problems to be tackled are related to the fact that the technology that currently exists will help soon-to-be parents in information and preparation, rather than medical technology intervention to actually do intervention during pregnancy or postpartum.

According to New York Times article, Bilton, 2015, there's a lot of information that needs to be collected and distributed during pregnancy and postpartum.

Having a better way to collect and organize this information would mean a better preparation and less stress to the soon-to-be parents. This less stress factor is what I hope to be able to tackle with this projects.

Another major problem is related to postpartum depression. CDC study, CDC, 2021, shows that about one 1 out of 10 women (with some states up to 1 of 5 women) in the United States reported symptoms that suggest they experienced an episode of major depression in the last year. Having this postpartum depression could be a major issues because when the mother is still weak from labour they might neglect their own health recovery.

Last problem I think might be interesting to be tackled is on how does parents actually chose on maternity wards. This is due to the fact that some maternity wards might be providing a more emphatetic care to parents coming from minority group. One of the issues I found was a lot of new parents coming from minority groups felt that the hospital didn't respect their wish or doesn't explain cleraly to them about their pregnancy and postpartum situation, Sims, 2020.

#### **4 PROPOSED SOLUTION OR IDEA**

One specific case that I want to try to focus on is usually during labor, parents need to track length and number of contraction using pen and paper. One apps that I found named Full Term can help to do this tracking of the length and number of contractions. I was thinking then maybe using some FHIR or other interoperability tools this information can be sent prior to coming to hospitals or during the labour in hospitals to the midwives and doctors EMR so that this information can help them to get a better understanding of the labour and whether there's complication or not.

Other solution that I think might be interesting is closer to postpartum and baby development. The idea of the feature is closer to a baby tracker that you can share with other medical professional or other mothers. This feature will record baby poop frequency, how much the baby sleeps and, if you're breast-feeding, how long does baby feed for. When the motehr felt that there's something happening to the baby, she can share this data to ask helps to ask for medical professional or other mother on how to handle the situation. I was hoping with this more interoperability in data, the mother will feel less lonely and clueless, thus hopefully reducing the chance of having depression.

For the last part, I was thinking of more a yelp-like feature where mother can share their experience and rate specific maternity wards to increase transparency so parents can be more informed in picking where do they want to undergo the labour process. With having a this recommendation based on their positive experiences features hopefully the labour process will be more friendly and less stressful, especially for people from minority groups.

## **5 COMPLEXITY OR EFFORT**

Some of the complexity that arose in how to create a public health database that allows the collection of this maternal health data. I'm planning to reduce this complexity by using existing Open Government Medical Public Data Portal or some demo FHIR server. This solution is chosen because hopefully by having using an open implementation, it'll be easier to implement the features of sharing contraction and baby's health data with medical professional.

Another complexity that arose from the proposed idea is on how accurate does the self-reporting App data can get. There's bound to be differences on how people can help report their own health. This accuracy problem also exists for the yelp-like features of rating maternity wards. Currently I think the applications features will mostly hope for honest and as accurate as possible measurement from the users.

The effort to develop this applications features is estimated to take 2 months. Out of the 2 months there'll be a weekly Sprint report on how does the progress of development so far with official Sprint report every 2 weeks. The plan for this 4 Sprint reports are going to be a proposal of a features. Next is Design and implementation of the features, then it'll be followed by 2 status checks. The status checks will be useful to know how far has the project been progressing so far.

## **6 CONCLUSION**

In this paper we discussed about a proposal to create an applications and features to help support women during pregnancy and postpartum critical time. The features that I think might be interesting to be discussed and implemented are an interoperable contraction health data, baby health data, and maternity ward sharing experience and ratings. These features will hopefully reduce the maternal mortality, especially in African American women community.

## 7 REFERENCES

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- [3] CDC (2021). "Depression Among Women". In: URL: <https://www.cdc.gov/reproductivehealth/depression/index.htm>.
- [4] Sims, Megan (2020). "Birth without bias: This health app helps Black women get safe maternity care". In: URL: <https://www.yahoo.com/lifestyle/birth-black-women-pregnancy-app-212556959.html>.