



Team 5: FemEng Health Solutions

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Project Title: Postpartum Hemorrhage Detection Device

Abstract:

Postpartum hemorrhage (PPH) is the leading cause of maternal mortality worldwide, affecting approximately 1 in 5 women following childbirth. Primary postpartum hemorrhage is typically defined as a blood loss of 500 mL or more within the first 24 hours after vaginal delivery and a blood loss of 1000 ml or more within the first 24 hours for cesarean sections. Despite its severity, the current method for detecting PPH primarily relies on visual estimation by healthcare providers, which has been shown to result in a 35-50% misestimation. With minimal predictors of this condition and approximately 3.66 million births occurring annually in the United States, the risk posed by postpartum hemorrhage is significant, impacting millions of women each year. FemEng Health Solutions is addressing this critical issue by introducing a groundbreaking blood flow monitoring device designed to accurately detect PPH with greater precision and comfort for both patients and healthcare providers. This innovative device utilizes an intravaginal silicone funnel equipped with piezoelectric sensors to continuously measure blood flow. The collected data is then converted to quantify blood loss over time. The device features an alert system that signals healthcare providers when blood loss approaches critical thresholds. A yellow light activates when the blood loss reaches 400 mL, alerting providers to the risk of impending PPH. If blood loss exceeds 500 mL, a red light is triggered, indicating that immediate medical intervention is required. This innovative solution aims to enhance early detection and timely management of postpartum hemorrhage, ultimately improving maternal health outcomes creating a safer, more equitable future for families everywhere.