Quality Improvement Project: Compliance of Antenatal Testing in Patients with Class III Obesity

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Medical City Arlington

Our mission

Above all else, we are committed to the care and improvement of human life.

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Introduction

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Introduction

- According to the American College of Obstetricians and Gynecologists (ACOG), obesity is the most common medical condition of women of reproductive age[1]
- Obesity is classified into three categories according to body mass index (BMI): obesity class I (30-34.9), obesity class II (35-39.9), and obesity class III (40 and above)[1]
- Pre-pregnancy BMI of 40 or greater has the highest rate of maternal and fetal complications[2]
- ACOG recommends consideration of weekly antenatal fetal surveillance at 34 0/7 weeks of gestation for patients with a pre-pregnancy BMI of 40 or greater[1]

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Introduction

- Antenatal surveillance includes both fetal non stress test (NST) and biophysical profile (BPP)
  - NST is a surveillance technique that assesses fetal heart rate reactivity
  - A BPP evaluates fetal wellbeing utilizing a scoring system, with a maximum score of 10. This score consists of the presence of fetal breathing, tone, movement, NST, and adequate amniotic fluid volume[3]

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- Peer-reviewed-literature predominantly describes the adverse maternal and fetal outcomes of pregnant patients with class III obesity. These studies often outline fetal surveillance for maternal complications of obesity including preeclampsia and gestational diabetes, but not obesity itself[4,5]

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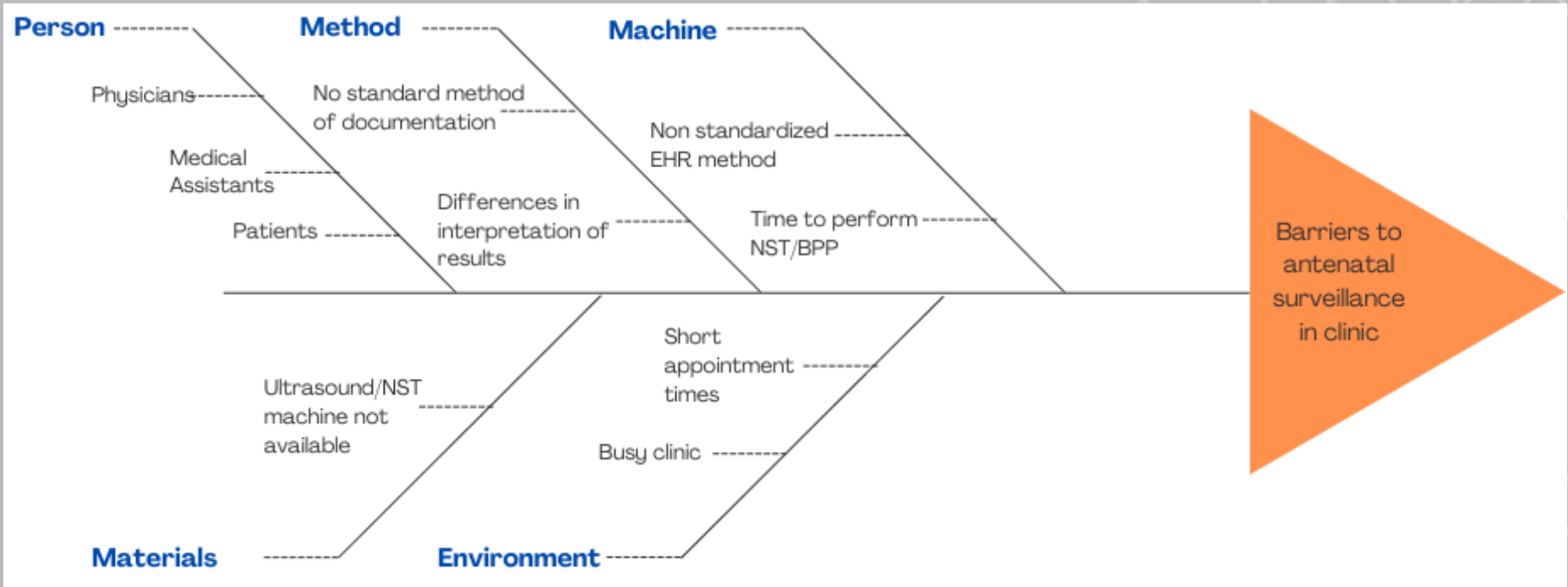
Root Cause Analysis



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Methods

- Plan-Do-Study-Act (PDSA) Framework
- **Objective:** improve the compliance of antenatal testing in pregnant women with class 3 obesity at Medical City Women's Care between May 2023 - November 2023

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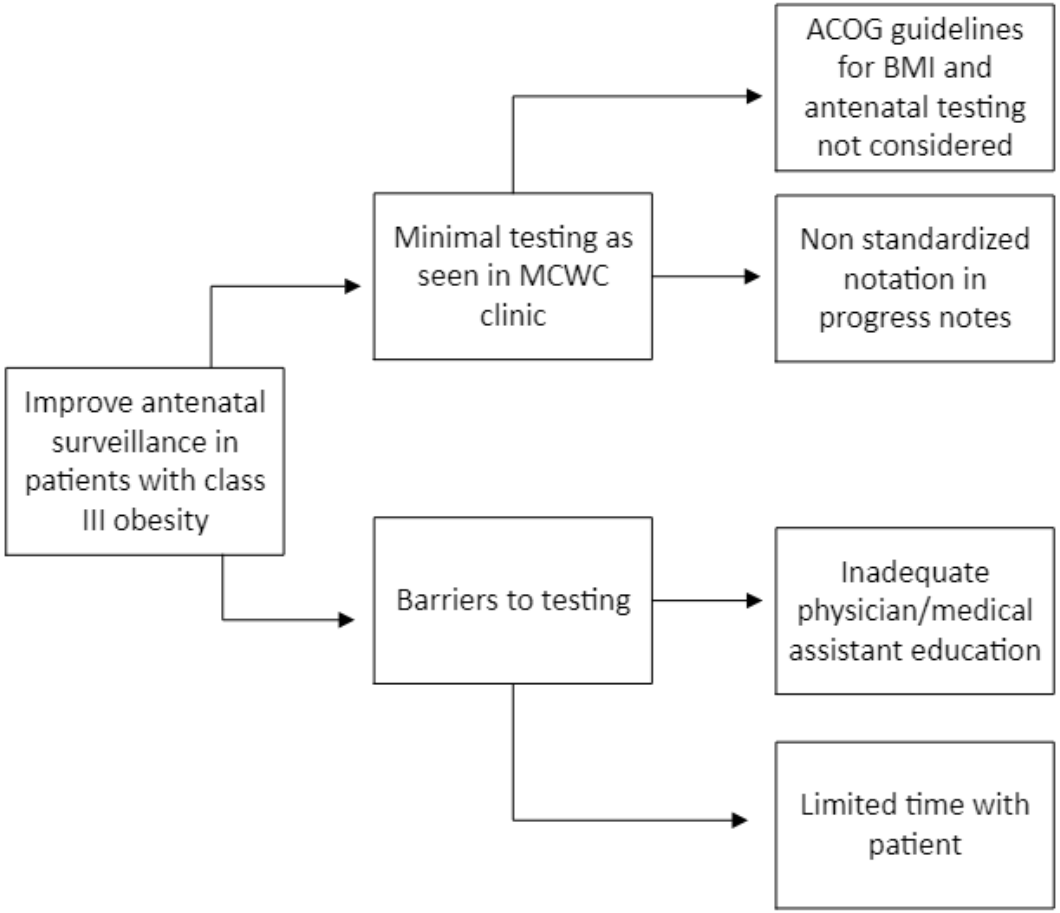
Old Process Map



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Plan

- Completed weekly antenatal testing for patients with class 3 obesity between 34-40 weeks' gestation were recorded from March 1, 2023 – April 30, 2023
- 6 total patients met criteria for class 3 obesity (Pre-pregnancy BMI >40)
  - March compliance: 26.68%
  - April compliance: 33.34%

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Do

- Resident and attending physician education: 100% of residents attended a presentation during weekly didactics about class III obesity and ACOG guidelines for management during pregnancy
- Medical assistant training on performing NST: 100% of medical assistants at Medical City Women's Care attended training on proper set-up and administration of in-office NST

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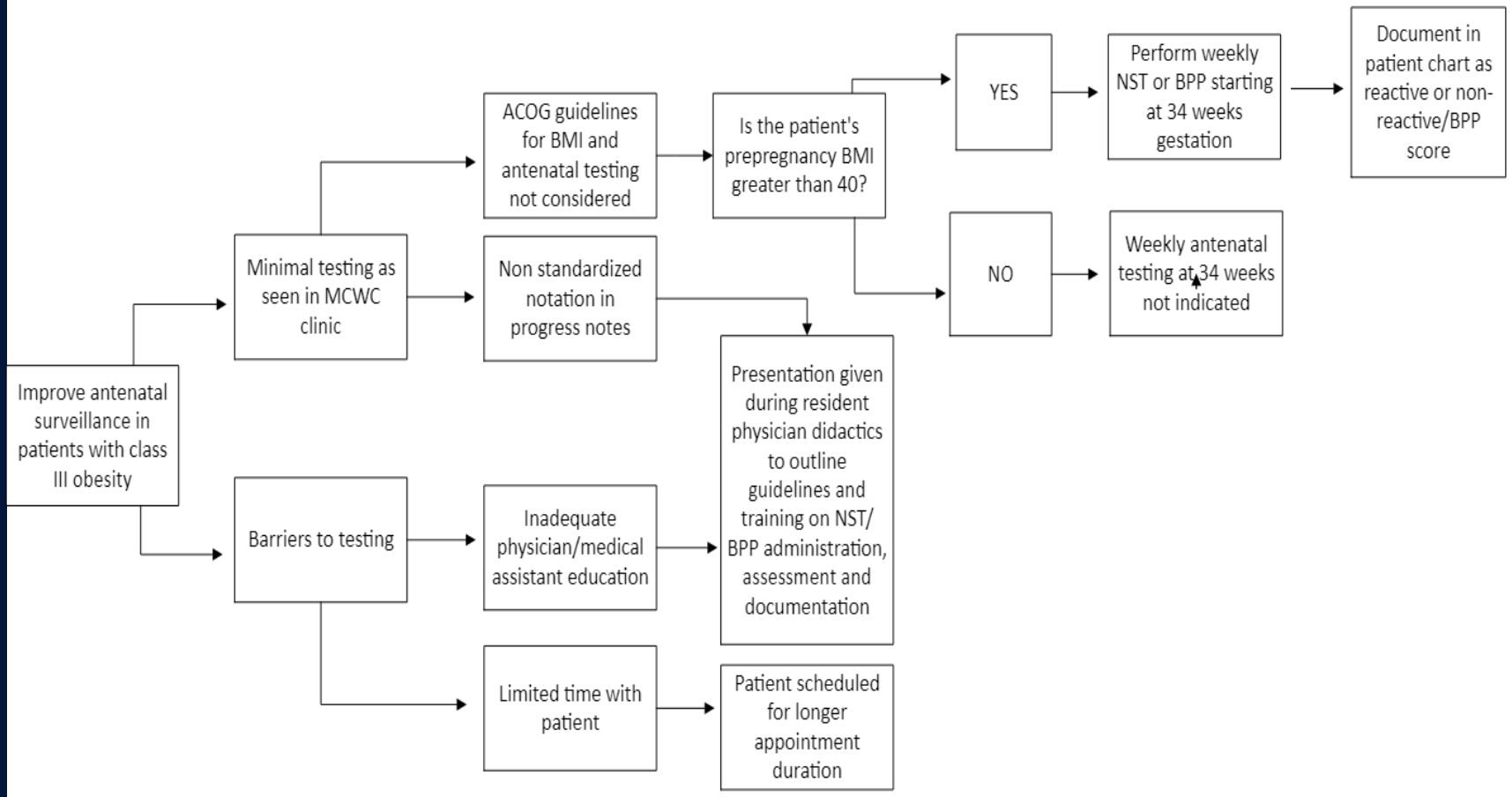
New Process Map



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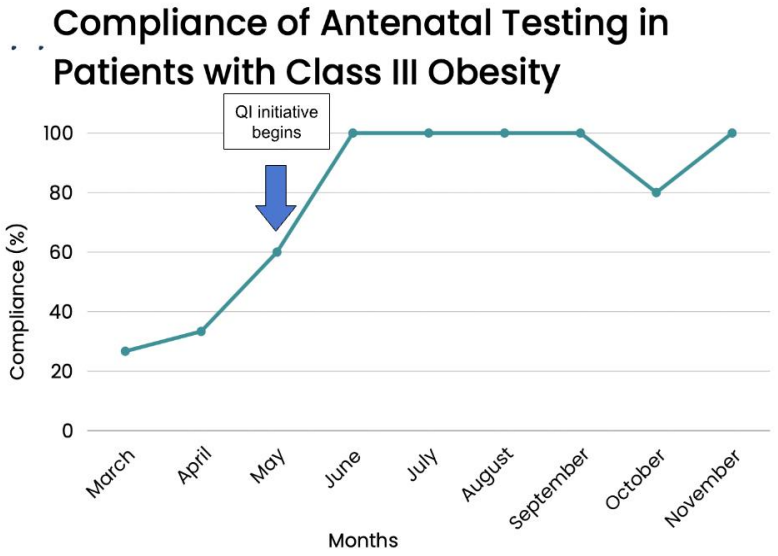
Study

- Completed weekly antenatal testing for patients with class 3 obesity between 34-40 weeks' gestation were recorded from May 1, 2023 – November 30, 2023
- 18 total patients met criteria for class 3 obesity (Pre-pregnancy BMI >40)
- Monthly assessment of compliance
- Total compliance of **91.4%**

Month	Percent compliance (%)
May	60%
June	100%
July	100%
August	100%
September	100%
October	80%
November	100%



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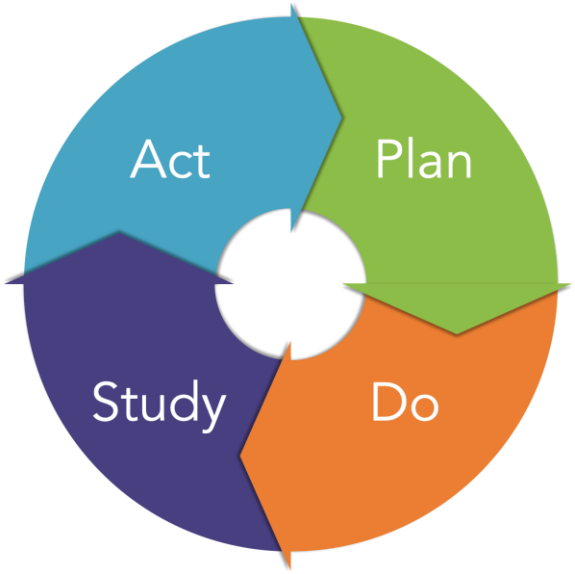
Act

- Plan to incorporate class 3 obesity diagnosis into 'problem list' present on each patient chart
  - Reminds physicians to start antenatal testing at 34 weeks' gestation



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Limitations

- Patient volume and resources
- This study was limited to Medical City Women's Care, a single resident obstetrics and gynecology clinic part of the comprehensive Medical City Healthcare system
- The number of study subjects with a diagnosis of class 3 obesity was small compared to other studies of its kind

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Future Directions

- Completion of next PDSA cycle
  - Assess long term compliance of antenatal testing and documentation of patients with class 3 obesity
- ACOG has outlined recommendations for antenatal testing for obesity in pregnancy
  - Assess compliance of antenatal testing of patients with class II obesity (BMI 35-40)
- Impact that antenatal testing has on fetal outcomes
  - Prevalence of stillbirth

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References

- Obesity in pregnancy. ACOG Practice Bulletin No. 230. American College of Obstetricians and Gynecologists. Obstet Gynecol 2021;137:e128–44.
- Weir CB, Jan A. BMI Classification Percentile And Cut Off Points. [Updated 2023 Jun 26]. In: StatPearls [Internet]. Treasure Island (FL): Stat Pearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK541070/
- Manning FA, Morrison I, Harman CR, Lange IR, Menticoglou S. Fetal assessment based on fetal biophysical profile scoring: experience in 19,221 referred high-risk pregnancies. II. An analysis of false-negative fetal deaths. Am J Obstet Gynecol. 1987 Oct;157(4 Pt 1):880-4.doi: 10.1016/s0002-9378(87)80077-7. PMID: 3674161.
- Kim J, Ayabe A. Obesity in Pregnancy. [Updated 2023 Aug 8]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK572113/
- Fitzsimons KJ, Modder J, Greer IA. Obesity in pregnancy: risks and management. Obstet Med. 2009 Jun;2(2):52-62.doi: 10.1258/om.2009.090009. Epub 2009 May 22. PMID: 27582812; PMCID: PMC4989730.

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Thank you!

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