

# Perceptions of Magnetic Resonance Imaging During Pregnancy: A Newfoundland and Labrador Perspective

## Objective

The primary objective of the study was to assess enablers and barriers to participation in magnetic resonance imaging (MRI) during pregnancy in Newfoundland and Labrador (NL) for clinical indications and scientific research.

## Practice Points

1. Non-contrast enhanced MRI is considered safe during pregnancy at any trimester by the Canadian Association of Radiologists and the American College of Obstetricians and Gynecologists.
2. MRI is increasingly being used to complement ultrasonography in the study of fetal and placental development, providing superior image quality of fetal brain anatomy, improving the diagnosis of placental disease, and identifying life-threatening abnormalities.
3. Evidence from other countries suggests a large proportion of pregnant people are unaware about the purpose of MRI during pregnancy and believe the procedure to be unsafe for the health of their baby. No similar study of perceptions of MRI during pregnancy exists in Canada.

## Methods/Data (PIs: C.M.E. Barrett, D. Stapleton, L.C.M. Ringer, N.E. Harvey, C. Eustace, A. Devereaux, C. McPhee, K. Mather, K.P. Wadden, L.S. Cahill)

1. A questionnaire was developed using a patient-oriented approach that utilized discussion groups with pregnant people and was reviewed by two members of the public with recent lived experience of pregnancy.
2. 156 pregnant people, who all identified as women, were recruited through social media platforms and from clinics at Eastern Health (now referred to as the Eastern Urban and Rural health zones of NL Health Services). The survey was conducted between Jan and May 2023.

3. The four-page questionnaire consisted of questions about sociodemographic status, obstetrical history, and MRI history. We asked participants five open-ended questions about their willingness to participate in an MRI scan for clinical indications (recommended by a physician), willingness to participate in an MRI scan for research purposes, who they would prefer to receive safety information from, and if they had any prior knowledge about the purpose of MRI during pregnancy.

## Results

- 80% of the participants said they would be comfortable to receive an MRI while pregnant for clinical indications. Willingness was not dependent on education level, household income, prior MRI, or knowledge of MRI.
- 24% of participants said they would be comfortable to receive an MRI while pregnant for scientific research. Willingness was significantly dependent on knowing someone who had experienced complications during pregnancy.
- 94% of participants wanted to receive safety information from a physician.
- Participants' positive perceptions towards MRI during pregnancy were that MRI is a necessary and useful procedure and that MRI research would add to the advancement of knowledge. Participants' negative perceptions identified MRI as an unsafe, unnecessary and risky procedure (Figure 1 shows example quotes to support the identified themes).

**Positive: MRI as necessary, useful, to advance knowledge**

**“Yes, if my results could further advance research for other women and their babies.”**

**Neutral: MRI as unknown**

**“Unsure, would require more information on purpose, pros/cons, risks, etc.”**

**Negative: MRI as unsafe, unnecessary, risky**

**“No, because even a small amount of radiation can pose risks to my baby’s development and health.”**

## Conclusions

1. Lack of knowledge about MRI, including its benefits and safety during pregnancy, is a clear gap that needs to be addressed to improve patient perceptions about MRI and manage patient anxiety when MRI is indicated for clinical reasons.
2. Future recruitment strategies for scientific research can include incorporating personal stories/ testimonials and highlighting that participation in pregnancy research makes an important contribution to the advancement of scientific knowledge.

Figure 1. Themes for Perceptions of MRI During Pregnancy and Demonstrative Quotes