National Confidential Enquiry into Patient Outcome and Death (NCEPOD) classification for Urgency of Caesarean Section: A Prospective Observational Study

Abstract:

Background- The conventional binary classification of caesarean section categorizes planned operations as 'elective' and all other as 'emergencies'[1]. These definitions are imprecise as all non-elective cases are labelled as emergencies, although some are distinctly more urgent than others. National Confidential Enquiry into Patient Outcome and Death (NCEPOD) classification is used to classify surgical procedures based on the urgency as emergency/urgent/scheduled and elective. It is a simple, valid, reliable classification which can be used across health care units[6]. This will help in addressing the challenges encountered during the DDI, assessing the urgency of the indication and retrospective audit of outcomes.

Aims & Objectives- this study aims to classify caesarean sections according to the urgency using the NCEPOD classification.

Methodology- A prospective observational study was done on all women undergoing Caesarean section. Post- caesarean section details regarding indication of LSCS, classification as per the NCEPOD and the DDI was noted and studied.

Results- As per the old criteria, our study showed 19.8% elective cases & 80.19% emergency cases. After following the NCEPOD classification, the indications were reclassified into Emergency cases- 34.9%, Urgent cases- 21%, Scheduled cases-13.7% & Elective cases- 30.27%.

Conclusion- Application of this new classification system will help us to triage the patients and aptly deliver safe care. It will also reduce the medicolegal issues which arise the moment the term 'emergency' is used.

Introduction:

The conventional binary classification of caesarean section categorizes planned operations as 'elective' and all other as 'emergencies'[1]. These definitions are imprecise as all non-elective cases are labelled as emergencies, although some are distinctly more urgent than others. The continued use of this classification curtails the practicality of the information collected on obstetric audits. This is because the spectrum of urgency that occurs in obstetrics is lost within a single 'emergency' category.[1,2]

National Confidential Enquiry into Patient Outcome and Death (NCEPOD) classification is used to classify surgical procedures based on the urgency as emergency/urgent/scheduled and elective.

The NCEPOD classification can be applied to caesarean section to identify the urgency of the procedure. Decision-to-delivery interval (DDI) is a parameter which has been proposed by Royal College of Obstetricians and Gynaecologists (RCOG) [3] and National Institute for Health and Care Excellence (NICE-2021)[4] to define the urgency of the caesarean section. Once decision of caesarean section has been made, the urgency must be decided as per risk to baby and safety of the mother.[5,6]

Caesarean section can hence be classified as:

- **Emergency**: immediate threat to life of woman or foetus. DDI of 30 minutes.
- **Urgent**: Maternal or foetal compromise that is not immediately life-threatening. DDI of 30 min to 2 hours
- **Scheduled**: Needing early delivery but no maternal and foetal compromise. DDI 2 hour to 24 hours
- **Elective**: At a time to suit the woman and maternity team. DDI more than 24 hours.

NCEPOD classification of caesarean section is a simple, valid, reliable classification which can be used across health care units[6]. This will help in addressing the challenges encountered during the DDI, assessing the urgency of the indication and retrospective audit of outcomes.

Aim

To classify caesarean sections according to the urgency using the NCEPOD classification.

Objectives

1. To obtain the incidence of emergency, urgent, scheduled and elective caesarean sections.
2. To procure the indications in emergency, urgent, scheduled and elective caesarean sections.
3. To identify the factors for delay in DDI

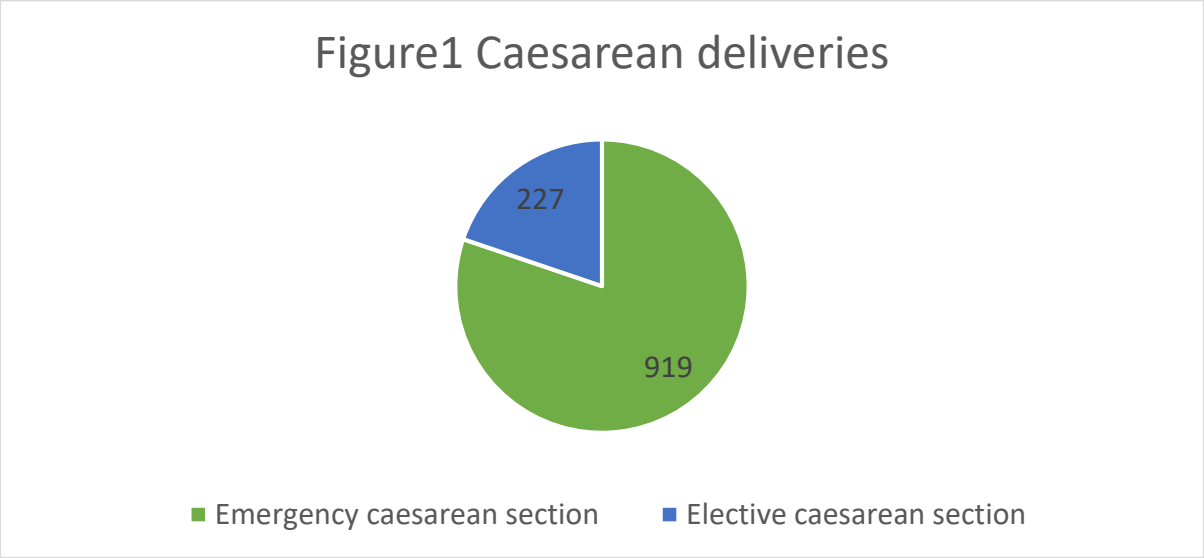
Materials and Methods

A prospective observational study was conducted in the department of High-Risk Pregnancy & Critical Care in Obstetrics a sub-specialty of Obstetrics and Gynaecology at, Bharati Hospital affiliated to Bharati Vidyapeeth [Deemed to be University] Medical College, Pune over a period of 1year (1st September 2022 to 31st August 2023) after obtaining ethics committee approval. All women undergoing Caesarean section were included and post-

caesarean section, details regarding indication of emergency LSCS, classification as per the NCEPOD and the DDI was noted and studied. Since the data was collected from file records after the caesarean section was performed, there were no anticipated risk factors and no patients consent were taken.

Results

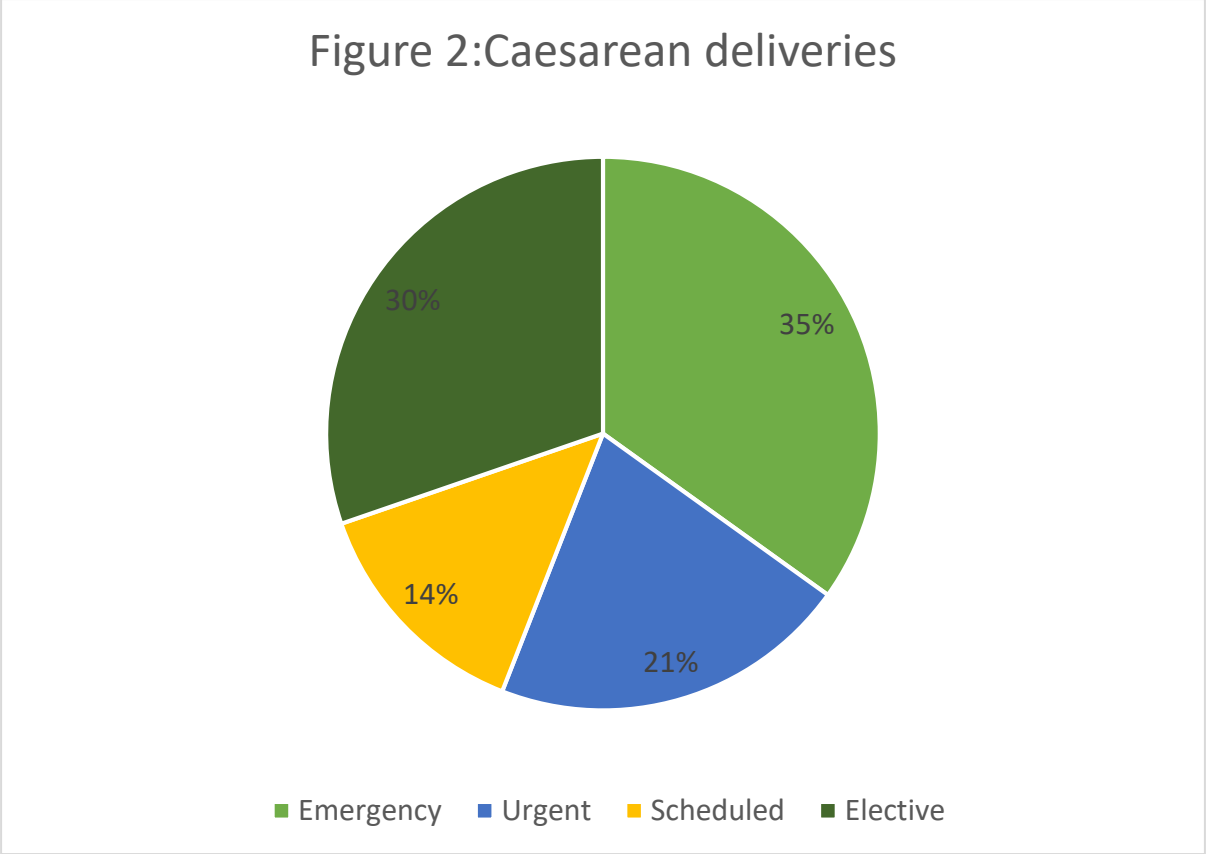
Total delivery rate is 1942. Total caesarean section rate in our institution is 59.01% (1146/1942). As per the old criteria, there is 19.8% (227/1146) elective cases and 80.19% (919/1146) emergency cases as shown in figure1.



After following the NCEPOD classification:

1. Emergency cases-400 (34.9%)
2. Urgent cases- 241 (21%)
3. Scheduled cases-158 (13.7%)
4. Elective cases- 347 (30.27%)

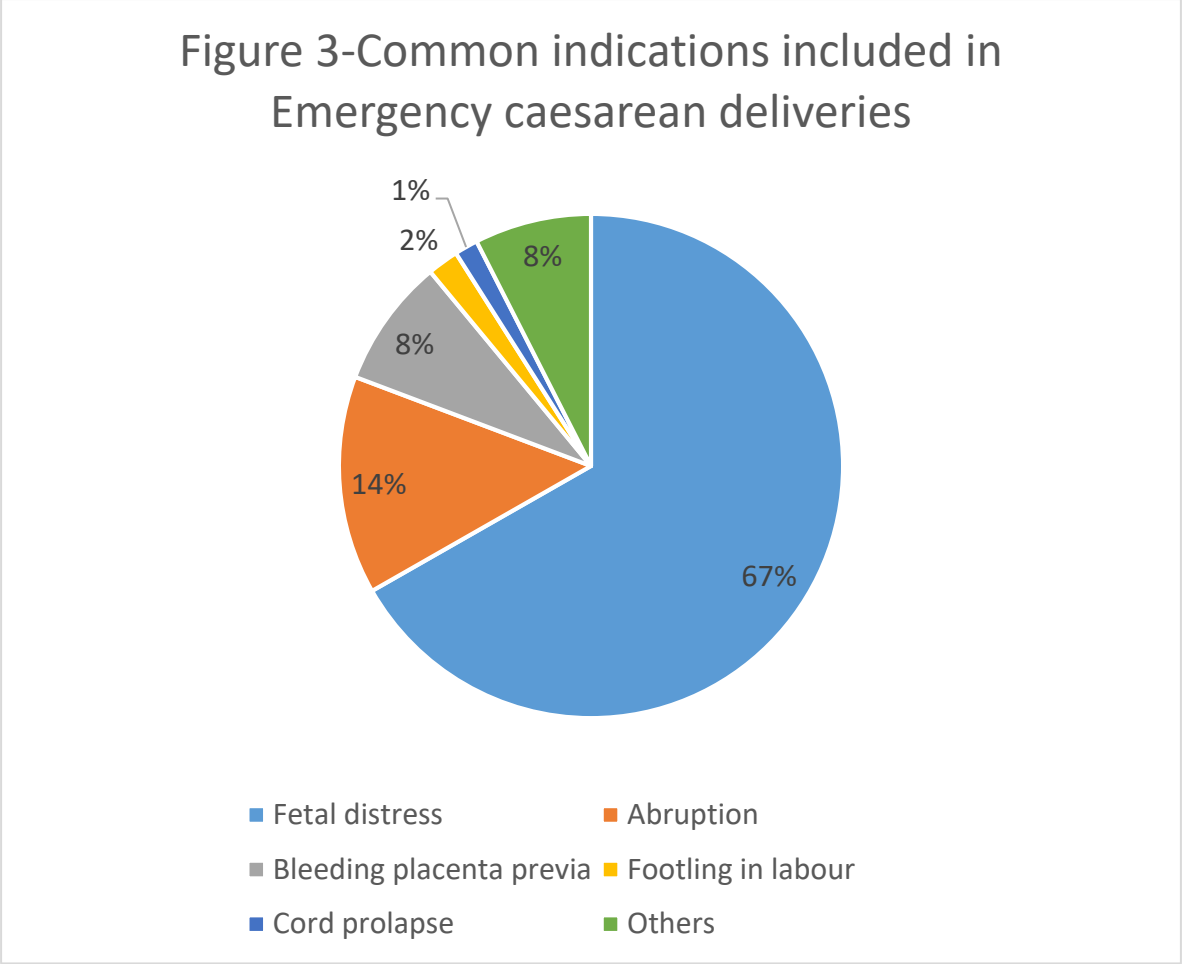
This has been demonstrated in figure2.



Common indications included in emergency category (DDI-less than 30 minutes) are

1. Fetal distress (267)
2. Abruption (56)
3. Bleeding placenta previa (33)
4. Footling in labour (8)
5. Cord prolapse (6)
6. Others (30)

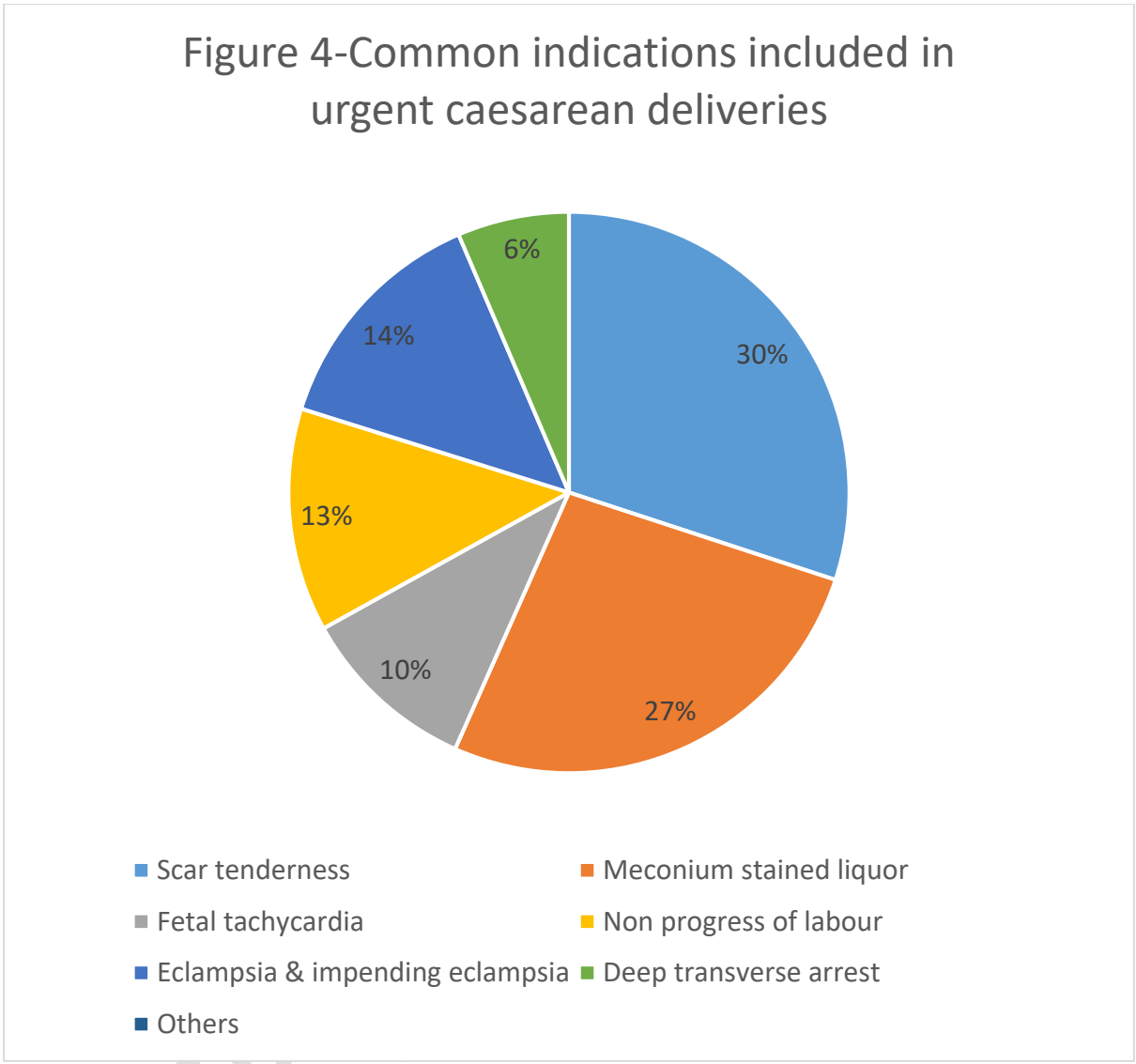
This has been demonstrated in figure 3.



Common indications included in urgent category (DDI- 30 minutes- 2 hours) are

1. Scar tenderness (70)
2. Meconium stained liquor (62)
3. Fetal tachycardia (24)
4. Non-progress of labour (30)
5. Eclampsia and impending eclampsia (32)
6. Deep Transverse Arrest (15)
7. Others (8)

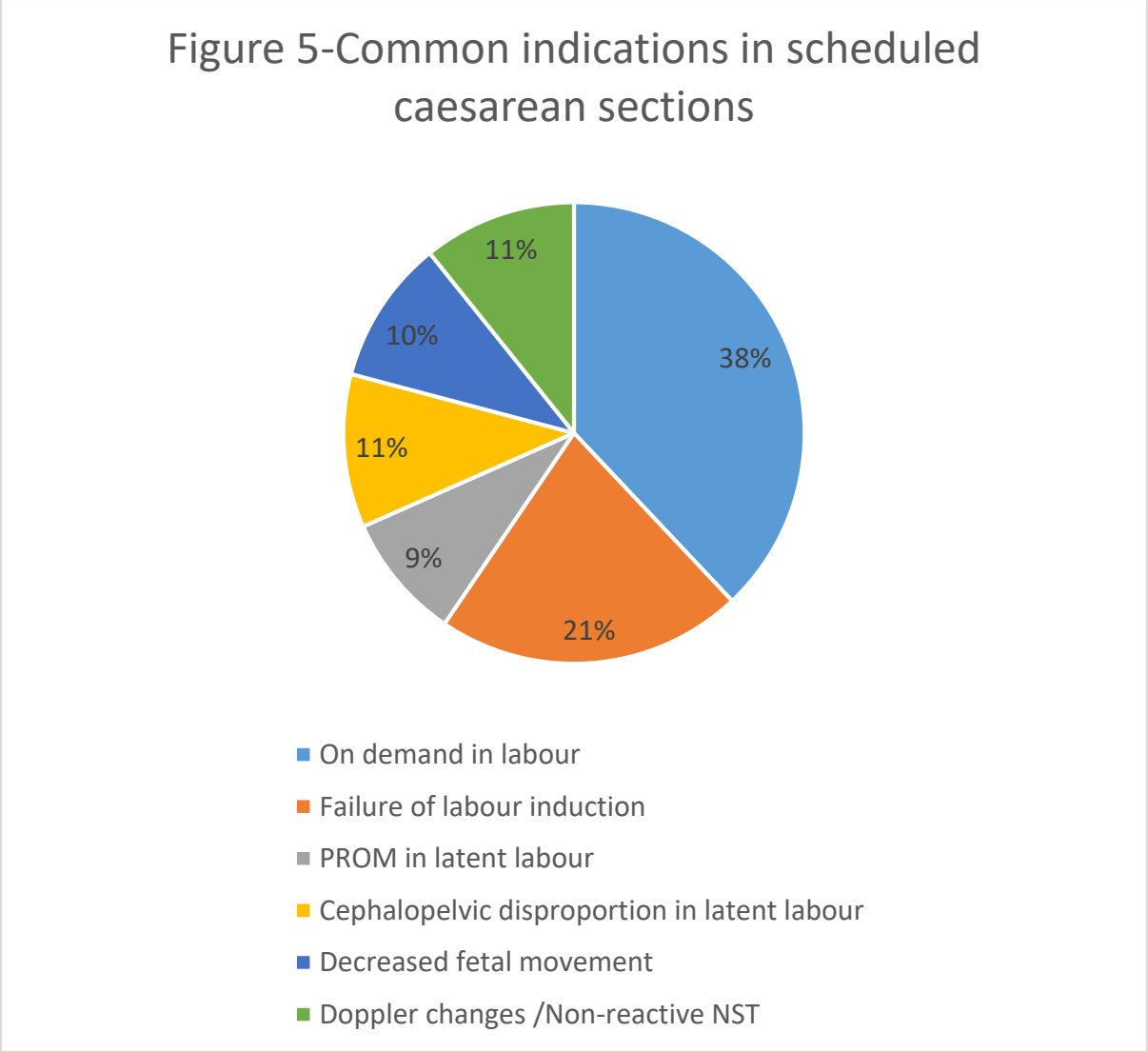
This has been demonstrated in figure 4.



Common indications in scheduled category (DDI- 2 hours-24 hours) are

1. On demand in labour (60)
2. Failure of induction of labour (34)
3. PROM in latent labour (14)
4. Cephalopelvic disproportion in labour (17)
5. Decreased fetal movements (16)
6. Doppler changes/ non-reactive NST (17)

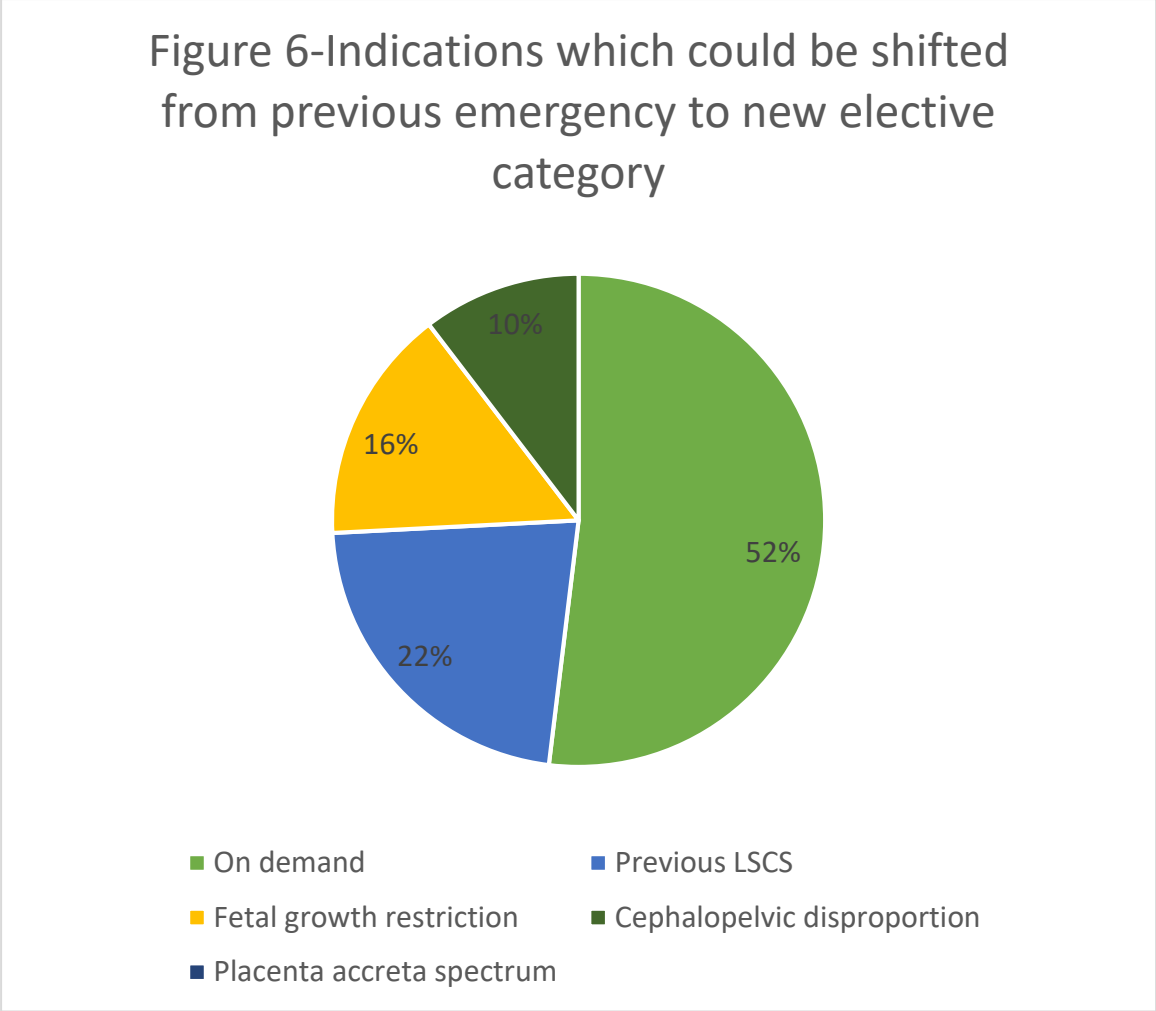
This has been demonstrated in figure 5.



Common indications in elective category include-

1. On demand (175)
2. FGR (52)
3. Previous LSCS (75)
4. Cephalopelvic disproportion (35)
5. Placenta accreta spectrum (10)

This has been demonstrated in figure 6.



Discussion

Caesarean section is a complex multidisciplinary procedure. DDI is supposed to play a significant role in maternal and neonatal outcome. The ideal method of classification should be simple, applicable to a wide variety of clinical cases, reliable and valid.

Caesarean section is classified into four groups, namely emergency, urgent, scheduled and elective on the basis of the indications and recommendations of DDI [7,8].

The 2021 NICE recommendation [7]

- **Category 1**: Immediate threat to the life of the woman or fetus (for example, suspected uterine rupture, major placental abruption, cord prolapse, fetal hypoxia or persistent fetal bradycardia).
- **Category 2**: Maternal or fetal compromise which is not immediately life-threatening.

- **Category 3**: No maternal or fetal compromise but needs early birth.
- **Category 4**: Birth timed to suit woman or healthcare provider.

This recommendation is based mostly on the observation of studies carried out in developed countries, and published data for low-resource settings including India are sparse[8].

Total caesarean rate in our institute is 59%, of which 19.8 % are elective and 80.9% are emergencies. The higher incidence of caesarean section is attributed to the high risk pregnancies referred to the tertiary care teaching multi-disciplinary institute. After application of NCEPOD classification there were 34.9% emergency, 21% urgent, 13.7 % scheduled and 30.27% elective cases [Figure 2].

Categorization of caesarean deliveries only based on indications as emergencies is unjust. Multiple indications like bleeding placenta previa, fetal distress, and abruption have varying acuity and severity[8]. In the present study there were 400 true emergencies and nearly 120 cases could be reclassified as elective procedures. Positively there was no delay in DDI in the true 400 emergencies. This could be attributed to multidisciplinary team approach, next door operation theatre, 24 hours available anaesthetists, well trained nursing staff, good NICU and ICU back up and blood bank.

In a study by Mishra et al [8] the most common cause of delay was busy operation theatres (39%) and busy labour ward (20%). Manpower shortage accounted for 3.25% of delay in which 1.25% were because of unavailability of anaesthetist [anaesthetists busy in other operation]. Irrespective of experience of the anaesthetist, multiple attempts of spinal anaesthesia caused delay in 4.5% cases, due to obesity (3.5%) and non-cooperation by the woman (1%).

'Crash' caesarean birth is a psychologically traumatic event for women and their partners, and is also stressful for clinical staff [7].

Scar tenderness, meconium stained liquor, fetal tachycardia, non-progress of labour, eclampsia and impending eclampsia and deep transverse arrest were some of the indications in Urgent category[Figure 4] .

On demand in labour, failure of labour induction, PROM in latent labour, cephalopelvic disproportion in latent labour, decreased fetal movement, non-reactive

NST were some of the common indications in Scheduled category [Figure 5].

On demand not in labour, cephalopelvic disproportion, previous LSCS, fetal growth restriction and placenta accreta spectrum were few of the indications which could be re-classified from emergency to elective category [Figure 6].

The existing recommendations of DDI for categorization can raise many medico legal issues and impose great undue pressure on health care facility[8]. The study by Mishra et al recommends existing recommendations of decision delivery interval can raise many medico-legal issues and impose great pressure on the health facility to deliver a baby in less than 30 min in all emergency caesarean sections. The study recommends re-categorization of the DDI especially in the emergency and urgent caesarean sections.

The strength of our study is in the sizable number of patients included. The limitation of the study is not addressing the delays for the DDI and the necessary steps to prevent the delay are not dealt with. The study did not answer the neonatal outcomes in the specified categories of the caesarean sections. Nevertheless the study gives important insights into the need of categorization of caesarean section to help in the triage of the patients in emergency room.

Conclusion:

Application of this new classification system will help us to triage the patients and aptly deliver safe care. It will also reduce the medicolegal issues which arise the moment the term ‘emergency’ is used.

Classification of the caesarean as per the four categories with respect to the DDI will help in monitoring and organization of the health facilities with respect to the urgency of the indication of the caesarean section.

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