Share-Net Jordan
The Knowledge Platform on Sexual and Reproductive Health and Reproductive Rights

Policy Brief

Reducing Elective Cesarean Sections Without Medical Justifications in Jordan

Revised Version

2024

Executive Summary

While a cesarean section is a crucial and life-saving surgical procedure recommended in situations where a vaginal delivery poses risks to the mother, the baby, or both, it is noteworthy that its prevalence is not solely driven by medical necessities today. The cesarean section ratio has surged from 5.6% in 1990 to a staggering 42.8% in 2023. According to the 2017 Demographic and Health Surveys, 20% of cesarean sections were decided before the onset of labor pain, and 6% were determined only after the commencement of labor. This significant variance in decision timing implies that a considerable portion of these procedures may be unnecessary.

The annual statistical reports from the Ministry of Health, spanning from 2005 to 2023, reveal a concerning trend of increasing cesarean births in their hospitals, reaching 36% in 2023, surpassing the global average of 21% for the same period. This ratio exceeds the ideal threshold recommended by the World Health Organization, which stands at 15%. These findings underscore the need for a critical examination of the factors contributing to the rising cesarean section ratio , as it is crucial to ensure that this surgical intervention is employed judiciously for the well-being of both mothers and infants.

The escalating ratio of cesarean sections, coupled with a high percentage of newborns requiring admission to neonatal intensive care units in hospitals, imposes a substantial burden on infants, healthcare facilities, and families. This situation also carries implications for maternal health, as evidenced by findings in the National Maternal Mortality Report 2018-2021.

The reports reveal that maternal deaths associated with cesarean sections constituted a significant proportion, ranging from 71% to 84% during this period, in contrast to the lower figures of 16% to 29% linked to vaginal births. Notably, the 2020 report emphasized that while cesarean sections can be life-saving procedures for both fetuses and mothers, instances of medically unnecessary cesarean sections are correlated with a heightened risk of perinatal maternal mortality compared to vaginal deliveries.

These insights underscore the critical need for a thorough examination of the factors contributing to the elevated ratio of cesarean sections. Addressing this issue is essential not only for the well-being of newborns and families but also for mitigating the adverse consequences on maternal health, particularly in cases where cesarean sections are performed without clear medical justification.

This brief, crafted by the Higher Population Council and Share-Net Jordan, endeavors to establish an optimal policy framework to streamline the utilization of cesarean sections, reserving them exclusively for cases dictated by medical necessity. Collaborating with a committee of experts representing key entities including the Ministry of Health, the Royal Jordanian Medical Services, the University of Jordan Hospital, and HSQA project . This initiative is rooted in a thorough diagnosis of the issue, proposing alternatives to address the problem, the summary relies on scientific evidence derived from national studies, statistics, and focused interviews with relevant stakeholders.

The brief assesses four alternatives aimed at diminishing elective cesarean deliveries without medical justifications in Jordan, concluding that each option significantly contributes to this reduction:

- Promoting awareness among women about the benefits of vaginal births, the negative impacts of unnecessary cesarean sections, addressing women's fears about vaginal birth, and clarifying the possibility of vaginal birth after a previous cesarean with medical consultation.

- Mandating adherence to national guidelines promoting vaginal births and reducing primary cesarean sections, as well as national clinical guidelines and peer review systems, in addition to implementing a rigorous audit and evaluation system to obtain accurate results reviews.

- Increase financial and moral incentives for those involved in vaginal delivery.

- Mitigating the discomfort associated with vaginal delivery involves ensuring the availability of pain relief methods, such as epidural anesthesia.

The policy brief recommends establishing a national committee under the leadership of the Ministry of Health. This committee, comprised of key stakeholders including the Ministry of Health, Royal Medical Services, Teaching Hospitals, Health Care Accreditation Council, and the Private Hospitals Association, will oversee the effective implementation of relevant policies.

[1] Clinical Peer Review: This is the procedure through which healthcare professionals assess the clinical performance of their peers. Its main objective is to enhance the quality and safety of healthcare services while also mitigating the institution's potential for indirect malpractice liability and ensuring compliance with regulatory standards. It complements other institutional processes aimed at confirming the competence of physicians and ensuring they adhere to professionally accepted standards of practice.

1: Introduction

While a cesarean section is a crucial, life-saving surgical procedure recommended in cases where vaginal delivery poses risks to the mother, baby, or both, its current prevalence extends beyond medically necessary situations. Worldwide, cesarean section ratio have markedly increased, escalating from approximately 7% in 1990 to 21% between 2010 and 2018. This surge surpasses the recommended ideal ratio of 10% to 15%. This alarming rise is primarily attributed to the significant and unwarranted increase in cesarean sections without medical justifications, often referred to as cesarean section on maternal request.

According to a study by the World Health Organization[2], if the current trend persists, the global cesarean section ratio is projected to reach 28.5% by 2030. The highest ratios are anticipated in East Asia at 63%, Latin America and the Caribbean at 54%, West Asia at 50%, North Africa at 48%, Southern Europe at 47%, and Australia and New Zealand at 45%.

Jordan has closely followed the global trend in the escalating ratio of cesarean sections. The ratio surged from 5.7% in the period 1985-1990 to 42.8% in the period 2019-2023, making it one of the highest cesarean section ratio globally. This surpasses the worldwide average of 21% for the same period and exceeds the ideal ratio recommended by the World Health Organization. Without effective interventions to reverse this trend, we are poised to confront a complex scenario characterized by maternal morbidity and mortality, coupled with the excessive utilization of surgical procedures that strain financial resources.

In response to this situation and to regulate the prevalence of cesarean sections, the Ministry of Health, in collaboration with USAID, has developed national guidelines aimed at promoting vaginal deliveries and diminishing elective cesarean sections lacking medical justifications. Additionally, the World Health Organization has put forth global recommendations for non-clinical interventions to curb unnecessary cesarean sections. The adoption of Robson's ten groups[3] for classifying pregnant women has been specifically recommended to decrease the incidence of cesarean sections.

As part of the Higher Population Council's and Share-Net Jordan's proactive response to address this issue within the scope of the Jordanian National Strategy for Reproductive and Sexual Health 2020-2030, in alignment with recommendations from national reports on maternal mortality in Jordan, and in line with the Jordanian government's commitment to reducing maternal mortality as outlined in the Sustainable Development Goals and commitments made at the Nairobi ICPD25+ Summit, this policy brief has been crafted. The objective is to establish a conducive policy environment aimed at rationalizing the utilization of cesarean sections, restricting them to medically necessary cases. The preparation

[2] https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access

[3] Robson's classification system categorizes all laboring women into one of ten groups, determined by easily identifiable characteristics such as the number of previous pregnancies, fetal presentation (e.g., head-down position), gestational age, history of uterine scarring, parity (number of previous children), and onset of labor pains.

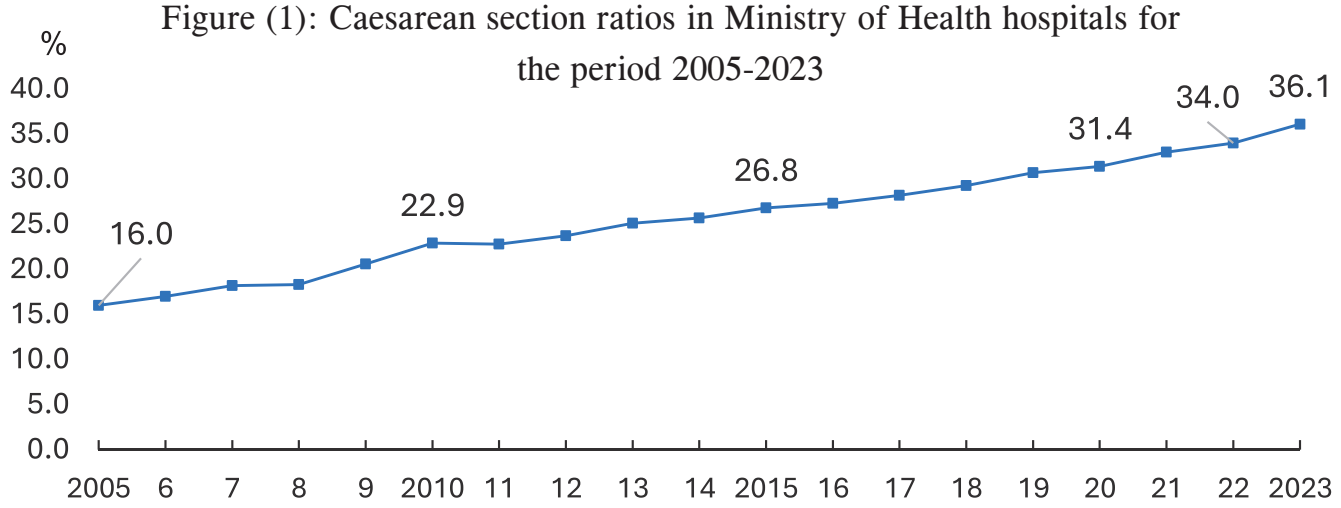
of this Policy Brief involved a committee comprised of expert practitioners from relevant national institutions convened by the Council. Brainstorming sessions were conducted with decision-makers and representatives of service providers, offering a valuable platform for problem-solving and developing alternative solutions to the issue.

This Policy Brief presents an in-depth analysis of the escalating issue of elective cesarean sections without medical justifications in Jordan, delving into the dimensions of the problem through a comprehensive examination of scientific evidence derived from a collection of national studies and research addressing its impact on the healthcare system, as well as the health of mothers and newborns. Employing a cause-and-effect diagram, the problem was scrutinized to identify all potential causes, leading to a systematic exploration to unveil the root cause or causes. Alongside evidence-based recommendations, this brief incorporates insights from a committee of expert practitioners affiliated with national institutions. These experts were engaged in productive brainstorming sessions, contributing valuable recommendations aimed at reducing the incidence of elective cesarean sections without medical justifications.

2: Problem

The findings from population and family health surveys[4] highlight a significant rise in the percentage of births delivered through caesarean section, increasing from 5.6% in 1990 to 25.8% in 2017, and further escalating to 42.8% in 2023. Additionally, the annual statistical reports from the Ministry of Health[5] spanning from 2005 to 2023 reveal a consistent upward trend in the ratio of caesarean sections performed in ministry hospitals, as illustrated in Figure (1). These ratio surpass the global average of 21% for the same period and exceed the ideal ratio recommended by the World Health Organization, set at 15%.

Figure (1): Caesarean section ratios in Ministry of Health hospitals for the period 2005-2023



A study titled "Maternal request for cesarean delivery; a solid indication or a window for complications; a teaching hospital experience" has brought to light two significant findings[6]. Firstly, there is a notable increase in the percentage of pregnant women opting for cesarean section over vaginal delivery, with rates at 54% compared to 45.6%. Secondly, the leading justification for cesarean sections in the hospital was previous cesarean sections (two or more operations) accounting for 28.9%, followed closely by maternal requests at 22.8% of total births in 2022.

The findings from the Population and Family Health Survey 2017-2018[7] further revealed a cesarean section ratio of 26% among all births. Notably, the decision to perform a cesarean section was made before the onset of labor pain in 20% of births, while in 6% of births, the decision was deferred until after the initiation of labor. The significant disparity between planned and unplanned cesarean sections highlights that a substantial percentage of these procedures may be deemed unnecessary or not required.

4 Jordan's Population and Family Health Survey for the years 1990, 2017-2018, and 2023.
5 Ministry of Health's annual statistical reports for the years 2017 through 2022.
6 Kamil Mosa Fram, and others, Maternal request for cesarean delivery; a solid indication or a window for complications; a teaching hospital experience, Obstetrics & Gynecology International Journal, Volume 14 Issue 2 - 2023
7 Jordan's Population and Family Health Survey, 2017-2018.

Another study titled[8] "The impact of cesarean section on neonatal outcomes at a university-based tertiary hospital in Jordan" conducted a comprehensive review of medical records encompassing all women and children delivered by caesarean section from January 2016 to July 2017. The study revealed that during the 18 months, a total of 2,595 caesarean sections were performed, constituting 50.5% of all births. Of these, 60% were elective procedures, while 40% were emergency interventions. A notable 30% of the infants delivered by Caesarean section required admission to the neonatal intensive care unit. The study concluded that the elevated ratio of Caesarean sections, combined with a substantial proportion of newborns requiring intensive care, imposes a significant burden on both the infants, healthcare facilities, and the families involved, leading to far-reaching consequences for both mothers and newborns."

A study titled[9] 'Mode of birth and risk of infectionrelated hospitalization in childhood' also revealed that children born through elective cesarean section face a more than 13% increased risk of hospitalization due to infection compared to those born vaginally. Similarly, children born via emergency cesarean section exhibit a risk exceeding 9%, as opposed to those born vaginally. This discrepancy was attributed to variations in the initial microbial exposure based on the method of

delivery. The heightened risks persisted until the child reached the age of 5, with the highest incidence of infections affecting the respiratory and digestive systems, as well as other viral infections.

"A study titled[10] 'Associations between cesarean births and breastfeeding in the Middle East' concluded that cesarean sections are linked to an elevated risk of delayed initiation of breastfeeding and early initiation of exclusive breastfeeding.

The World Health Organization[11] highlights the dangers of the excessive utilization of cesarean sections due to their association with both short-term and long-term health risks for the mother. These effects may extend well beyond the immediate delivery, impacting future pregnancies. Moreover, high cesarean section rates contribute to elevated healthcare costs. This surgical procedure increases the likelihood of requiring blood transfusions and raises the risk of complications related to anesthesia, organ injury, infection, respiratory issues in newborns, and other short-term complications.

Furthermore, the long-term implications of

---

8 Wasim Khasawneh1, Nail Obeidat2, Dawood Yusef1 and Jomana W. Alsulaiman, The impact of cesarean section on neonatal outcomes at a university-based tertiary hospital in Jordan, Khasawneh et al. BMC Pregnancy and Childbirth (2020) 20:335. https://doi.org/10.1186/s12884-020-03027-2

9 Miller JE, Goldacre R, Moore HC, Zeltzer J, Knight M, Morris C, et al. (2020) Mode of birth and risk of infection-related hospitalization in childhood: A population cohort study of 7.17 million births from 4 high-income countries. PLoS Med 17(11): e1003429. https://doi.org/10.1371/journal.pmed.1003429.

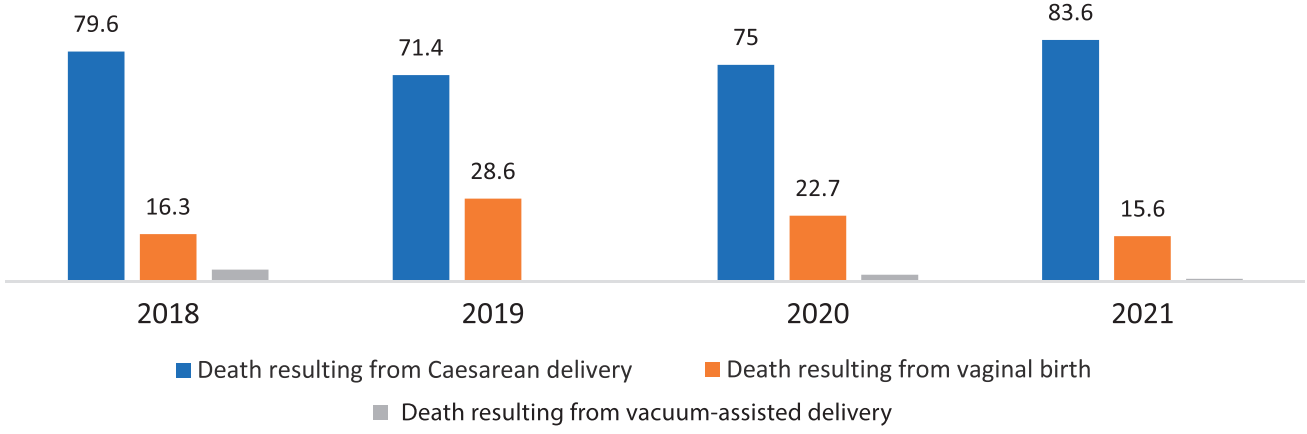
10 Miho Sodeno, Hannah Tappis, Gilbert Burnham and Mija Ververs, Associations between caesarean births and breastfeeding in the Middle East: a scoping review, EMHJ – Vol. 27 No. 9 – 2021

11 World Health Organization, Regional Office for the Middle East, Regional Committee for the Eastern Mediterranean, Optimal Use of Cesarean Sections to Enhance Maternal and Newborn Health in the Region, 2018.

cesarean sections have been linked to complications such as uterine rupture, placental accreta, ectopic pregnancy, infertility, hysterectomy, and intra-abdominal adhesions in subsequent pregnancies. The unwarranted use of this procedure has resulted in an escalation of associated complications. Three out of the six leading causes of maternal mortality bleeding, infection, and anesthesia complications are now associated with cesarean section.

The findings from the National Maternal Mortality Report (2018-2021)[12], detailing maternal deaths by delivery method, indicate that deaths attributed to cesarean sections during this period constituted between 71% and 84% of overall maternal deaths. In contrast, the corresponding figures for vaginal births were between 16% and 29% during the same period. The 2020 report underscored that while a cesarean section is a life-saving surgical procedure for both the fetus and the mother, elective cesarean sections, when medically unnecessary, are associated with a heightened risk of maternal mortality during the perinatal period compared to vaginal delivery. The report strongly recommended reinforcing the national program aimed at reducing unnecessary cesarean sections, particularly in light of the escalating trend of cesarean sections in Jordan.

Figure (2): Percentage of maternal deaths in childbirth by mode of delivery 2018-2021



3: Context of the problem

1. General Characteristics

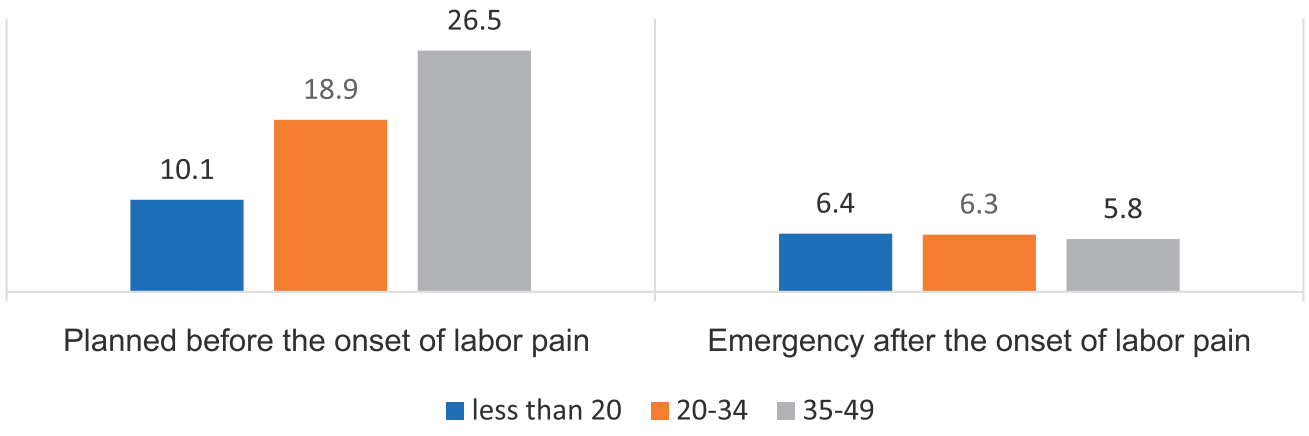
Findings from the Population and Family Health Survey 2017-2018 present an overview of fundamental characteristics based on the timing of the decision to undergo a cesarean section, with notable observations including.

- **The prevalence of planned cesarean sections prior to the onset of labor pain exhibits variations across different age groups of mothers.**

[12] Ministry of Health, Jordan's National Maternal Mortality Report 2018,2019,2020, 2021.

Women under the age of 20 experience the lowest ratios of cesarean sections (10.1%) compared to their older counterparts (18.9% for the age group 20-34 years and 26.5% for the age group 35-49 years). Conversely, the occurrence of emergency cesarean sections is not significantly linked to age, as depicted in Figure (3).

Figure (3): Caesarean Section Ratios Based on the Timing of the Decision and Mother's Age Groups



- **The ratios of planned cesarean sections before the onset of labor pain vary depending on the health facility where the birth occurs.**

Notably, planned cesarean sections are more prevalent in private sector hospitals, with a ratio of 23%, compared to 18.4% in public sector facilities. Although there is not a significant difference in the ratio of emergency cesarean sections, it slightly increased to 6.6% compared to 6.2% in public sector facilities.

In summary, considering both planned and emergency cesarean sections, the overall ratios were highest in teaching hospitals at 40.4%, followed by private sector hospitals at 39.1%, military hospitals at 36.1%, and government hospitals at 27.4%. These findings were derived from a study[13] analyzing a total of 2.8 million birth records in Jordan between 1982 and 2017."

- **The ratios of planned caesarean sections before the onset of labor pains exhibit regional variations.**

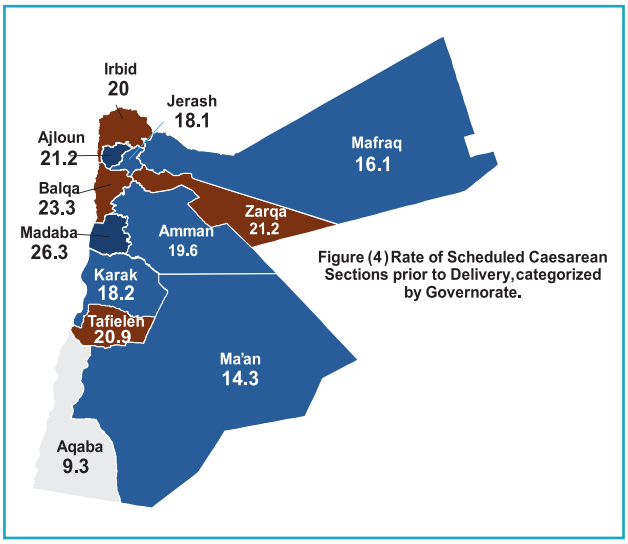


Figure (4) Rate of Scheduled Caesarean Sections prior to Delivery, categorized by Governorate.

13 Abdel-Fattah Salem, Department of Obstetrics and Genecology, Mu'tah University, Trends in Caesarean section deliveries in Jordan from 1982 to 2017: retrospective analyses of annual hospital reports, EMHJ – Vol. 27 No. 2 – 2021: 195-201.

As depicted in Figure (4), Madaba Governorate recorded the highest rate of planned caesarean sections before the onset of labor pains at 26.3%, followed by the governorates of Balqa, Zarqa, Ajloun, Tafila, and Irbid. Conversely, Aqaba Governorate reported the lowest rate at 9.3%, with intermediate rates observed in the governorates of the Capital, Karak, Jerash, Mafraq, and Ma'an.

- **The rate of planned cesarean births before the onset of labor pains varies based on the mother's nationality.**

The rate of planned cesarean births among Jordanian mothers increased to 20.4%, in contrast to 15% for Syrian mothers and 17.8% for mothers of other nationalities. However, no clear differences were recorded among Jordanian and Syrian mothers who underwent emergency cesarean sections after the onset of labor pain.

2. Reasons for Mothers Requesting a Caesarean Section without Medical Justification:

A study titled[14] 'A Mother's Request for a Caesarean Section without Medical Justification: A Qualitative Study in Jordan' concluded by identifying five reasons for elective cesarean sections without medical justifications.

These reasons collectively highlight the lack of informed choice for pregnant women:

- Fear of the Vaginal Birth Process: Mothers perceived vaginal birth as a painful experience involving multiple uncomfortable procedures such as artificial contractions and vaginal examinations. They expressed apprehension about potential complications such as labor progression issues, bleeding, and injury to the newborn.

- Concerns about Future Sex Life : Mothers anticipated potential negative impacts of vaginal birth on their sexual desire and intimate relationships with their husbands.

- The Desire for a Compassionate Birth : Mothers anticipate encountering negative attitudes from healthcare providers during labor, drawing on the experiences of female relatives who gave birth vaginally and received suboptimal treatment from healthcare providers.

- Personal Motivations : These are linked to the desire to maintain physical fitness and the preference for a specific birth date chosen by the couple.

- Decision-Making Process : The majority of women base their decisions on their interactions within their social context. These decisions are often influenced by the experiences of relatives and friends. Family members, especially husbands, play a supportive and encouraging role in the decision-making process."

4: Review and assess the policy and procedural framework of the problem

[14] R. Hatamleh, S. Abujilban and A.J. Al-Shraideh et al., Maternal request for cesarian birth without medical indication in a group of healthy women: A qualitative study in Jordan, / Midwifery 79 (2019) 102543, https://www.sciencedirect.com/science/article/abs/pii/S026661381930230X?via%3Dihub.

Through brainstorming meetings with a committee comprising relevant expert practitioners from national institutions, as well as obstetricians and gynecologists from hospitals, the policy or procedural landscape of the problem can be categorized into factors associated with governance, additional factors linked to financial costs, and factors related to service delivery.

1. Governance Factors :

- Unified national guidelines and standards for obstetric and maternity care in health institutions are approved by the Minister of Health. However, there is no mandatory requirement for institutions to implement them, and there is a lack of monitoring to assess the extent of compliance with their application.

- Most private hospitals do not establish guidelines to reduce the rates of unnecessary cesarean sections.

- Jordan lacks laws, draft legislation, legislative rules, or government instructions aimed at restricting rates of elective cesarean sections without medical justification.

- There is no legal framework in Jordan to protect obstetricians and gynecologists if maternal health problems arise during vaginal delivery.

- The accreditation requirements for hospitals and excellence programs have not addressed the issue of limiting elective cesarean sections, nor have they evaluated the commitment to implementing national guidelines related to obstetric and maternity care.

2. Financial Factors :

- Higher Costs and Greater Hospital Benefits: caesarean sections generate substantial profits for hospitals, stemming from the occupancy of beds, operating rooms, neonatal intensive care units, and the extended postoperative stay for mothers. This results in increased financial gains for hospitals due to the higher rate of cesarean births.

- Elevated Prices and Revenue for the Procedure: health insurance companies cover cesarean births at a higher rate than vaginal births, leading to a heightened inclination among private healthcare providers to perform cesarean births.

- Lack of Coverage for Epidural Anesthesia[15], the Ministry of Health, Royal Medical Services, and private hospitals do not offer epidural anesthesia due to insufficient anesthesiologists. Additionally, private insurance companies do not cover the expenses for this type of anesthesia, which typically range between 150-300 JD. This situation contributes to an increased demand for cesarean sections among women, driven by a fear of pain.

3. Service-Provision-Related Factors :

- The scarcity of midwives in Jordan leads to situations where they prompt doctors to perform cesarean births, citing the difficulty of the labor and the mothers' severe pain. This is often done to alleviate the burdens placed on midwives during labor.

---

[15] Epidural anesthesia: This method is commonly used for pain relief during labor and delivery. It entails inserting a thin, flexible plastic tube (catheter) into the lower back area using a specialized needle. Once the catheter is properly positioned, a combination of local anesthetic (pain medication) and a potent pain reliever is administered through a programmed pump to alleviate labor pain throughout the delivery process.

- Increased Demand by Women: women's growing demand for cesarean sections is linked to misconceptions regarding the procedure, its conditions, and outcomes. This trend is further fueled by inadequate education and preparation during the prenatal period.

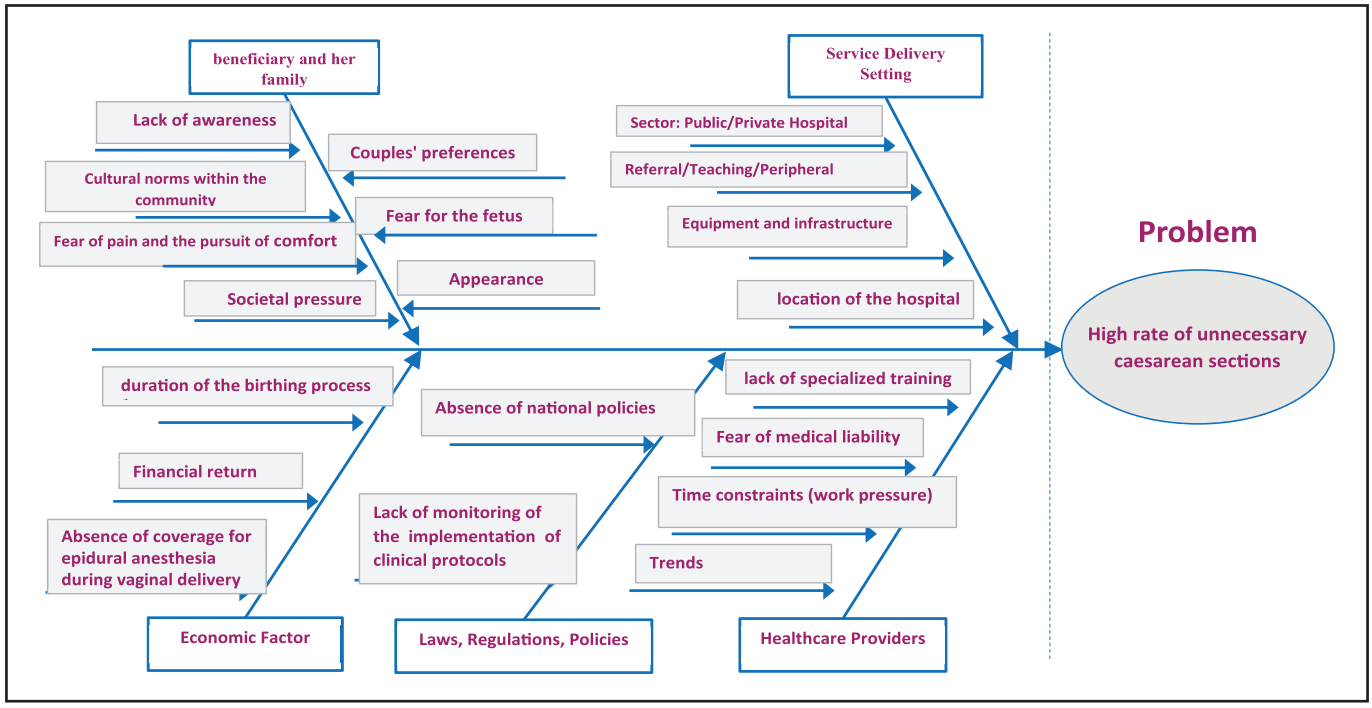
- Practices in Teaching and Specialized Hospitals: during residency programs, the focus tends to be on cesarean deliveries rather than effective vaginal deliveries in teaching at specialized hospitals. This results in a decline in the proficiency and experience of obstetricians in performing vaginal deliveries.

- Obstetricians' Inclination and Patient Demand: some obstetricians' inclination towards performing cesarean sections, combined with an increased demand for them by women, encourages other obstetricians not to decline such requests.

- Defensive Medicine Practices: obstetricians may practice 'defensive medicine' to avoid complications that may arise from vaginal deliveries, even in the absence of medical justifications. Cesarean sections are often performed as a precautionary measure to mitigate potential legal consequences under the Medical Liability Law.

5: Root causes of the problem

To identify the underlying reasons for the rise in the percentage of elective cesarean sections without medical justifications in Jordan relative to the total number of births, a focus group was convened with a panel of experts. Employing a brainstorming methodology, the Ishikawa chart, also known as the Cause and Effect (fishbone diagram), was utilized. This approach identified five domains under which the root causes are categorized: the service delivery setting, the beneficiary and her family, healthcare practices, laws and policies, and the economic dimension. The root causes were delineated under each domain as follows:



6: Policy Alternatives

In light of the above, this brief proposes the following policy alternatives to reduce the current unacceptably high ratio of cesarean deliveries and to enhance the strict commitment of health personnel to apply national guidelines and World Health Organization recommendations in supporting vaginal deliveries, reducing cesarean deliveries, and avoiding any bias in choosing the method of delivery.

Alternative 1: Promoting awareness among women about the benefits of natural childbirth, the negative impacts of unnecessary cesarean sections, addressing women's fears about vaginal birth, and clarifying the possibility of vaginal birth after a previous cesarean with medical consultation.

Alternative 2: Mandating adherence to national guidelines promoting vaginal births and reducing primary cesarean sections, as well as national clinical guidelines and peer review systems, in addition to implementing a rigorous audit and evaluation system to obtain accurate results reviews.

Alternative 3 : Increase financial and moral incentives for those involved in vaginal delivery.

Alternative 4 : Mitigating the discomfort of vaginal delivery by ensuring the availability of pain relief measures, including epidural anesthesia.

7: Analysis of Policy Options

1 First Policy: Promoting awareness among women about the benefits of natural childbirth, the negative impacts of unnecessary cesarean sections, addressing women's fears about vaginal birth, and clarifying the possibility of vaginal birth after a previous cesarean with medical consultation.

This alternative includes adopting a set of methods and tools:

And being exposed to a repeat cesarean section after the first cesarean section

- Integrating counseling on the benefits of vaginal delivery and the risks of performing cesarean sections without medical justification into prenatal care protocols.

- Launch awareness programs and campaigns targeting pregnant women and their families about the benefits of natural childbirth and the risks of undergoing cesarean sections without medical justifications. These campaigns will also address the risks of repeated cesarean sections after the first one and dispel fears surrounding vaginal delivery, empowering pregnant women to make informed decisions about their childbirth options.

- Launch community-focused media campaigns through traditional media and social media platforms.

- Conducting classes for pregnant women on relaxation and delivery preparation.

- Introducing the concept of doula support in Jordan, which involves offering emotional, physical, and informational assistance to pregnant women before, during, and after delivery by trained professionals. Research has shown that doula support is associated with a decrease in the duration of labor and the incidence of cesarean sections.

- Including relevant courses in medical specialties (medicine, nursing, and midwifery) on how to provide counseling to pregnant women.

The process of raising awareness among pregnant women by improving their knowledge during the prenatal period, regarding the benefits of vaginal delivery and the risks of performing cesarean sections without medical justifications, has contributed to reducing the elective cesarean sections in different countries such as Brazil, Iran, Portugal, the United States, Chile, the Netherlands, the United Kingdom, Thailand, Mexico. This has been achieved by improving decisions related to the type of birth and correcting misconceptions related to cesarean sections[15].

[15] Khunpradit et al. 2011; Hartmann et al., 2012; WHO, 2010; WHO; 2012; Rossignol et al., 2013; Simpson, Newman & Chirino, 2010; Kottwitz, 2014; Marshall, Spiby & McCormick, 2015; Campero et al., 2004; ACOG; 2014; Mawson, 2002; Baradran et al., 2006; Ayres De Campos et al., 2015; Bastani et al., 2006; Hanvoravongchai et al., 2000).

Advantages :

1. The outcomes are relatively prompt, indicating short-term effects, contributing to empowering pregnant women to make informed decisions regarding the method of delivery.
2. Its effects will manifest in the upcoming generations.
3. As an alternative, it can be perceived as part of the social responsibility of non-profit health institutions and the private sector in reducing morbidity and mortality.
4. Integrating awareness programs and campaigns and involving gynecologists and medical staff in providing appropriate education to pregnant women about accreditation systems in hospitals and primary healthcare centers.
5. Reducing the number of caesarean deliveries following the first caesarean section.

Limitations:

1. The necessity of an adequately trained staff to ensure long-term effectiveness.
2. A substantial commitment from the Ministry of Health to educate women through awareness campaigns.

2 The Second Policy: Mandating adherence to national guidelines, promoting vaginal births and reducing primary cesarean sections[16],

as well as national clinical guidelines and peer review system[17], in addition to implementing a rigorous audit and evaluation system to obtain accurate results reviews.

This policy includes:

First: Implementing national guidelines supporting vaginal births and reducing primary cesarean sections, as well as national clinical guidelines, contributes to addressing the beliefs and attitudes of clinicians, and the fear of labor pain and poor quality of care among women. It also helps avoid unnecessary cesarean sections for first pregnancies, in order to reduce the number of mothers who would be candidates for cesarean sections in subsequent pregnancies. This requires:

- **Expanding the implementation and monitoring** of "national guidelines supporting vaginal births and reducing unnecessary primary cesarean sections."
- **Strengthening the capacities of healthcare providers** including those working in labor and delivery units to comply with national guidelines supporting vaginal births and reducing unnecessary primary cesarean sections."

Second: Introducing protocols for medical practices entails establishing a clinical peer review system where healthcare professionals assess each other's clinical performance to

16 Ministry of Health, USAID Health Service Delivery, and others, National Guidelines to Support Vaginal Births and Reduce Primary Cesarean Section Deliveries,2020.

17 Clinical Peer Review: This is the procedure through which healthcare professionals assess the clinical performance of their peers. Its main objective is to enhance the quality and safety of healthcare services while also mitigating the institution's potential for indirect malpractice liability and ensuring compliance with regulatory standards. It complements other institutional processes aimed at confirming the competence of physicians and ensuring they adhere to professionally accepted standards of practice.

enhance quality and safety standards. This involves ensuring that physicians are competent and adhere to professionally accepted norms. It is suggested that the referring physician possesses equal or higher qualifications compared to the initial physician, is chosen by the obstetrics department, and has committed to adhering to clinical guidelines.

Third: Reviewing delivery cases and associated indicators to discern the necessity of cesarean sections, monitoring elevated rates in alignment with national clinical guidelines, and invoking the Medical Accountability Law. In instances where it is medically verified that natural delivery was feasible but a cesarean section was performed instead, the operating physician will be held accountable.

Fourth: Integrating this policy into the accreditation systems of hospitals and primary healthcare centers, and it is highly recommended that hospitals' compliance with this policy be mandatory for achieving accreditation status.

This alternative has demonstrated its effectiveness across various public and private hospitals in different countries, including Brazil, Iran, Portugal, the United States, and Thailand[18].

Regarding the evaluation and monitoring of these established procedures, oversight can be conducted under the purview of the Ministry of Health and the Health Institutions Accreditation Council.

Advantages :

1. It is considered a cost-effective solution.
2. It contributes to enhancing the quality of healthcare services and reducing morbidity and mortality rates.
3. Integration of procedures with insurance companies, where the cost of cesarean sections may be borne by the mother if it is requested by her, and not covered by the insurance agency.

Limitations:

Strong commitment from the Ministry of Health and the Health Institutions Accreditation Council to evaluate and monitor these procedures effectively.

3 The Third Policy : Increase financial and moral incentives for those involved in vaginal delivery.

This policy includes:

First: Increasing financial and moral incentives for physicians to perform vaginal births instead of cesarean sections, as well as for physicians who achieve higher rates of natural childbirth.

Second: the pricing structure for vaginal births needs reevaluation, considering the considerable time and effort involved compared to cesarean sections. Achieving this requires close collaboration between the Private Hospitals Association and insurance companies, with rigorous oversight from the Ministry of Health.

[18] Liu& Sia, 2004; Lasnet et al., 2014; Chaillet et al., 2007; Naidoo & Moodley, 2009; Scarella et al., 2011; Venditelli et al., 2014; Mohammadi, Essen & Kallestal, 2012; Catling-Paull et al., 2011; Hanvoravongchai et al., 2000.

Similar interventions have been developed and successfully implemented in various countries with diverse social, economic, and healthcare systems such as the United States, China, Taiwan, Chile, Mexico, Brazil, and Iran[19].

Advantages :

Mitigating the financial incentive disparity by equalizing costs between the two procedures.

Limitations:

Strong commitment from the Ministry of Health, the Association of Private Hospitals, and insurance companies.

4 The Fourth Policy: Mitigating the discomfort of vaginal delivery by ensuring the availability of pain relief measures, including epidural anesthesia.

Epidural anesthesia reduces the fear of pain during childbirth, which is a primary factor contributing to the demand for cesarean sections. The use of epidural anesthesia promotes natural or vaginal births among women who fear the pain of childbirth. It has shown moderate effectiveness in reducing elective cesarean sections. This policy require.

1. Establish a system that extends financial coverage for epidural anesthesia in private hospitals.

2. Public sector and teaching hospitals should be mandated to adopt a vaginal birth protocol incorporating epidural anesthesia. This measure aims to bolster the rates of vaginal births, particularly among women who harbor anxieties about delivery pain.

This alternative has yielded moderate success in reducing elective cesarean sections across diverse countries, including Brazil, Mexico, Portugal, the United States, and the Netherlands[20].

Advantages :

- Enhancing the competency of healthcare providers, encompassing doctors, nurses, midwives, and anesthesiologists, in adhering to optimal practices for vaginal birth and employing natural birth stimulation techniques.

- Utilizing evidence-based criteria to assess obstetric cases and make informed decisions regarding the necessity of cesarean sections.

- Providing comprehensive training on administering Epidural Anesthesia Injections as a safe and effective method to alleviate labor and delivery pain, thereby promoting vaginal delivery.

Limitations:

- The necessity for a qualified and sufficient workforce to ensure sustained effectiveness over the long term.

- A significant commitment from the Ministry of Health, the Royal Medical Services, and University Hospitals is essential to facilitate the capacity-building of healthcare providers, particularly doctors and anesthesiologists, in administering Epidural Anesthesia Injections.

19 WHO, 2012; Hartmann et al., 2012; Main et al., 2012; Yazdizadeh et al., 2011.

20 AlThabe et al., 2004; Eltzschig et al., 2003; Liu & Sia, 2004; CIVHC, 2014; McCourt et al., 2007; Keogh et al., 2006; Benhamou et al., 2002; Somuah, Smyth & Jones, 2011).

8: Conclusion and Recommendations :

Upon reviewing the four policy alternatives outlined above, it becomes evident how crucial they are in the effort to reduce elective cesarean sections without medical necessity in Jordan. It is apparent that all of these policies complement each other and are instrumental in achieving the overarching goal of curbing such unnecessary procedures. However, these alternatives do come with certain limitations.

For instance, the third alternative necessitates a significant commitment from the Ministry of Health, the Private Hospital Association, and insurance companies to enhance the financial incentives for doctors to opt for vaginal deliveries. Meanwhile, the fourth alternative represents a long-term initiative requiring sustainability to realize its intended benefits.

Addressing this issue necessitates action on all four alternatives. The first alternative deliveries "increasing awareness among women about the advantages of vaginal delivery, the complications of unnecessary cesarean deliveries, and avoiding the risks of repeat cesarean section after the first cesarean section". This approach is feasible in the short term, with relatively quick returns. It also plays a role in empowering pregnant women to make informed decisions about their delivery method, which will have a lasting impact on future generations.

The second alternative involves "Mandating adherence to national guidelines, promoting vaginal births and reducing primary cesarean sections**,** In addition to implementing a strict audit and evaluation system to obtain an accurate review of the results.

This approach is cost-effective and contributes significantly to enhancing the quality of healthcare services while reducing morbidity and mortality rates.

The third alternative aims to increase financial and moral incentives for healthcare providers who perform vaginal deliveries and to review the pricing structure for such deliveries. Achieving this alternative relies on the commitment of the Ministry of Health, the Private Hospitals Asso ciation, and insurance companies to enhance financial incentives for doctors conducting vaginal deliveries.

The fourth alternative involves providing methods to alleviate the pain of vaginal delivery, such as epidural anesthesia. This approach can be utilized by women who fear the pain of delivery to increase the rate of natural births, with a focus on enhancing the capabilities of healthcare providers.

The adoption of these alternatives necessitates the establishment of a national committee by the government. This committee should comprise representatives from relevant entities across the public, private, and voluntary sectors, including the Ministry of Health, the Royal Medical Services, the Healthcare Accreditation Council, and the Private Hospitals Association. Its mandate would be to oversee the implementation of the following measures :

Suggested Policy	Required Procedure	Entity Responsible for Implementation
Promote awareness among women about the advantages of vaginal delivery, the complications of unnecessary cesarean deliveries, addressing women's fears of vaginal birth, and the possibility of vaginal birth after a first cesarean section with medical consultation.	- Launching awareness programs and campaigns targeting pregnant women visiting primary healthcare centers, hospitals, and private clinics about the benefits of natural childbirth, the risks of unnecessary cesarean sections, and the recurrence of cesarean sections after a first cesarean birth. These programs aim to address women's fears about vaginal birth and empower pregnant women to make informed decisions about their mode of delivery. - Providing lessons for pregnant women on relaxation and childbirth preparation. - Supplying qualified and trained staff to conduct awareness campaigns. - Funding awareness campaigns.	- Ministry of Health. - Royal Medical Services. - University Hospitals. - Private Hospitals Association. - UNRWA (United Nations Relief and Works Agency). - Civil society organizations that serve pregnant women. - Media outlets. - Donors (World Health Organization, United Nations Population Fund, USAID).
	Implementing community-targeted media campaigns through traditional media and social media platforms.	
	Including counseling on the benefits of natural childbirth and the risks of cesarean sections without medical justifications in the existing pregnancy care guidelines and protocols.	
	Including related courses in medical specialties (medicine, nursing, and midwifery) on how to provide counseling to pregnant women.	- Ministry of Higher Education.
Mandating adherence to national guidelines, promoting vaginal births and reducing primary cesarean sections, as well as national clinical guidelines and peer review system, in addition to implementing a rigorous audit and evaluation system to obtain accurate results reviews.	- Mandating all hospitals to implement national guidelines supporting vaginal deliveries and reducing primary cesarean sections. - Strengthening the capacities of healthcare providers, including those working in labor and delivery units, to comply with national guidelines that support vaginal deliveries and limit unnecessary primary cesarean sections. - Mandating all hospitals to establish a rigorous clinical audit system. - Mandating all hospitals to implement a Clinical Peer Review System.	- Ministry of Health. - Royal Medical. Services. - Teaching Hospitals. - Health care Accreditation Council. - Private Hospitals Association.

Suggested Policy	Required Procedure	Entity Responsible for Implementation
	- Building the capacity of staff on auditing and evaluation mechanisms. - Activating medical accountability laws. - Continuous monitoring and providing feedback. - Integrating this policy with accreditation systems in hospitals and primary health-care centers, with a strong recommendation that hospital compliance with this policy be mandatory to achieve accreditation status.	
- Enhancing financial and moral incentives for those facilitating vaginal delivery.	- Increasing financial and moral incentives for doctors and hospitals who perform vaginal deliveries after cesarean sections, as well as those who achieve higher rates of vaginal births.	- Ministry of Health. - Royal Medical Services. - University Hospitals. - Jordan Medical Association. - Jordanian Nurses Association. - Health care Accreditation Council.
	- Reviewing the pricing structure of vaginal deliveries, considering the time and effort required compared to cesarean sections.	- Ministry of Health. - Health Insurance. - Private Hospitals Association. - Health Insurance Companies.
- Mitigating the discomfort of vaginal delivery by ensuring the availability of pain relief measures, including epidural anesthesia.	- Establishing guidelines and clinical protocols for administering Epidural Anesthesia Injection. - Mandating public sector hospitals and teaching hospitals to implement the vaginal delivery protocol using epidural anesthesia to increase the rate of natural or vaginal births among women who are fearful of labor pain. - Creating a system to ensure financial coverage for epidural anesthesia in private hospitals. - Providing the necessary tools and equipment to deliver the service.	- Ministry of Health. - Royal Medical Services. - University Hospitals. - Private Hospitals Association.

References

1. Jordan's Population and Family Health Survey for the years 1990, 2017-2018, and 2023.
2. Ministry of Health's annual statistical reports for the years 2017 through 2022.
3. Al-Rawashdeh, Israa, Ibrahim Kharboush, and Waqar Al-Kubaisy. 2020. Disparities in Cesarean Section among Women in Jordan: Analysis of the 2017-18 Jordan Population and Family Health Survey (JPFHS).
4. Data. DHS Working Paper No. 167. Rockville, MD, USA: ICF. Abdel-Fattah Salem, Department of Obstetrics and Genecology, Mu'tah University, Trends in Caesarean section deliveries in Jordan from 1982 to 2017: retrospective analyses of annual hospital reports, EMHJ – Vol. 27 No. 2 – 2021: 195-201.
5. Aquel Poyatos- Leon and others, Effects of exercise during pregnancy on mode of delivery: a meta-analysis,Acta Obstet Gynecol Scand 2015;94:1039–104, https://obgyn.onlinelibrary.wiley.com/doi/pdf/10.1111/aogs.12675.
6. Batieha AM, Al-Daradkah SA, Khader YS, Basha A, Sabet F, et al. (2017) Cesarean Section: Incidence, Causes, Associated Factors and Outcomes: A National Prospective Study from Jordan. Gynecol Obstet Case Rep Vol.3: No.3:55. doi:10.21767/2471-8165.1000055.
7. Kamil Mosa Fram, and others, Maternal request for cesarean delivery; a solid indication or a window for complications; a teaching hospital experience, Obstetrics & Gynecology International Journal, Volume 14 Issue 2 – 2023.
8. Karem H. Alzoubi, PhD, Basheer Y. Khassawneh, MD, Basil Obeidat, MBBS, MRCOG, Suzan S. Asfoor, MSc, and Sayer I. Al-azzam, PharmD, MSc, Awareness of patients who undergo cesarean section about venous thromboembolism prophylaxis, JOURNAL OF VASCULAR NURSING, 2013 ,Vol. XXXI No. 1, www.jvascnurs.net.
9. Ministry of Health and USAID, 2020, National Guidelines to Support Vaginal Births and Reduce Primary Cesarean Section Deliveries,https://www.moh.gov.jo/FBV4.0/Root Storage/AR/EB Info Page العمليات القيصرية pdf.
10. Ministry of Health, Jordan's National Maternal Mortality Report 2018,2019,2020, 2021.
11. https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access.
12. https://www.researchgate.net/publication/352426194 Trends and projections of caesarean section rate, Global and regional estimates.
13. Miller JE, Goldacre R, Moore HC, Zeltzer J, Knight M, Morris C, et al. (2020) Mode of birth and risk of infection-related hospitalization in childhood: A population cohort study of 7.17 million births from 4 high- income countries. PLoS Med 17(11): e1003429. https://doi.org/10.1371/journal.pmed.1003429.

14. R. Hatamleh, S. Abujilban and A.J. Al-Shraideh et al., Maternal request for cesarian birth without medical indication in a group of healthy women: A qualitative study in Jordan, / Midwifery 79 (2019) 102543, https://www.sciencedirect.com/science/article/abs/pii/S026661381930230X?via%3Dihub.
15. Sawsan Abu Hammad, and others, 2021, Caesarean section delivery from maternal perspective: An exploratory study in Jordan, Clinical Practice, Volume 75. Issue 8 ,2021, https://doi.org/10.1111/ijcp.14349.
16. Sam Lataifehi, Faheem Zayed1, Oqba Al-Kuran1, Lama Al-Mehaisen1, Wadah Khriesat & Yousef Khader, Jordanian obstetricians' personal preference regarding mode of delivery, Acta Obstetricia et Gynecologica. 2009; 88: 733736.
17. Wasim Khasawnehl, Nail Obeidat2, Dawood Yusef and Jomana W. Alsulaiman, The impact of cesarean section on neonatal outcomes at a university-based tertiary hospital in Jordan, Khasawneh et al. BMC Pregnancy and Childbirth (2020) 20:335, https://doi.org/10.1186/s12884-020-03027-2.
18. World Health Organization 2017, Robson Classification: Implementation Manna, https://robsonclassification-platform.shr.org/.
19. WHO recommendations non-clinical interventions to reduce unnecessary cesarean sections 2018, https://www.who.int/publications/i/item/9789241550338.
20. Wasim Khasawneh1, Nail Obeidat2, Dawood Yusef1 and Jomana W. Alsulaiman, The impact of cesarean section on neonatal outcomes at a university-based tertiary hospital in Jordan, Khasawneh et al. BMC Pregnancy and Childbirth (2020) 20:335. https://doi.org/10.1186/s12884-020-03027-2.
21. WHO, 2012; Hartmann et al., 2012; Main et al., 2012; Yazdizadeh et al., 2011.
22. AlThabe et al.,2004; Eltzschig et al., 2003; Liu & Sia, 2004; CIVHC, 2014; McCourt et al., 2007; Keogh et al., 2006; Benhamou et al., 2002; Somuah, Smyth & Jones, 2011.
23. Abdel-Fattah Salem, Department of Obstetrics and Genecology, Mu'tah University, Trends in Caesarean section deliveries in Jordan from 1982 to 2017: retrospective analyses of annual hospital reports, EMHJ – Vol. 27 No. 2 – 2021: 195-201.
24. Liu& Sia, 2004; Lasnet et al., 2014; Chaillet et al., 2007; Naidoo & Moodley, 2009; Scarella et al., 2011;Venditelli et al., 2014; Mohammadi, Essen & Kallestal, 2012; Catling-Paull et al., 2011; Hanvoravongchai et al., 2000.
25. Ministry of Health, USAID Health Service Delivery, and others, National Guidelines to Support Vaginal Births and Reduce Primary Cesarean Section Deliveries,2020.

Appendix : List of members of the committee of practicing experts and members of brainstorming groups

Name	Title	Organization	Membership
Dr. Abdelmane'a Ahmad AL slaimat	Head of Obstetric Department	Ministry Of Health	Member of the committee established by Share-Net Jordan
Dr. Asma'a Al Basha	Head of Obstetric Department	Jordan University Hospital	Member of the committee established by Share-Net Jordan
Dr. Emad aldeen Saleh AL shar'e	Head of Obstetric Department	Royal Medical Services	Member of the committee established by Share-Net Jordan
Mrs. Heba Abu Shandi	Technical Advisor	HSQA project	Member of the committee established by Share-Net Jordan
Dr. Omar Salahat	Obstetrics and Gynecology Consultant	Private Hospital	Member of Brainstorming Committee
Dr. Reem AL Khaldi	Resident Doctor	Private Hospital	Member of Brainstorming Committee
Mrs. Maysaloon AL Sawalqeh	Quality Coordinator – Nurse	Royal Medical Services	Member of Brainstorming Committee
Mrs. Dua'a Abu Hatab	Head of Nursing - Obstetric Department	Private Hospital	Member of Brainstorming Committee