**Collective Forgetting of American Vaginal Breech Delivery**

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**Abstract**

When asked why nearly all doctors refer their breech cases to surgery, despite non-surgical breech birth being permitted throughout the United States, an obstetrician will likely cite the Term Breech Trial. This study, conducted in 2000, decisively concluded that planned cesarean delivery is safer than vaginal breech delivery. However, a review of the literature suggests that the decline of vaginal breech deliveries was a long time in the making. From the 1950s, once the perceived risks of breech births were accepted as a fact, numerous studies advocated more liberal use of cesarean delivery for breech babies and suggested strategies to limit vaginal breech births. By the late 1970s, as the majority of breech patients underwent surgery, a vicious cycle of “collective forgetting” began. Hospitals and medical training programs abandoned the non-surgical option, leaving younger generations of unskilled doctors reluctant to perform the complex procedure. As health organizations criticized the overuse of cesarean sections in the ensuing decades, obstetricians faced a growing dilemma in breech management, continuing to perform surgeries even while questioning their benefits. The 2000 study sanctioned this existing state of practice which had been evolving over decades and in which collective forgetting played a crucial part.

KEYWORDS: Collective Forgetting, History of Obstetrics, Breech Presentation, Cesarean Section.

**Introduction**[[1]](#footnote-1)

Medicine, one of the most rapidly advancing and dramatically consequential fields of practice and research, is also one of the quickest to discard practices deemed ‘obsolete,’ ‘ineffective,’ or ‘dangerous.’ This is particularly true for many low-tech and physical medical practices, which have transitioned from enjoying valued knowledge to facing ‘lost arts’ today.[[2]](#footnote-2) Medical historians have largely overlooked the processes leading medical communities to abandon and forget knowledge. The aim of this study is to explore this history of collective forgetting. The disappearance of vaginal breech deliveries in obstetrics within the United States serves as a valuable case study, shedding light on the complex processes of collective forgetting and demonstrating the influential role this phenomenon plays in shaping medical practices and generating medical controversies.[[3]](#footnote-3)

Once considered an essential ‘art of obstetrics,’ delivering a breech baby is today considered a ‘lost art.’ With few obstetricians familiar with or willing to perform the procedure, most breech deliveries are cesareans. Inquiring into this state of decline might appear pointless given the assumption that cesarean section is superior in cases of breech. However, this is not the case. Although rare (3%–4% of term babies), breech presentations have sparked a heated and enduring controversy in obstetrics. Physicians remain divided on the preferred delivery method—cesarean or vaginal breech delivery—with no conclusive evidence supporting either option. Despite this controversy and obstetric guidelines permitting vaginal delivery in select cases, along with efforts to reduce the notoriously high cesarean rate, surgery remains the only option offered to women carrying a breech baby.[[4]](#footnote-5) Consequently, more than 95% of nullipara (women carrying their first child), and more than 92% of multipara carrying a breech baby undergo a cesarean section.[[5]](#footnote-6)

Ask an obstetrician about the cause of this conundrum, and the doctor will probably refer to the Term Breech Trial (TBT)—a well-funded, multinational, randomized controlled trial, designed to determine the optimal management for term singleton breech babies.[[6]](#footnote-7) Almost immediately after the study’s interim results demonstrating a clear advantage to surgery were published in *The Lancet* in 2000, the TBT’s recommendation of planned cesarean section for term breech babies was endorsed by all prominent obstetrics and gynecology organizations worldwide, including the United States. This resulted in a universal ban to practice vaginal breech deliveries. Interestingly, as swiftly as it was endorsed, the TBT was strongly criticized by doctors.[[7]](#footnote-8) After only five years, all guidelines were revised, retreating from the total ban on vaginal breech deliveries. [[8]](#footnote-9) Many believe that during this relatively short period when vaginal breech births were banned, obstetricians’ skills deteriorated to a point that vaginal breech birth was no longer an option.[[9]](#footnote-10)

Analyzing dynamics from the mid-twentieth century, when cesarean sections began replacing breech births, to 2000, when the TBT was published, offers an alternative perspective on the origins of the breech management controversy. Reviewing extensive breech-related literature, we argue that the 2000 study did not cause the erosion of skills but, rather, sanctioned processes taking hold chiefly during the 1950s to the 1970s. [[10]](#footnote-12) The history of vaginal breech births dates back to ancient times, but the collective forgetting of this practice began in the mid-twentieth century, coinciding with the increasing preference for cesarean sections in breech cases. Collective forgetting may refer to the decline of obstetricians’ skills and knowledge necessary for successful vaginal breech deliveries. This decline stemmed from and contributed to fewer opportunities to practice, master, and pass on these techniques to younger generations, coupled with a diminishing motivation to do so. Several trends during the 1950s–1970s contributed to this dynamic.

The first section examines the transition of vaginal breech deliveries from a challenging yet prestigious obstetric art to a pathology, paralleling the shift of cesarean sections from a radical intervention to a conservative method for breech cases. The second section explores strategies obstetricians used to avoid the risky breech deliveries, including limiting suitable circumstances for vaginal birth, imposing stricter oversight, and reintroducing external cephalic versions to prevent breech presentations during labor. The third section describes how implementing restrictions has initiated a vicious cycle of collective forgetting, exacerbating medicolegal considerations emerging since 1970s. In the fourth and fifth chapters, we examine the breech management dilemma created by the disparity between concerns over increased cesarean section rates in the early 1980s, and the already established collective forgetting.

**Vaginal Breech Delivery in Postwar American Obstetrics**

One of the earliest influential milestones in the collective forgetting of vaginal breech births was the 1959 callcall of Ralph C. Wright, a senior attending obstetrician from the New Britian General Hospital, to perform cesarean sections in all term breech births.[[11]](#footnote-13) The suggestion, while radical, was well received in subsequent years, in part due to it reflecting the climate of mid-twentieth-century obstetrics and the prevailing pathological outlook on childbirth, particularly in the context of breech deliveries. A review of several preceding trends during the early twentieth century can shed some light on the origins of these attitudes.

## **Origins of the mid-twentieth century obstetric climate**

Childbirth in the early 1900s received considerable national and medical attention in the United States. In 1915, infant mortality rates (IMR) stood at 108.6 deaths of children under one-year-old per 1000 live births; approximately one-third of these deaths occurred near birth, with 6.6%, due to malformations, most due to breech presentation. Childbirth was evidently risky for mothers too—women died of puerperal (during or near childbirth) causes at a rate of 30 deaths per 100,000.[[12]](#footnote-14) Using the IMR as a measure of society’s overall health, reformers made reducing the IMR a national priority, attracting physicians’ and administrators’ attention.[[13]](#footnote-15) In 1951, infant mortality declined to 28.6 deaths per 1000 live births due to public health initiatives, particularly the reforms in sanitation and milk pasteurization. However, the obstetrics community expressed increased concerns over persistent high neonatal mortality rates, which stood at 20 deaths per 1000 live births.[[14]](#footnote-16) Reducing maternal and neonatal deaths at birth became the central “aim of obstetrics.”[[15]](#footnote-17)

A second significant trend, also influenced by childbirth concerns, was hospitalization. For example, in his 1915 address to the American Association for the Study and Prevention of Infant Mortality, one of obstetrics 'giants' J. Whitridge Williams from Johns Hopkins Hospital, called for better perinatal care and hospitalized childbirth.[[16]](#footnote-18) One of the greatest advocates of this approach, the obstetrician Joseph B. DeLee, considered childbirth a painful, terrifying, and pathogenic event requiring active intervention by the physician.[[17]](#footnote-19) Thus, in his practice at a Chicago maternity hospital, DeLee and his students liberally utilized anesthesia, episiotomies, and pituitrin injections to expedite deliveries. This became a model adopted by many other lying-in hospitals by the 1920s.[[18]](#footnote-20) Hospitalization rates in the United States increased dramatically during the mid-century, rising from 37% in 1935 to 93% in 1953.[[19]](#footnote-21)

Hospitalization had a significant impact on childbirth practices, resulting in highly interventionist births. This outcome was linked to hospitals’ ‘autocratic approach,’ where physicians exercised considerable control over the labor process, leading to more childbirth interventions without patients’ consent.[[20]](#footnote-22) This was especially conspicuous in teaching hospitals, which often served underprivileged communities with limited input into medical decision-making. Teaching hospitals were well-equipped with abundant resources and state-of-the-art technologies. Furthermore, the merging of obstetrics and gynecology in the 1930s, together with the expansion of in-hospital residency programs, substantially increased the number of residents available for childbirth and research data collection. Concentrating births in these hospitals enabled obstetricians and residents to research and develop systematic measures for ‘managing’ childbirth. This included technologies and methods, such as the Apgar score, Friedman curve, X-ray pelvimetry, fetal heart monitoring, and later ultrasound. Researchers also explored highly interventionist assistance techniques, including the rising use of cesarean sections.[[21]](#footnote-23)

After World War II, cesarean sections became safer and gained popularity. Reduced infection and hemorrhage risks, along with advancements in antibiotics, blood transfusions, and lower segment surgery, instilled greater confidence in physicians, leading them to favor cesarean sections for more pathological labor conditions. Women seeking fewer, healthier babies and painless childbirths also began preferring cesarean sections. [[22]](#footnote-24) Consequently, by the late 1950s, the decision of whether or not perform a cesarean section became increasingly common among obstetricians, all striving for a “perfect end-result for both mother and baby.” [[23]](#footnote-25) Notwithstanding their growing popularity, until the late 1960s, cesarean sections were still “a super big deal,”[[24]](#footnote-26) requiring adequate facilities, technologies, and skilled medical staff, scarce at that time. Moreover, obstetricians continued to approach surgery with extreme caution, as a 1959 note reveals: “Cesareans had such a bad name . . . It became almost customary to mark hospitals with a high cesarean rate as ‘must, ipso facto, be a reprehensible institution which should be really close down.’” Since ‘competence’ was defined as managing complex deliveries without surgery, the frequent use of cesarean sections made obstetricians appear ‘incompetent’ to their colleagues*.* [[25]](#footnote-27) Consequently, the overall rates of cesareans in the United States did not exceed 10% until the mid-1970s (Table 1).

**Table 1. General cesarean section rates and percentage of breech presentation as an indication (USA, 1940–1990) \***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Reference | Period of investigation | Cesarean: all births (%) | Breech as indications of cesarean | Breech birth contributes to increasing cesarean rates |
| Williams & Eastman, 1956  | 1940s | 2–6\*\* | 6.2\*\*\* | NA |
| Williams et al., 1966 | 1950s | 4.7−8.3\*\* | 8.9\*\*\* | NA |
| Williams et al., 1971  | 1965–68 | 4.0–9.7\*\* | 11.2\*\*\* | NA |
| NIH, 1980 | 1970/78 | 5.5 [1970] | 12 | 10–15 |
| 15.2 [1978] |
| Office of Vital and Health Statistics, 1995 ꝉ | 1970–93 | 5.5 [1970]10.4 [1975] | NA |  5 |
| 16.5 [1980]20.3 [1983]  |
| 24.1–24.7 [1986–88]23.8–23.6 [1989–92]22.8 [1993] |
| Gregory et al., 1998 | 1985/94 | 22.7 [1985] | 11  | NA |
| 22.0 [1994] | 13.4  |
| Osterman & Martin, 2014 ꝉ  | 1990–2013 | 22.7–22.0 [1990–99]22.9–32.7 [2000–13] | NA | NA |

\*Rates per 100 deliveries.

\*\* National data.

\*\*\*Includes breech and other malformations.

ꝉ These rates varied greatly from state to state: 61.6%–94.2%.

Against this background, one can understand the climate in which Ralph Wright’s 1959 call to operate all term breech presentations originated, and why it was so radical for its time. Contrary to the overall cesarean rate, the cesarean rate in breech presentations rose sevenfold to fourteenfold in the 15 years following his widely-implemented recommendations—from 5% to 10% in the 1950s and 1960s to 70% in the mid-1970s (see table 2). We argue that obstetricians encouraged a more liberal use of cesarean sections in breech cases due to the growing recognition of the high risk associated with the presentation. This led to a collective forgetting of vaginal breech birth techniques.

## **Liberalizing Performing Cesareans for Hazardous Breech Presentation**

Breech presentations have never been considered fully normal in modern obstetrics, due to their infrequency in full-term labors and higher occurrence in preterm labors, often accompanied by other pathologies. During the seventeenth and eighteenth centuries, well-known obstetrical handbooks documented long, difficult breech deliveries requiring rigorous skills and knowledge.[[26]](#footnote-30) However, not every breech presentation indicated abnormality. Obstetricians in the eighteenth-century classified breech deliveries as either ‘natural’ or ‘against nature’ based on whether assistance was required during labor. This view continued into the early twentieth century. The seminal text *Williams Obstetrics*, for example, grouped breech with cephalic births as (longitudinal) presentations that could be delivered by “the unaided efforts of nature,” as opposed to abnormal transverse presentations, requiring assistance.[[27]](#footnote-31)

Mastering a vaginal breech birth demanded extensive and exacting knowledge and skills. Despite its difficulty, the procedure was valued until the mid-twentieth century, as it demonstrated the obstetrician’s skill and craft.[[28]](#footnote-32) As DeLee quipped: “Show me a man who can do a good breech delivery, and I will show you a good obstetrician.”[[29]](#footnote-33) Physicians devoted many years of their training and careers developing and mastering their own methods to diagnose breech presentations or assist in breech deliveries—maneuvers such as the Mauriceau (Figure 1), Levert, Gifford, Lachapelle, Veit, Wigand, Martin, Von Winckel, and Leopold.[[30]](#footnote-34) In the early 1900s, vaginal breech births were the norm, and cesarean delivery was not an option. In 1913, A. J. Skeel commented that: “the man who develops clever technic in breech delivery will save the lives of more babies than he who can do a good abdominal cesarean section.”[[31]](#footnote-35) Sharing this sentiment, in 1923, Williams criticized those advocating cesareans for breech: “I cannot but feel that their advocacy has done great harm and has afforded poorly trained physicians’ justification for reckless and unnecessary operating.”[[32]](#footnote-36)



Figure 1. The Mauriceau maneuver

*Source*: Williams, *Obstetrics* (1923: 478).

However, around the mid-twentieth century, these attitudes began changing, with obstetricians during the 1940s increasingly noticing that neonatal death rates due to breech births were “much too high.”[[33]](#footnote-37) To reduce these high mortality rates, physicians expanded research into birth pathologies. Based on hospital data collected on labor conditions and outcomes, they compared different methods of breech deliveries to map pathologies and mortality and morbidity rates. As early as the 1950s, it became evident that breech delivery death rates were higher than those for most cephalic deliveries. High mortality rates, so “consistently reported by everyone,” made physicians feel more confident about treating breech as an *abnormality.* [[34]](#footnote-39) This was evident in 1950s editions of *Williams Obstetrics* relocating the chapters on breech presentations from the “Physiology of Labor” section to the “Abnormalities of Labor”section. [[35]](#footnote-41) Physicians sought to resolve the hazards of breech birth by advocating various interventions—standard use of X-ray pelvimetry, anesthesia, perineotomy, forceps and in few, specific situations—cesarean section. Although still rare, the incidence of cesarean sections began to increase in postwar obstetrics, accounting for 6.8% to 18.8% of breech cases in some hospitals.[[36]](#footnote-44) Against this backdrop came Wright’s 1959 proposal:

If cesarean section in breech presentation is *safer* for the baby of a 35-year-old primigravida, is it not also *safer* for the baby of a 21-year-old primigravida? If cesarean section is *safer* for the baby whose mother had a previous still-birth, is it not also *safer* for the baby of a multiparous patient with normal obstetric history?[[37]](#footnote-45)

To Wright, policy of cesareans seemed the obvious solution to reduce the high babies' mortality rates. Despite sharing his view of breech presentations as pathological, the 1959 publication caused an earthquake in the American and global obstetric communities as many found Wright’s sweeping cesarean policy overly broad..[[38]](#footnote-46) As Nicholas J. Eastman, one of the prominent advocators of cesareans, noted in 1960: “The step [Wright] recommends is . . . in the right direction . . . however, that is much more than a step; it is a broad jump.”[[39]](#footnote-47) Obstetricians feared that more surgeries would lead to more women becoming “obstetrical cripples,”[[40]](#footnote-48) fated to repeat surgeries in future deliveries. The extensive resources cesareans required were very scarce at the time: appropriate operating rooms, anesthesia, nurses, and more.[[41]](#footnote-49) Furthermore, it was believed that improving vaginal techniques would yield better results.[[42]](#footnote-50) Over the next 15 years, as breech births gained recognition as pathological, obstetricians adopted a more liberal approach to cesarean delivery in such cases.

In the 1960s, there was a significant increase in research on breech presentations, aimed at identifying the inherent risks associated with such deliveries.[[43]](#footnote-51) Obstetricians noted their high mortality and morbidity rates, citing their unpredictable, irreversible nature and difficult skills they demanded.[[44]](#footnote-52) In 1962, J. F. Williamson from Columbia, South Carolina stated that breech presentation is “on the borderline between obstetric physiology and pathology.”[[45]](#footnote-53) Over the following decade, that view became so widespread that a 1979 article opened with the statement: “Every obstetrician, nurse, obstetrician’s wife, and most patients know that breech birth is cause for concern . . . Breech delivery is always formidable.”[[46]](#footnote-54)

Acknowledging the risk in breech births ,in the late 1960s, obstetricians became increasingly comfortable with liberalizing the use of cesarean sections in breech births (Table 2.) A 1967 comment by George J. L. Wulff, a Washington University professor, illustrates the shift in attitude accompanying this trend:

Ralph Wright . . . shocked many of our colleagues in 1959 when he advocated routine elective cesarean sections for *all* breeches. Many of our esteemed leaders at that time said that by doing this routinely we would be losing the “art of obstetrics,” relegating ourselves to the role of either “midwife or surgeon.” However, the “art of obstetrics” is far less important than saving lives, and all statistical reports show that vaginal delivery of breeches carries much too high a mortality.[[47]](#footnote-55)

A decade after Wright's calling, reducing the risks became so essential that it justifies adopting a surgical procedure still considered radical for other conditions, even at the expense of obstetrical skills. What was trailblazing during the 1950s, became a reality in many clinical settings. In the mid-twentieth century, the risk cesarean breech deliveries had become indisputable and universally accepted matters of scientific fact.[[48]](#footnote-56) This consensus formed the basis for further studies and protocols that enthusiastically promoted liberalizing cesarean sections in breech births. It also led to their view of surgery as a safer and more conservative approach, a shift that enabled them to increase cesarean deliveries, making them more routine.[[49]](#footnote-58) Concurrently, the undeniable risks associated with breech births prompted physicians to restrict the practice of vaginal deliveries.

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| Table 2. Breech babies delivered by cesarean section (%, USA) \*

|  |  |  |
| --- | --- | --- |
| Reference | Period of Investigation | Section for Breech Babies (%) |
| Hall & Kohl, 1956 | 1950–54 | 10.7 |
| Graves, 1980 | 1957–76 | 5 [1957–65] |
| 12 [1966–71] |
| 71 [1972–76] |
| Nih, 1980\*\* | 1970/78 | 11.6 [1970] |
| 60.1 [1978] |
| Taffel et al., 1987\*\* | 1980/85 | 66.2 [1980] |
| 79.1 [1985] |
| Notzon, 1987\*\* | 1983 | 75.8 |
| Office of Vital and Health Statistics, 1995\*\* | 1993 | 87.1 |
| Ventura et al., 1997\*\* | 1995 | 85.1\*\*\* |
| Lee et al., 2008\*\* | 1997–2003 | 83.8–83.4 [1997–2000] 84.4–85.1 [2001–03] |
| Hehir et al., 2018\*\* | 2005–2014 | nulliparous: 95.9 |
|  |  | multiparous: 92.8 |

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\*Rates per 100 deliveries.

\*\*Data from various sources

\*\*\* Includes breech and other malformations

ꝉ National data.

**Restricting and Reducing the Incidence of Vaginal Breech Births**

During the 1970s, the rate of total near-birth deaths dropped to 15.1% per 1,000 live births.[[50]](#footnote-59) Nevertheless, concerns over breech deliveries continued garnering considerable scientific attention.[[51]](#footnote-60) Obstetricians sought ways to address the “very real problem in management”[[52]](#footnote-61) posed by breech presentations. The number of publications on breech delivery tripled between 1974 and 1990, from an average of 29 publications a year to 88 annually, representing a much higher increase than that for general labor-related publications.[[53]](#footnote-62) Various strategies were suggested to reduce the risks associated with breech delivery pathologies. Considering cesareans safer than vaginal births, authors and commentators advocated liberalizing cesareans and restricting births. This included *tightening* supervision, restricting conditions under which vaginal deliveries could be performed, and recommending an external version in late pregnancy to prevent breech presentation during labor.

## **Expanding Indications for Cesarean Section**

While the management of term breech babies during the 1960s and 1970s varied between vaginal deliveries and routine cesarean sections, [[54]](#footnote-63) physicians were unanimous about the need to expand cesarean section indications. As in the 1950s, when most physicians recommended surgery for a “high priority baby,” “elderly primigravida,” or “poor obstetric history,”[[55]](#footnote-64) in next decades, indications broadened to include fetopelvic disproportion, primigravida, fetal distress, uterine dysfunction, previous myomectomy, placenta previa, floating station, involuntary infertility, pelvic contracture, abruptio placentae, tumor previa, prematurity, diabetes mellitus, and more. The occurrence of repeat cesareans also contributed to an increase in surgeries, mainly due to the assumption that “once a cesarean, always a cesarean.”[[56]](#footnote-72)

Diagnostic tools also contributed to the expansion of cesarean indications, as they helped evaluate birth conditions and determine whether to deliver vaginally or surgically. The ‘trial of labor’(or its earlier version, the ‘test of labor’) was the main tool for determining this until the mid-twentieth century. In the case of borderline conditions, doctors allowed labor to begin, closely monitoring it to determine if a vaginal delivery would succeed or if surgery was required.[[57]](#footnote-73) Although renowned obstetricians, including DeLee, ardently presented their own-designed labor tests, as the century progressed, these tests were often utilized simply to justify surgical interventions.[[58]](#footnote-75) Since during mid-twentieth century, with the risk of going through breech labor deemed too high, physicians turned to other pre-labor diagnostic tools for prognoses. For example, in 1956, Thomas R. Goethals from Harvard Medical School suggested using X-rays, as did Joseph J. Rovinsky and his colleagues from Mount Sinai hospital, in addition to advocating close fetal monitoring during labor.[[59]](#footnote-77) William L. Benson and his colleagues from the U.S army Triplar General Hospital recommended utilizing ultrasonography or roentgenography of the fetal head and pelvis.[[60]](#footnote-78) Consequently, during the 1960s and 1970s, doctors routinely utilized multiple diagnostic tools in breech pregnancies, facilitating visualization of perceived theoretical risks, which, in turn, contributed to the increased adoption of surgical deliveries.[[61]](#footnote-80)

The introduction of scoring systems in the 1960s demonstrates how pre-labor diagnostic tools aided in objectifying risk perceptions and thus increased the use of cesarean sections in breech cases. These numeric indices, developed to assist physicians in deciding whether to deliver a breech baby either vaginally or surgically, ostensibly relied on ‘objective’ statistical data.[[62]](#footnote-81) The best-known scoring system in the United States was the Gerald I. Zatuchni and George J. Andros' scoring system (Figure 2), developed in 1965. It weighed risk factors such as parity, age of gestation, fetal weight, and fetal presentation on a generalized numerical scale of 0–9, referring high-risk deliveries (0–3) for surgery and permitting vaginal deliveries for low-risk situations (4–9).[[63]](#footnote-82)



Figure 2. The Zatuchni–Andros scoring system for managing breech delivery, 1965, 1967

*Source*: Zatuchni and Andros, “Prognostic Index for Vaginal Delivery,” (1965: 240)

Although cesareans remained rare, accounting for only 6% of breech cases, because of the high risks associated with vaginal deliveries, the index creators eventually recommended that physicians increase this rate to at least 20% of breech presentations. The clear numerical cut-off between high-risk and low-risk birth conditions, more than the recommendations, effectively established cesarean delivery as a standard treatment. Physicians who implemented index systems tended to rely more on low scores than high ones. For example, James A. O’Leary from Maywood, Illinois contended that with a Zatuchni–Andros index evaluation, “normal scores prove very little, but . . . low scores are ominous.” Moreover, he suggested further restricting the category of the low-risk breech, stating that: “[Four] is a better cutoff point [than 3].”[[64]](#footnote-83) Although scoring systems never became standard practice in all wards—some physicians preferred relying on their own judgment while others were skeptical of indices’ capacity to reflect birth conditions or improve labor outcomes[[65]](#footnote-85)—many wards, especially at teaching centers, incorporated breech scoring systems into their management protocols.[[66]](#footnote-86)According to O’Leary, this expanded the birth conditions considered high-risk and increased the cesarean rate for breech births, particularly planned cesareans, sometimes up to triple the original recommendations.[[67]](#footnote-87)

## **Preventing Breech Presentation at Labor: Advocating External Versions**

Another strategy advocated by physicians to mitigate the risks associated with breech birth was reintroducing external cephalic versions (ECV). The practice of externally reversing the baby in late pregnancy while still in the womb (Figure 3) was not new to obstetrics. Guidance on ECVs, as well as podalic (internal) versions can be found in early obstetrical treatises, as far back as Hippocrates.[[68]](#footnote-88) By the mid-twentieth century, podalic deliveries, entailing significant labor intervention, eventually fell out of use in favor of cesarean deliveries. Nonetheless, ECVs underwent a complicated trajectory.[[69]](#footnote-89)



Figure 3. Illustration of an external cephalic version.

*Source*: *Williams Obstetrics* (1956: 1128).

In the early twentieth century, there was a consensus about the need to prevent breech presentation at labor, and several prominent obstetricians routinely performed prophylactic ECVs at 32–35 weeks.[[70]](#footnote-90) As Williams noted in 1941, “the obstetrician should aim to prevent their occurrence as far as possible, and whenever they are recognized in the later weeks of pregnancy, an attempt should be made to substitute a vertex presentation by means of external version.” [[71]](#footnote-91)

However, ECVs were controversial. Its practitioners attributed its low success rate to the small size of babies at that stage of pregnancy, which made them more likely to revert to breech position near birth. [[72]](#footnote-92) Moreover, concerns were raised about potential risks, such as umbilical cord entanglement, placental attachment disturbance, fetal asphyxia, and even death. The administration of anesthesia during ECVs introduced additional risks. [[73]](#footnote-93) Low success rates and potential risks associated with the procedure resulted in limited use of ECVs by obstetricians. The rise of cesarean deliveries for breech presentations since the 1950s further reduced ECVs’ use. Consequently, some clinical settings abandoned the procedure entirely, and resident teaching programs paid little attention to ECVs until the 1970s. [[74]](#footnote-94)

With the widespread recognition of breech birth hazards, recommendations for reducing risks through prophylactic ECVs gained increasing traction in medical literature.[[75]](#footnote-95) This trend escalated when German obstetricians Saling and Müller-Holve introduced the use of tocolytic drugs to ease contractions while attempting to invert the baby. This simplified the procedure, enabling it to be performed in the late weeks of pregnancy (after week 37), when fewer fetuses would return to the breech position.[[76]](#footnote-96) Ultrasound and fetal heart monitoring made precise, immediate, and detailed diagnostics possible. ECV was thus transformed into a more straightforward, safe, and efficient procedure that was gradually integrated into breech management protocols during the 1970s and 1980s.[[77]](#footnote-98) ECVs enjoyed a revival despite being a complicated physical art: “We revert to an old procedure that has been considered inappropriate for many years. However, modern pharmacotechnology has obviously changed the ground rules.”[[78]](#footnote-99) While ECVs were never nearly as ubiquitous as cesareans in breech cases, they gradually grew more popular, reducing vaginal breech births by 1% to 2% at institutions using them.[[79]](#footnote-100)

## **Tightening Supervision**

Tighter supervision and extra caution during every labor resulted in additional restrictions on vaginal breech delivery in the 1960s and 1970s. For example, now all deliveries in breech positions had to be addressed as trials of labor, with extra caution and a speedy transfer to surgery if delivery did not progress as expected. [[80]](#footnote-101) Essentially, even breech cases that met the criteria for vaginal delivery were subjected to close supervision and prompt surgical referral, as described by the editor of the *Obstetrical and Gynecological Survey* in 1971: “If all factors surrounding a patient with a term breech presentation are favorable, we usually *permit* vaginal delivery. If, however, the slightest deviation from a normal pregnancy or labor exists, we quickly switch to cesarean section. [emphasis added]”[[81]](#footnote-102)

 This heightened oversight also resulted in more medical staff being required in the delivery room. As William B. Goddard from Denver, Colorado observed in 1967:

When you do a cesarean section, who is present—an experienced obstetrician, a scrub assistant, one or more scrub nurses, circulating nurses, and an experienced anesthesiologist at the head of the table? . . . Delivery of the infant in breech presentation is a major obstetric manipulation and it should have the same safeguards as those provided cesarean section.[[82]](#footnote-103)

Considering breech delivery as a ‘big-deal,’ “even in the hands of average doctor,” led obstetricians to suggest that senior and experienced physicians consult and assist in each labor.[[83]](#footnote-105)

This advice was especially relevant in educational settings, where most births were handled by inexperienced residents. Bird and McElin reported in 1975 that most breech babies were delivered in university hospitals by board-certified staff obstetricians, while the rest were delivered by residents “under the immediate supervision of a staff physician.”[[84]](#footnote-106) It is reasonable to infer that the increased oversight over breech delivery and the resources it requires, such as close supervision, extra-caution, and the presence of experienced and senior staff, contributed to the decision to redirect patients to surgery. This is especially true considering the spontaneous nature of childbirth and the fact that many women give birth at night, when fewer attending physicians are present.

## **A Dying Art of Obstetrics**

During the 1960s and 1970s, physicians limited vaginal breech deliveries due to perceived risks, while advocating for more liberal use of surgery and the expansion of its indications. Consequently, the practice of vaginal breech births came to be perceived as excessively challenging, outdated, and even illegitimate. As implied in a 1967 article, cesarean sections’ greater effectiveness in saving infants’ lives rendered vaginal breech birth obsolete in modern obstetrics. Thus, vaginal breech births were treated similarly to other dangerous techniques, such as podalic versions and extractions, or mid-forceps deliveries, “discarded from obstetric practice . . . for good reason and rightly so.” In obstetricians’ view, the persistence of labeling vaginal breech births as a “so-called ‘art of obstetrics’” hindered them from administering improved medical care through cesarean sections. [[85]](#footnote-107) Similarly, an editor’s note from 1971 stated that a few advocates of forceps remained, “but for most of us, cesarean section is becoming a substitute for vaginal delivery.”[[86]](#footnote-108) These statements accompanied accusations that physicians who ‘insisted’ on delivering vaginally were putting their patients’ lives at risk due to their professional egos.[[87]](#footnote-109) By the late-1970s, DeLee’s adage—show me a man who can do a good breech delivery, and I will show you a good obstetrician—was effectively *passe*.[[88]](#footnote-110)

It is not surprising then, that doctors were reluctant to learn the difficult, outdated art of breech delivery, preferring cesarean sections instead. These attitudes and restrictions facilitated and coincided with a trend of collective loss of skills and knowledge required for safe vaginal delivery of breech babies.

**The Vicious Cycle of Collective Forgetting**

## **Losing the knowledge**

During the mid-twentieth century, increasing awareness of the risks associated with breech birth, the numerous restrictions imposed on the procedure, and the widespread liberalization regarding cesareans led to a significant shift toward highly surgical management. Table 2 examines these trends in detail. To illustrate this change, consider the example of one private practice in San Francisco, where physicians performed cesareans in 5% of breech cases between 1957 and 1965. Their rates increased to 12% between 1966 and 1971 and skyrocketed to 71% between 1972 and 1976.[[89]](#footnote-111) In 1976, David F. Wolter from Washington expressed his concerns about this trend: “I feel that among practicing obstetricians there is also inability to maintain skill level at delivery of breech infants.” This was due in part to the retirement of older practitioners experienced in breech deliveries, all their knowledge and experience lost to younger generations.[[90]](#footnote-112) Another crucial reason was that very early in the process, new generations of obstetricians did not acquire these skills during their training.

As already mentioned, during the mid-twentieth century, university hospitals served as major centers for obstetrical education and research, becoming pioneers in liberalizing cesarean section policies. As a result, these institutions played a significant role in the collective forgetting of breech births. Teaching and learning the various knowledge and skills was an extremely demanding task, requiring long hours of observation and hands-on training. In the late-1950s, knowledge transmission was still a priority; some educators even proposed that breech delivery training should begin in the third-year of medical school.[[91]](#footnote-113) Nevertheless, experimentation with cesarean sections in university hospitals at the time drew the attention of educators and apprentices. Educators who experimented with cesarean deliveries became more enthusiastic about surgery, given its low mortality rates compared to vaginal breech births. Residents, the primary labor force on the wards, were even more receptive to surgery. They actively engaged in cesarean breech deliveries, observing, and participating in cutting-edge research, which helped them develop surgical skills and confidence early in their training. Conversely, the decrease in vaginal births significantly curtailed their practice opportunities, which further declined as concerns and restrictions regarding the procedure grew. As a result, residents acquired scant skills and became reluctant to practice breech deliveries.[[92]](#footnote-114) During the 1970s, encouraging young physicians to learn the intricate breech maneuvers posed a considerable challenge, particularly in the face of persistent suggestions favoring the simpler and seemingly superior cesarean approach. As Russell J. Paalman from Grand Rapids, Michigan recounted in 1973: “Recently a guest speaker at our hospital recommended ‘routine cesarean section for breech in primipara.’ This has influenced our resident staff to think “easy cesarean section at once” rather analyze carefully the patient’s condition and pelvic capacity for possible vaginal delivery.”[[93]](#footnote-115)

Most training programs during the 1970s did not expose residents to the required minimum of vaginal breech births (at least 300) and some programs discontinued training altogether. [[94]](#footnote-117) Long term, this lack of sufficient training had a profound effect on the collective forgetting, as inexperienced residents graduated and became senior physicians, incompetent in the procedure. An additional, immediate consequence, was highlighted by Edmund F. Anderson from San-Francisco, California in 1976:

I wish to add a footnote . . . with full realization that I probably will be labeled “old fashioned.” Recently I had two breeches. . . assisted at each delivery by a first- or second-year resident . . . I discovered that these fellows knew practically nothing about breech delivery. They assumed that every breech was going to be delivered by cesarean section, and when it came to the delivery, they knew nothing about getting the arms out, about delivering the after-coming head, the use of Piper forceps, or any such things.[[95]](#footnote-118)

As Anderson exemplified, lack of training had directly resulted in residents’ faulty techniques and poor outcome breech deliveries. Notably, mentioning the concern about this incompetence rendered the complainant obsolete. Moreover, most of the research on breech presentation was conducted in educational settings. As a result, residents’ poor experiences with breech birth rapidly translated into new reported pathologies resulting from “lack of awareness of potential difficulties, poor assistance, inadequate anesthesia, and faulty delivery technique.”[[96]](#footnote-119) In 1973, Leon J. Shulman from Santa Monica, California suggested that most cases purportedly demonstrating the superiority of cesarean births over breech births were actually delivered by insufficiently-trained residents and interns.[[97]](#footnote-120) In a vicious cycle, harm caused by unskilled doctors led to more restrictions on the vaginal procedure, fewer deliveries, and further inexperience.[[98]](#footnote-121) By the end of the 1970s, inadequate training made vaginal breech birth even less safe, providing yet another reason to hesitate before delivering vaginally.[[99]](#footnote-123) Notably, these trends coincided with diminishing emphasis on other medical practices, such as the use of forceps, local anesthesia, and clinical pelvimetry. Thus, the decline in breech birth (and other low-tech obstetrical methods) training emerged as the third significant factor contributing to the overall rise in cesarean sections, following the medicolegal environment and obstetrical policy of repeat cesarean sections.[[100]](#footnote-124)

## **The Medicolegal Climate**

The postwar era in the United States also witnessed a continual increase in malpractice claims. This led to legislative changes, public concern, and heightened anxiety among physicians. [[101]](#footnote-125) In the late 1970s, most obstetricians were not actually personally sued in malpractice cases, but the risk of litigation led them to perform more cesarean sections and use diagnostic technology more frequently as a form of ‘defensive medicine.’[[102]](#footnote-126) This high risk associated with breech presentations led to increased medicolegal apprehensions surrounding breech deliveries.[[103]](#footnote-127) In 1973, Ralph Walker from North Hollywood, California noted that there was an extremely high rate of successful malpractice lawsuits in cases of vaginal breech deliveries, regardless of whether or not the doctor was negligent.[[104]](#footnote-128) As Basil W. Maloney, a senior obstetrician from La Mesa California observed during the Forty-sixth Annual Meeting of the Pacific Coast Obstetrical and Gynecological Society in 1979, “anything less than a perfect result” when delivering a breech baby exposed the doctor to litigation.[[105]](#footnote-129) Throughout the 1970s, doctors faced mounting pressure from legal departments to adhere to surgical management protocols, scoring systems, and diagnostic technologies, resulting in a rise in surgical referrals.[[106]](#footnote-130) In a two-years earlier conference, J. OppieMcCall from Portland Oregon testified, obstetricians were confronted by the “plaintiff's bar” when handling breech cases. For example, physicians were instructed to have patients carrying a breech baby sign a PAR (Procedure, Alternative, and Risk) informed consent, explaining the risks of vaginal delivery, and offering them the option of a cesarean section.[[107]](#footnote-131)

While the impact of the medicolegal climate on the management of breech cases cannot be overlooked, it primarily intensified preexisting trends of collective forgetting. This is evident from the significant increase in lawsuits related to breech cases, and their prominence in the 1970s and 1980s, after cesarean sections had become common in many clinical settings.

**Opposition to Cesareans (and the Lack Thereof**)

Overall, cesarean sections faced little criticism during the 1970s, especially in cases of breech births. Those few opponents argued that the procedure was overused, endangered mothers, and deprived young doctors of valuable clinical skills.[[108]](#footnote-132) However, the golden age of unchallenged and liberal use of cesarean sections began to wane in the late 1970s, as criticism from various directions emerged. A prospective randomized study published in 1978 by Joseph Collea and colleagues from Los Angeles County-University of Southern California Medical School, on the management of term frank breech babies ,failed to prove that cesarean sections resulted in better labor outcomes, stunning the medical community.[[109]](#footnote-133) Similar conclusions were reached in another 1983 prospective study led by Martin Gimovsky, from the same department, on the non-frank breech.[[110]](#footnote-134) Although conducted on small samples, these studies’ findings were considered evidence-based and influenced some notable obstetricians to reconsider abandoning vaginal breech births. [[111]](#footnote-136)

***Public Health Organizations***

Several public health organizations soon raised concerns about the threefold increase in cesarean deliveries in the United States from 5% to 15.2% during late-1970s.[[112]](#footnote-137) In 1980, the U.S. National Institutes of Health (NIH) initiated a research task force to investigate the medical, financial, social, psychological, and legal implications of this trend.[[113]](#footnote-138) The World Health Organization also issued several directives for lowering cesarean section rates worldwide.[[114]](#footnote-139) Breech presentations received significant attention in these reports. Despite the stable and low frequency of breech presentations, the NIH reported that they accounted for 12% of all cesarean deliveries in the United States in the late 1970s. Breech was the third leading indication for cesareans (after Dystocia, at 29.2% and repeat cesarean, at 27%) and contributed 15.7% to this increase alone, due purely to management changes.[[115]](#footnote-140) In light of these rates, the NIH sought to reevaluate the highly surgical approach to breech presentations and to reinstate vaginal breech deliveries in carefully selected cases.[[116]](#footnote-141) An even more restrictive directive was been issued by the Canadian National Consensus Task Force, recommending reinstating vaginal breech delivery as the default treatment and avoiding surgery “unless it is clearly justified.”[[117]](#footnote-142)

***Feminist writings***

During the 1970s and 1980s, women’s grassroots health movements also opposed excessive cesarean use,[[118]](#footnote-143) as expressed in several influential feminist writings: the Boston Women’s Health Book Collective’s *Our Bodies Ourselves* series,[[119]](#footnote-144)the 1975 testimonial *Spiritual Midwifery*, the feminist journal *Women and Health*, and more. These provided women with alternatives to highly medicalized childbirth and valuable knowledge about their health and rights.[[120]](#footnote-145)

Contrary to public health writings, feminist literature rarely discussed breech presentations, and when it did, it often provided little opposition to the common highly surgical management. In the early editions of *Our Bodies Ourselves*, for example, breech presentations were mentioned as one of the rare situations warranting childbirth intervention.[[121]](#footnote-146) In the 1979 edition, a brief statement of criticism was added: “These days, cesareans are too often (unnecessarily) performed with breech babies.”[[122]](#footnote-147) In contrast to their romanticized descriptions of natural childbirth, feminist writings failed to provide an alternative to hospitalized and cesarean breech deliveries.[[123]](#footnote-148) Several testimonies in *Spiritual Midwifery* demonstrate that even experienced, pioneering midwives of the 1970s did not challenge the medical perception that breech births were pathological and should be delivered primarily in hospitals by obstetricians.[[124]](#footnote-149) Several midwives even supported the use of the physician-developed Zatuchni-Andros index when deciding whether to deliver breech babies at home or in a hospital.[[125]](#footnote-150)

After the publication of a number of public health reports in the early 1980’s, several *Women and Health* articles were blunter and more explicit in their criticism.[[126]](#footnote-151) Helen Marieskind, a leading investigator of cesarean sections and the founding editor of *Women and Health*, lamented the decline in physicians’ skills as the main obstacle to a thorough comparison of vaginal and cesarean breech deliveries. She called for reinstating lost skills as a vital step in reducing the overall cesarean rate.[[127]](#footnote-152) Rebecca Sara also cited the loss of physicians’ knowledge and skills as one of the reasons why women who could otherwise deliver naturally in a breech presentation were automatically referred for unnecessary surgery.[[128]](#footnote-153) However, they were the exceptions. Most feminist authors acknowledged the risks of vaginal breech delivery and proposed an alternative of ECV to minimize cesarean sections.[[129]](#footnote-154)

Public literature expressed even less opposition to cesarean liberalization in breech deliveries than did feminist writings. Although several prominent newspapers like the *New York Times* and *Newsweek* shared public health organizations’ concerns over rising cesarean sections, they omitted breech deliveries from their criticism, treating these as conventional indications for surgery.[[130]](#footnote-155) The lack of opposition to highly-surgical breech management may be one reason why women, despite having greater knowledge of their rights during labor, failed to demand vaginal deliveries for breech babies. In fact, physicians who attempted vaginal breech deliveries encountered women’s resistance and demands for surgery. This was not entirely unusual; Leavitt noted in 1986 that many women found childbirth "frightening or uninteresting," wishing "to experience as little of it as possible," and were receptive to interventions decided by the obstetrician.[[131]](#footnote-156)

**The Emergence of the Breech Controversy**

During the 1980s and 1990s, breech management was increasingly characterized by obstetricians as a “dilemma,” “controversy,” and even a “conundrum.”[[132]](#footnote-159) This conflict arose as obstetricians could not ignore the growing concerns regarding cesarean sections, calling for reevaluating breech management. For example, Stephen A. Mayers and Norbert Gleicher from Chicago, Illinois criticized reviewthe unnecessary use of cesarean sections in breech deliveries, recommending reducing these rates to the pre-1970s rate of 20%–25%.[[133]](#footnote-160) However, the clinical reality, established mainly during the 1950s–1970s, made it extremely hard to those who sought to deliver breech babies vaginally, often pressuring them into performing surgery. This was captured well in 1986 by James Caillouette, a private practitioner from Pasadena, California:

Over the past 25 years, you have done a magnificent job of convincing those in practice, the legal profession and the public that the correct way to deliver a breech presentation is by cesarean section. I submit to you that it will take another 25 years to turn that mind set around . . . It is not possible to change the attitudes of the general population as fast as academicians can produce papers with new concepts.[[134]](#footnote-161)

In the period during which vaginal breech births were deemed hazardous, cesareans gained prominence, and numerous restrictions on vaginal deliveries were imposed, a vicious cycle of collective forgetting took shape. As breech deliveries declined, so did training of younger generations in the procedure. Fear of litigation over less-than-perfect breech delivery fueled these trends. By the time criticism of cesarean sections finally emerged, collective forgetting had already taken root, significantly shaping medical practice.

In the 1980s and 1990s, many obstetricians, particularly younger ones were convinced of the benefits of cesarean sections for all breeches. However, those who questioned this management faced pressure from several directions to maintain surgical management. The first was the lack of skills in vaginal breech births. Lack of skills not only influenced obstetricians to perform surgery, but also effected research results. . As Marieskind wrote in 1983:

It is impossible to know if the seemingly superior outcome is due to the surgical intervention per se or the fact that cesarean breech data [are] being compared with data of vaginal breech deliveries managed by persons increasingly unskilled at such deliveries.[[135]](#footnote-162)

Skewed empirical comparisons in favor of cesarean sections provided additional evidence to the already existing fears and reluctance of vaginal breech births. The lack of medical education became so pervasive after the 1980s, affecting even large hospitals, that in 1994, the International Federation of Gynecology and Obstetrics Committee on Perinatal Health recommended establishing “a regular phantom training to preserve the ability to manage breech presentations.”[[136]](#footnote-163) During the late 1990s, an intriguing survey highlighted a paradox among American obstetricians, with nearly all educators (96%) endorsing teaching vaginal breech deliveries, but only one-third actually carrying out the procedure.[[137]](#footnote-164)

In 1988, a survey among senior Society of Perinatal Obstetricians’ members showed that only 14% believed there was adequate evidence that cesarean delivery was preferable for term, near-term, and other uncomplicated frank breeches. “Despite these observations, 83% to 94% were in agreement regarding their actual clinical case performance of cesarean section;” Sixty-three percent reported that their clinical judgment was strongly effected by medicolegal considerations in breech cases.[[138]](#footnote-165) Patients, influenced by their private doctors’ opinion or public newspapers, often refused to sign an informed consent forms to a vaginal delivery, insisting on their right to have surgery.[[139]](#footnote-166) Their demands for cesarean deliveries were also linked with a declining birth rate and a growing intolerance for complications during childbirth, as suggested in several editions of *Williams Obstetrics*.[[140]](#footnote-167)

## **Seeking Resolution**

The growing quandary over breech management in the 1980s led obstetricians to believe that only a large-scale randomized clinical trial could resolve the issue and provide adequate protection against malpractice claims.[[141]](#footnote-168) In the 1988 survey, for example, 53%–56% of perinatologists agreed that prospective multicenter studies were necessary to establish the clinically preferred mode of delivery for term breech cases, and 76%–77% thought similarly for preterm cases.[[142]](#footnote-169)

However, executing such a study was a complex task, given the scarcity of doctors skilled enough and willing to risk collegial criticism and litigation stemming from poor labor outcomes. For these reasons, two prospective studies in the United States aimed at investigating the best method for delivering preterm breech babies, failed to materialize. The prospective Iowa Premature Breech study, initiated in 1978, was terminated five years later due to changes in personnel and medicolegal concerns that severely limited patient accrual.[[143]](#footnote-170) A second, national-level study initiated by the American National Institute of Child Health and Human Development in the 1990s, was cancelled its inception after a preliminary survey showed that most stakeholders doubted the study’s feasibility.[[144]](#footnote-171) This decision provoked harsh criticism, with some alleging that physicians opted for the easier route rather than applying scientific methods to determine the best approach to delivering breech presentations.[[145]](#footnote-172)

Unlike their American counterparts, the Canadian Term Breech Trial (TBT) initiative, led by Mary and Walter Hannah from the University of Toronto, sought to conduct a massive, international trial. Their aim was to amass a sufficiently large sample size, greater than what any individual country could provide, to adequately research the issue. They encouraged medical centers across the United States and Europe to participate, exhorting them: “Time is running out . . . as those who are skilled and experienced in the technique of vaginal breech delivery are leaving clinical obstetric practice.”[[146]](#footnote-173) For many, this was the last opportunity to conclusively resolve the issue.

The TBT study was conducted in 1999–2000 in 121 health centers of 26 countries.[[147]](#footnote-174) Hospitals and obstetrics organizations eagerly awaited the study’s interim results.[[148]](#footnote-175) After it produced clear evidence supporting cesarean birth, the 2000 study was embraced immediately and enthusiastically in the United States and worldwide. But it would be an oversimplification to claim that the TBT led to a near disappearance of vaginal breech deliveries in clinical settings. The decline of vaginal breech delivery had been a long time in a making. At most, as our investigation shows, the 2000 study merely ratified a long process of collective forgetting that had been underway for half a century.

**Conclusion**

The breech story illustrates that collective forgetting is not only prevalent in medicine but can also have a significant impact on health policy and practice, leading to medical conundrums. As this story is told from the perspective of obstetricians, some open-ended questions are raised, particularly regarding the role women played in this collective forgetting, as well as its impact on women's health and autonomy during breech labor. This study offers a glimpse into the complex history of collective forgetting; it paves the way for exploring forgotten medical and other knowledge and their vital role in our daily lives.

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1. We would like to express our sincere gratitude to Susan Doron for her editorial work, as well as to the editor of this journal and two anonymous judges for their truly insightful insights and comments. [↑](#footnote-ref-1)
2. Faustinella, Fabrizia, and Robin J. Jacobs. “The Decline of Clinical Skills: A Challenge for Medical Schools.” *International Journal of Medical Education* 9 (2018): 195. [↑](#footnote-ref-2)
3. Breech presentation occurs when the baby is positioned in the womb with the buttocks, feet, or both facing the birth canal.   K. Scheer and J. Nubar, “Variation of Fetal Presentation with Gestational Age,” *Am. J. Obstet. Gynecol.* 125(2) (1976): 269–70. [↑](#footnote-ref-3)
4. Examples for guidelines: . Lawrence Leeman, “State of the Breech in 2020: Guidelines Support Maternal Choice, But Skills Are Lost,” *Birth* 47(2) (2020): 165–68. [↑](#footnote-ref-5)
5. Mark P. Hehir et al., “Cesarean Delivery in the United States 2005 through 2014: A Population-Based Analysis Using the Robson 10-Group Classification System,” *Am. J. Obstet. Gynecol.* 219(1) (2018): 105.e1–105.e11. For trends in cesareans in breech cases, see Table 2. [↑](#footnote-ref-6)
6. The TBT initiative, led by Mary and Walter Hannah from Toronto University, included 2088 births collected in 121 medical centers in 26 countries. Mary E. Hannah et al., “Planned Caesarean Section versus Planned Vaginal Birth for Breech Presentation at Term: A Randomised Multicentre Trial,” *Lancet* 356(9239) (2000): 1375–83. [↑](#footnote-ref-7)
7. Marek Glezerman, “Planned Vaginal Breech Delivery: Current Status and the Need to Reconsider,” *Expert Rev. Obstet. Gynecol.* 7(2) (2012): 159–66. [↑](#footnote-ref-8)
8. ACOG Committee on Obstetric Practice, “ACOG Committee Opinion No. 340. Mode of Term Singleton Breech Delivery,” *Obstet. Gynecol.* 108 (1) (2006): 235–37. [↑](#footnote-ref-9)
9. E.g., Caron J. Gray and Meaghan M. Shanahan, “Breech Presentation,” in *StatPearls* (Treasure Island, FL: StatPearls Publishing, 2020),; Gary F. Cunningham et al., *Williams Obstetrics, 25th Edition* (New York: McGraw-Hill Education/Medical, 2018); S. Dhingra and F. Raffi, “Obstetric Trainees’ Experience in VBD and ECV in the UK,” *J. Obstet. Gynaecol.* 30(1) (2010): 10–12; Glezerman, “Planned Vaginal Breech Delivery; Gerald W. Lawson, “The Term Breech Trial Ten Years On: Primum Non Nocere?,” *Birth* 39(1) (2012): 3–9. [↑](#footnote-ref-10)
10. This research consists of the most cited publications on breech presentation published between 1941 and 2000, as well as the authoritative *Williams Obstetrics* textbook editions. Citation analysis and clustering algorithms were used to extract the specific debate on breech management. More details are available from the corresponding author. [↑](#footnote-ref-12)
11. Ralph C. Wright, “Reduction of Perinatal Mortality and Morbidity in Breech Delivery Through Routine Use of Caesarean Section,” *Obstet. Gynecol.* 14(6) (1959): 758–63, was one of the 100 most-cited papers on breech births worldwide. [↑](#footnote-ref-13)
12. “Mortality Statistics 1920” (Washington, DC: Department of Commerce Bureau of the Census, 1922). It should be noted that these rates slightly vary between reports, mainly for biases stemming from lack of registrations and change in definitions. [↑](#footnote-ref-14)
13. Milton Kotelchuck, “Safe Mothers, Healthy Babies: Reproductive Health in the Twentieth Century,” in *Silent Victories: The History and Practice of Public Health in Twentieth Century America*, ed. John W. Ward (Oxford: Oxford University Press Oxford), 105–34; Jeffrey P. Brosco, “The Early History of the Infant Mortality Rate in America: ‘A Reflection Upon the Past and a Prophecy of the Future’ 1,” *Pediatrics* 103(2) (1999): 478–85. [↑](#footnote-ref-15)
14. “Vital Statistics of the United States 1951” (Washington, DC: US Department of Health, Education, and Welfare, 1954). On IMR reforms, see: Wolf, Jacqueline H. “Saving Babies and Mothers: Pioneering Efforts to Decrease Infant and Maternal Mortality.” In *Silent Victories: The History and Practice of Public Health in Twentieth-Century America*, ed. John W. Ward and Christian Warren (New York: Oxford University Press, 2007), 135–60. [↑](#footnote-ref-16)
15. Nicholson Joseph Eastman, *Williams Obstetrics*, 11th ed. (New York: Appleton-Century-Crofts, 1956), 2. [↑](#footnote-ref-17)
16. J. Whitridge Williams, “The Limitations and Possibilities of Prenatal Care: Based on the Study of 705 Fetal Deaths Occurring in 10,000 Consecutive Admissions to the Obstetrical Department of the Johns Hopkins Hospital,” *JAMA* 64(2) (1915): 95. [↑](#footnote-ref-18)
17. Joseph B. DeLee, “The Prophylactic Forceps Operation,” *Am. J. Obstet. Gynecol.* 1(1) (1920): 34–44. [↑](#footnote-ref-19)
18. Jacqueline H. Wolf, *Deliver Me from Pain: Anesthesia and Birth in America* (Baltimore, MD: Johns Hopkins University Press, 2012). [↑](#footnote-ref-20)
19. Eastman, *Williams Obstetrics* (11th ed.), 11. [↑](#footnote-ref-21)
20. Jacqueline H. Wolf, “Risk and Reputation: Obstetricians, Cesareans, and Consent,” J. Hist. Med. Allied. Sci. 73(1) (2018): 7–28, 13 15. [↑](#footnote-ref-22)
21. Review on the trends in residency programs, see: LudmererKenneth M., *Let Me Heal: The Opportunity to Preserve Excellence in American Medicine*. Oxford: Oxford University Press, 2014. Specifically on obstetrics: Wolf, *Deliver Me from Pain*; Wolf, *Cesarean Section*. [↑](#footnote-ref-23)
22. NIH, *Draft Report of the Task Force on Cesarean Childbirth* (US Department of Health and Human Services, Public Health Service, National Institutes of Health, 1980); Arthur B. Hunt, “The Test of Labor—An Evaluation of Its Present Worth: Chairman’s Address,” *JAMA* 147(11) (1951): 999–1004. [↑](#footnote-ref-24)
23. Joseph M. Harris and Joseph A. Nessim, “To Do or Not to Do a Caesarean Section,” *JAMA* 169(6) (1959): 570–76, 570. [↑](#footnote-ref-25)
24. Wolf, “Risk and Reputation,” 13. [↑](#footnote-ref-26)
25. Joseph M. Harris and Joseph A. Nessim, “To Do or Not to Do a Caesarean Section,” *Obstet. Gynecol. Survey* 14(3) (1959): 356–59, 358. [↑](#footnote-ref-27)
26. Breech deliveries were described in detail in the handbooks, including: Fielding Ould, *A Treatise of Midwifery* (1767); Guillaume Mauquest de La Motte, *A General Treatise of Midwifery . . . Illustrated with Upwards of Four Hundred Curious Observations and Reflexions Concerning That Art* (London: Waugh, 1746). [↑](#footnote-ref-30)
27. J. Whitridge Williams, *Obstetrics: A Text-Book for the Use of Students and Practitioners* (New York: Appleton, 1923), 235 <http://archive.org/details/obstetricstextbo00will_0>. [↑](#footnote-ref-31)
28. J. Edward Hall and Schuyler Kohl, “Breech Presentation: A Study of 1,456 Cases,” *Am. J. Obstet. Gynecol.* 72(5) (1956): 977–90, 988. [↑](#footnote-ref-32)
29. Remarked by James McNulty in 1973 in Lester T. Hibbard and William R. Schumann, “Prophylactic External Cephalic Version in an Obstetric Practice,” *Am. J. Obstet. Gynecol.* 116(4) (1973): 511–18, 518; see also William J. Dieckmann, “Fetal Mortality in Breech Delivery,” *Am. J. Obstet. Gynecol.* 52(3) (1946): 349–61. [↑](#footnote-ref-33)
30. The Mauriceau maneuver, a seventeenth-century technique, aimed to extract the baby's after-coming head and shoulders, preventing suffocation or obstruction in the birth canal - a perilous situation for mother and child. This method was modified by later obstetricians, including Levert, Gifford, Lachapelle, Veit, Wigand, Martin, Von Winckel, who were also associated with this maneuver and occasionally included the use of forceps (H. Speert, “Obstetric–Gynecologic Eponyms: François Mauriceau and His Maneuver in Breech Delivery,” *Obstet. Gynecol.* 9(3) (1957): 371–76). Another famous method was developed to assist breech births introduced by Bracht in the 1930s (P. M. Dunn, “Erich Bracht (1882–1969) of Berlin and His ‘Breech’ Manoeuvre,” *Archives of Disease in Childhood: Fetal and Neonatal Edition* 88(1) (2003): F76–F77). These accompanied several techniques for diagnosing breech presentations, such as the Leopold maneuver, developed in the late-nineteenth century (Cunningham et al., *Williams Obstetrics*). [↑](#footnote-ref-34)
31. Roland E. Skeel, “Delivery by the Breech, with Special Reference to Technic,” *Am. J. Obstet. Diseases of Women and Children (1869–1919)* 67(4) (1913): 509–23, 510. [↑](#footnote-ref-35)
32. Williams, *Obstetrics* (1923), 498. [↑](#footnote-ref-36)
33. Howard L. Wilcox, “The Attitude of the Fetus in Breech Presentation,” *Am. J. Obstet. Gynecol.* 58(3) (1949): 478–87, 478. [↑](#footnote-ref-37)
34. L. A. Calkins, “Breech Presentation,” *Am. J. Obstet. Gynecol.* 69(5) (1955): 977–83, 977, https://doi.org/10.1016/0002-9378(55)90096-X [↑](#footnote-ref-39)
35. See the 1930 edition (J. Whitridge Williams, *Obstetrics; a Textbook for the Use of Students and Practitioners* (New York: Appleton, 1930), <http://archive.org/details/obstetricstextboe6will>) compared to the 1956 (Eastman, *Williams Obstetrics* (11th ed.)) [↑](#footnote-ref-41)
36. Hall and Kohl, “Breech Presentation.”.; Thomas R. Goethals, “Cesarean Section as the Method of Choice in Management of Breech Delivery,” *Am. J. Obstet. Gynecol.* 71(3) (1956): 536–52,. Rates are detailed in Table 2. [↑](#footnote-ref-44)
37. Wright, “Reduction of Perinatal Mortality,” 761. Wright did not in fact contribute any new findings but relied on three contemporaneous obstetric studies: Goethals, “Cesarean Section”; Hall and Kohl, “Breech Presentation”; Harris and Nessim, “To Do or Not to Do.” [↑](#footnote-ref-45)
38. Wright’s paper was cited by obstetricians from, among others, India (B. L. Kapur and Kaur Satinder, “Some Aspects of Breech Deliveries,” *J. Obstet. Gynaecol. of India* (1968): 11), the United Kingdom (P. Donnai and A. D. G. Nicholas, “Epidural Analgesia, Fetal Monitoring and the Condition of the Baby at Birth with Breech Presentation,” *BJOG* 82(5) (1975): 360–65,), Sweden (Hans Ohlsén, “Outcome of Term Breech Delivery in Primigravidae: A Feto Pelvic Breech Index,” *AOGS* 54(2) (1975): 141–51). [↑](#footnote-ref-46)
39. Ed. note, in Ralph C. Wright, “Operative Obstetrics: Reduction of Perinatal Mortality and Morbidity in Breech Delivery through Routine Use of Cesarean Section,” *Obstet. Gynecol. Survey* 15(2) (1960): 224–26, 227. [↑](#footnote-ref-47)
40. Ed. note in Harris and Nessim, “To Do or Not to Do” (n. 26), 359. [↑](#footnote-ref-48)
41. Grant, discussion in J. L. Macarthur, “Reduction of the Hazards of Breech Presentation by External Cephalic Version,” *Am. J. Obstet. Gynecol.* 88(3) (1964): 302–6; Godard, discussion in Sam P. Patterson, Robert C. Mulliniks, and Phil C. Schreier, “Breech Presentation in the Primigravida.” *Am. J. Obstet. Gynecol.* 98(3) (1967): 404–10.. [↑](#footnote-ref-49)
42. Grant, discussion in Macarthur, “Reduction of the Hazards of Breech Presentation.” [↑](#footnote-ref-50)
43. . For example: Heinz W. Berendes, William Weiss, Jerome Deutschberger, and Esther Jackson, “Factors Associated with Breech Delivery,” *Am. J. Public Health and the Nation’s Health* 55(5) (1965): 708–19. Milton G. Jr Potter, Claude E. Heaton, and Gordon Watkins Douglas, “Intrinsic Fetal Risk in Breech Delivery,” *Obstet. Gynecol.* 15(2) (1960): 158–62; M. J. Bulfin and J. T. Gallagher, “The Primipara with Breech Presentation,” *Obstet. Gynecol.* 16 (1960): 283–87; Joseph F. Thompson, “Perinatal Mortality in Breech Presentation,” *Obstet. Gynecol.* 15(4) (1960): 415–24; Varner, “Management of Labor”; W. Duane Todd and Charles M. Steer, “Term Breech: Review of 1006 Term Breech Deliveries,” *Obstet. Gynecol.* 22(5) (1963): 583; David F. Wolter, Thomas P. LaHaye, and Charles E. Gibbs, “A Trial of Labor in Breech Presentation,” *Obstet. Gynecol.* 23(4) (1964): 541–46. [↑](#footnote-ref-51)
44. W. D. Varner, “Management of Labor in the Primigravida with Breech Presentation,” *Am. J. Obstet. Gynecol.* 84(7) (1962): 876–83, 876. [↑](#footnote-ref-52)
45. Williamson, discussion in Varner, “Management of Labor,” 880. [↑](#footnote-ref-53)
46. W. A. Bowes Jr., E. Stewart Taylor, M. O’Brien, and C. Bowes, “Breech Delivery: Evaluation of the Method of Delivery on Perinatal Results and Maternal Morbidity,” *Am. J. Obstet. Gynecol.* 135(7) (1979): 965–83, 965. [↑](#footnote-ref-54)
47. Wulff, discussion in Patterson et al., “Breech Presentation in the Primigravida,” 409. [↑](#footnote-ref-55)
48. For a discussion of the term “scientific fact,” see Ludwik Fleck, *Genesis and Development of a Scientific Fact* (Chicago: University of Chicago Press, [1981] 2012). [↑](#footnote-ref-56)
49. Leroy E. Smale, Mercedes F. Guico, and Chalmers L. Ensminger, “Difficulties in Breech Delivery,” *Clinical Obstet. Gynecol.* 19(3) (1976): 587–94; William L. Benson, David C. Boyce, and Daniel L. Vaughn, “Breech Delivery in Primigravida,” *Obstet. Gynecol.* 40(3) (1972): 417–28. Gibbs, discussion in Patterson et al., “Breech Presentation in the Primigravida.” See also Table 2. [↑](#footnote-ref-58)
50. Edward B Perrin et al., *Vital Statistics of the United States 1970. Volume II—Mortality. Part A* (Maryland, VA: US Department of Health, Education, and Welfare, 1975). [↑](#footnote-ref-59)
51. Reinforcing research trend, during the 1950s-1960s, many teaching hospitals became research centers, with extensive research investment. Ludmerer, “*Let Me Heal*.” [↑](#footnote-ref-60)
52. Todd and Steer, “Term Breech: Review of 1006 Term Breech Deliveries,” *Obstetrics & Gynecology* 22(5), 583. [↑](#footnote-ref-61)
53. Source: Author’s analysis of publications retrieved from scopus.com with the keywords “breech delivery,” compared with publications with “labour, obstetrics.” [↑](#footnote-ref-62)
54. Todd and Steer, “Term Breech,” 583. [↑](#footnote-ref-63)
55. [↑](#footnote-ref-64)
56. This statement originated in Edward Cragin’s book (*Conservatism in Obstetrics* (1916)), discussed in Sarah Foster, “‘Conservatism in Obstetrics’ (1916)” (*The Embryo Project Encyclopedia*, 2017, <https://hpsrepository.asu.edu/handle/10776/11473>) and gained prevalence in the 1970s (see: Justin P. Lavin, Robert J. Stephens, Menachem Miodovnik, and Tom P. Barden, “Vaginal Delivery in Patients with a Prior Cesarean Section,” *Obstet. Gynecol.* 59(2) (1982): 135–48). In 1973, Rovinsky et al demonstrated that 23.5% of breech surgeries were due to previous cesarean (“Management of Breech Presentation at Term”). [↑](#footnote-ref-72)
57. This definition appeared in MeSh thesaurus in 1988 (MeSH—NCBI. n.d. “Trial of labor.” Accessed January 30, 2021. <https://www.ncbi.nlm.nih.gov/mesh/?term=%22trial+of+labor%22%5BMeSH+Terms%5D>). [↑](#footnote-ref-73)
58. L. King, “What Is Meant by the Term ‘Test of Labor’?,” *Am. J. Obstet. Gynecol.* 35(3) (1938): 482–90. Hunt, “Test of Labor.” [↑](#footnote-ref-75)
59. Rovinsky et al., “Management of Breech Presentation at Term.” Doubts over X-ray pelvimetry's efficiency didn't discourage physicians from using it. (Michael W. Warner, Dwight P. Cruikshank, and Douglas W. Laube, “X-Ray Pelvimetry in Clinical Obstetrics,” *Obstet. Gynecol.* 56(3) (1980): 296–97).Fetal heart monitoring increased by 500% (Helen I. Marieskind, *An Evaluation of Caesarean Section in the United States* (Washington, DC: US Dept. of Health, Education and Welfare, Office of the Assistant Secretary for Planning and Evaluation/Health, 1979). On fetal monitoring, see: Frederick P. Zuspan et al., “Predictors of Intrapartum Fetal Distress: The Role of Electronic Fetal Monitoring,” *Am. J. Obstet. Gynecol.* 135(3) (1979): 287–91,; Wolf, “Risk and Reputation.” [↑](#footnote-ref-77)
60. Benson et al., “Breech Delivery in Primigravida,” 426–27. [↑](#footnote-ref-78)
61. E.g., Robert H. Barter, Jack Fealy, and T. J. M. Myles, “Reflections on the Management of 2,500 Breech Presentations,” *Southern Medical Association* 51(6) (1958): 711–19; Todd and Steer, “Term Breech”; Sam P. Patterson, Robert C. Mulliniks, and Phil C. Schreier, “Breech Presentation in the Primigravida,” *Am. J. Obstet. Gynecol.* 98(3) (1967): 404–10; Ohlsén, “Outcome of Term Breech”; Collea et al., “Randomized Management of Term Frank Breech”; Leon I. Mann and Janice M. Gallant, “Modern Management of the Breech Delivery,” *Am. J. Obstet. Gynecol.* 134(6) (1979): 611–14. Campbell, “X-Ray Pelvimetry.” [↑](#footnote-ref-80)
62. In that era, medicine underwent a significant scientific shift, gradually favoring statistics-based decisions deemed objective, while relegating seemingly biased subjective decisions. See: Ludmerer, “Let Me Heal.” [↑](#footnote-ref-81)
63. Gerald I. Zatuchni and George J. Andros, “Prognostic Index for Vaginal Delivery in Breech Presentation at Term,” *Am. J. Obstet. Gynecol.* 93(2) (1965): 237–42; G. I. Zatuchni and G. J. Andros, “Prognostic Index for Vaginal Delivery in Breech Presentation at Term. Prospective Study,” *Am. J. Obstet. Gynecol.* 98(6) (1967): 854–57. [https://doi.org/10.1016/0002-9378(67)90204-9](https://doi.org/10.1016/0002-9378%2867%2990204-9). A less common scoring system in the US was the Feto-Pelvic index, developed by the Swede Hans Ohlsén, introduced in 1975 (Ohlsén, “Outcome of Term Breech Delivery in Primigravidae”). [↑](#footnote-ref-82)
64. O’Leary, discussion in Charles C. Bird and Thomas W. McElin, “A Six-Year Prospective Study of Term Breech Deliveries Utilizing the Zatuchni–Andros Prognostic Scoring Index,” *Am. J. Obstet. Gynecol.* 121(4) (1975): 551–58, 558. [↑](#footnote-ref-83)
65. Brenner et al., “Characteristics and Perils of Breech Presentation”; Edmond Confino et al., “The Breech Dilemma. A Review,” *Obstetrical and Gynecological Survey* 40, no. 6 (1985): 330–37. Smale et al., “Difficulties in Breech Delivery.” [↑](#footnote-ref-85)
66. Bird and McElin, “Six-Year Prospective Study;” Gerald I. Zatuchni, “Management of Breech Presentation at Term,” *Am. J. Obstet. Gynecol.* 116(8) (1973): 1171. [↑](#footnote-ref-86)
67. O’Leary, discussion in Bird and McElin, “Six-Year Prospective Study.” [↑](#footnote-ref-87)
68. For example, Mauquest de La Motte, *General Treatise of Midwifery*; Ould, *Treatise of Midwifery*; Robert Barnes, *Lectures on Obstetric Operations: Including the Treatment of Haemorrhage and Forming a Guide to the Management of Difficult Labour* (Churchill & Sons, 1870); Carolyn Paul, “The Baby Is for Turning: External Cephalic Version,” *BJOG* 124(5) (2017): 773. [↑](#footnote-ref-88)
69. E. B. Trowbridge, “The Status of Internal Podalic Version in Obstetrics,” *Am. J. Obstet. Gynecol.* 60(3) (1950): 528–32; Leroy E. Smale, “Destructive Operations on the Fetus: Review of Literature and Application in 10 Cases of Neglected Dystocia,” *Am. J. Obstet. Gynecol.* 119(3) (1974): 369–74. Interestingly, podalic versions maintained in cases of a second twin breech; however, this is outside the scope of this study. [↑](#footnote-ref-89)
70. Vartan recommended employing the version from the 32nd week of gestation (C. Keith Vartan, “The Behaviour of the Foetus in Utero with Special Reference to the Incidence of Breech Presentation at Term,” *BJOG* 52(5) (1945): 417–34,). Similarly, Dieckmann (“Fetal Mortality”) and Stevenson (Charles S. Stevenson, “Certain Concepts in the Handling of Breech and Transverse Presentations in Late Pregnancy,” *Am. J. Obstet. Gynecol.* 62(3) (1951): 488–505): 32–34 weeks; King and Gladden (E. L. King and A. H. Gladden, “The Fetal Mortality in Breech Presentations. Is Prophylactic External Version Advisable?,” *Am. J. Obstet. Gynecol.* 17(1) (1929): 78–84): 32–36 weeks. Occasionally, physicians carried an external version in early stages of labor: *Williams Obstetrics* (1923); Eastman, *Williams Obstetrics* (1956), among others. [↑](#footnote-ref-90)
71. [↑](#footnote-ref-91)
72. Skeel, “Delivery by the Breech”; Savage, discussion in H. Hudnall Ware and Lucien W. Roberts, “The Management of Breech Presentation,” *Am. J. Obstet. Gynecol.* 67(4) (1954): 768–81; Williams, *Obstetrics* (1923). [↑](#footnote-ref-92)
73. Skeel, “Delivery by the Breech”; William J. Dieckmann, “Fetal Mortality in Breech Delivery,” *Am. J. Obstet. Gynecol.* 45(3) (1946): 349–61,. [↑](#footnote-ref-93)
74. Tracy A. Flanagan, Kristi M. Mulchahey, Carol C. Korenbrot, James R. Green, and Russell K. Laros, “Management of Term Breech Presentation,” *Am. J. Obstet. Gynecol.* 156(6) (1987): 1492–502). Paalman, discussion in Brooks Ranney, “The Gentle Art of External Cephalic Version,” *Am*. *J. Obstet. Gynecol.* 116(2) (1973): 239–48; Bradley-Watson, “Decreasing Value”; G. J. Hofmeyr, “Effect of External Cephalic Version in Late Pregnancy on Breech Presentation and Caesarean Section Rate: A Controlled Trial,” *BJOG* 90(5) (1983): 392–99. [↑](#footnote-ref-94)
75. E.g., Hibbard and Schumann, “Prophylactic External Cephalic Version”; Bradley-Watson, “Decreasing Value”; Ranney, “Gentle Art.” Olavi Ylikorkala and Anna-Liisa Hartikainen‐Sorri, “Value of External Version in Fetal Malpresentation in Combination with Use of Ultrasound,” *AOGS* 56(1) (1977): 63–67. [↑](#footnote-ref-95)
76. Erich Saling and Wolfgang Müller-Holve, “External Cephalic Version under Tocolysis,” *J. Perinat. Med.* 3(2) (1975): 115–22. [↑](#footnote-ref-96)
77. . Hofmeyr, “Effect of External Cephalic Version”; VanDorsten et al., “Randomized Control Trial of External Cephalic Version.” [↑](#footnote-ref-98)
78. Hale, discussion in Flanagan et al., “Management of Term Breech Presentation,” 1500. [↑](#footnote-ref-99)
79. E.g., D. Berg and U. Kunze, “Critical Remarks on External Cephalic Version under Tocolysis Report on a Case of Antepartum Fetal Death,” *J. Perinat. Med.* 5(1) (1977): 2–38; Robert E. Lehman, “Umbilical Cord Prolapse Following External Cephalic Version with Tocolysis,” *Am. J. Obstet. Gynecol.* 146(8) (1983): 983–84. [↑](#footnote-ref-100)
80. Benson et al., “Breech Delivery in Primigravida,” see also: Bird and McElin, “Six-Year Prospective Study.” [↑](#footnote-ref-101)
81. Ed. note in Edward S. Tank, R. O. Davis, John F. Holt, and George W. Morley, “Mechanisms of Trauma during Breech Delivery,” *Obstet. Gynecol. Survey* (1971): 251-252, 252. This authority to "permit" or "restrict" delivery management without consulting the patient reflected the complete autonomy doctors had in implementing protocols for managing childbirth in hospitals. [↑](#footnote-ref-102)
82. Goddard, discussion in Patterson et al., “Breech Presentation in the Primigravida,” 410. [↑](#footnote-ref-103)
83. Varner, “Management of Labor;” Rovinsky et al. “Management of Breech Presentation at Term.” [↑](#footnote-ref-105)
84. Bird and McElin, “Six-Year Prospective Study,”121. See also: Collea et al., “Randomized Management of Term Frank Breech.” [↑](#footnote-ref-106)
85. Patterson et al., “Breech Presentation in the Primigravida,” 405. [↑](#footnote-ref-107)
86. Ed. note in Tank et al., “Mechanisms of Trauma during Breech Delivery,” 252. [↑](#footnote-ref-108)
87. See for example, Patterson et al., “Breech Presentation in the Primigravida”; Bowes et al., “Breech Delivery.” [↑](#footnote-ref-109)
88. McNulty, discussion in Hibbard and Schumann, “Prophylactic External Cephalic Version,” 518. See also Shively, discussion in William K. Graves, “Breech Delivery in Twenty Years of Practice,” *Am. J. Obstet. Gynecol.* 137(2) (1980): 229–34. [↑](#footnote-ref-110)
89. Graves, “Breech Delivery in Twenty Years of Practice.” [↑](#footnote-ref-111)
90. David F. Wolter, “Patterns of Management with Breech Presentation,” *Am. J. Obstet. Gynecol.* 125(6) (1976): 733–39, 739. [↑](#footnote-ref-112)
91. E.g., Barter et al., “Reflections on the Management of 2,500 Breech Presentations.” [↑](#footnote-ref-113)
92. Wolter, “Patterns of Management with Breech Presentation.” [↑](#footnote-ref-114)
93. Paalman, discussion in Ranney, “Gentle Art,” 248. [↑](#footnote-ref-115)
94. Marieskind, *Evaluation of Caesarean Section*; NIH, *Draft Report of the Task Force on Cesarean Childbirth*. See also:., Maloney, discussion in Joseph V. Collea, Connie Chein, and Edward J. Quilligan, “The Randomized Management of Term Frank Breech Presentation: A Study of 208 Cases,” *Am. J. Obstet. Gynecol.* 137(2) (1980): 235–44. [↑](#footnote-ref-117)
95. Edmund F. Anderson., discussion in Wolter, “Patterns of Management,” 738. [↑](#footnote-ref-118)
96. Carl E. Johnson, “Breech Presentation at Term,” *Am. J. Obstet. Gynecol.* 106, no. 6 (March 15, 1970): 865–71, 865. [↑](#footnote-ref-119)
97. Shulman, discussion in Hibbard and Schumann, “Prophylactic External Cephalic Version.” [↑](#footnote-ref-120)
98. As exampled by Niswander, discussion in Collea et al., “Randomized Management of Term Frank Breech.” The various intricate dynamics of collective forgetting established during the 1950-1970s are only partially discussed here and will be examined in more detail in a forthcoming paper. [↑](#footnote-ref-121)
99. *Williams Obstetrics*. Editions since 1980. [↑](#footnote-ref-123)
100. Marieskind, *Evaluation of Caesarean Section*. The second cause for cesareans' rise was repeated cesareans. [↑](#footnote-ref-124)
101. Medical, legal, financial, social, and political consequences of the growing malpractice lawsuits in the United States, especially since the mid-1970s, are evident in many publications: James K. Cooper and Sharman K. Stephens, “The Malpractice Crisis—What Was It All About?” *Inquiry* 14(3) (1977.): 240–53; Frank A. Sloan, *Insuring Medical Malpractice* (New York: Oxford University Press, 1991); Glen O. Robinson, “The Medical Malpractice Crisis of the 1970s: A Retrospective,” *Law and Contemporary Problems* 49(2) (1986): 5–35, [↑](#footnote-ref-125)
102. Marieskind, *Evaluation of Caesarean Section*, 3. [↑](#footnote-ref-126)
103. Goethsch, discussion in Wolter, “Patterns of Management.” [↑](#footnote-ref-127)
104. Walker, discussion in Hibbard and Schumann, “Prophylactic External Cephalic Version.” [↑](#footnote-ref-128)
105. Maloney, discussion in Collea et al., “Randomized Management of Term Frank Breech,” 242. [↑](#footnote-ref-129)
106. Confino et al., “Breech Dilemma;” J. A. Campbell, “X-Ray Pelvimetry: Useful Procedure or Medical Nonsense,” JNMA 68(6) (1976): 514–20. The link between overdiagnosis and increased cesareans is discussed in NIH, Draft Report of the Task Force on Cesarean Childbirth. [↑](#footnote-ref-130)
107. McCall, discussion in Collea et al., “Randomized Management of Term Frank Breech Presentation,” 130. [↑](#footnote-ref-131)
108. For example: Campbell, “X-Ray Pelvimetry”; Wolter, “Patterns of Management”; Jacob discussion in Brenner et al., “Characteristics and Perils of Breech Presentation”; Olavi Kauppila, “The Perinatal Mortality in Breech Deliveries and Observations on Affecting Factors,” *AOGS* 54(S39) (1975): 5–79. [↑](#footnote-ref-132)
109. Collea et al., “Randomized Management of Term Frank Breech Presentation.” [↑](#footnote-ref-133)
110. Marti L. Gimovsky et al., “Randomized Management of the Nonfrank Breech Presentation at Term: A Preliminary Report,” *Am. J. Obstet. Gynecol.* 146(1) (1983): 34–40. See also: Mann and Gallant, “Modern Management of the Breech Delivery.” [↑](#footnote-ref-134)
111. On the rise of evidence-based medicine, see Jeffrey A. Claridge and Timothy C. Fabian, “History and Development of Evidence-Based Medicine,” *World J. Surg.* 29(5) (2005): 547–53, <https://doi.org/10.1007/s00268-005-7910-1>. See, for example, Russel's comment(discussion in Bowes et al., “Breech Delivery”). [↑](#footnote-ref-136)
112. NIH, *Draft Report of the Task Force on Cesarean Childbirth*. See Table 1. [↑](#footnote-ref-137)
113. Ibid. Cesarean section was one of several prominent and controversial technologies addressed in 1977-1985 by a consensus development process conference, held by the Office of Medical Applications of Research (a branch of the NIH). Itzhak Jacoby, “The Consensus Development Program of the National Institutes of Health,” *Int. J. Technol. Assess. Health Care* 1(2) (1985): 419–32. [↑](#footnote-ref-138)
114. WHO, *Having a Baby in Europe* (Geneva: World Health Organization, 1985); WHO, “Appropriate Technology for Birth,” *Lancet* 326(8452) (1985): 436–37; Johan Marie Lodewijk Phaff, *Perinatal Health Services in Europe: Searching for Better Childbirth* (London: Taylor & Francis, 1986). [↑](#footnote-ref-139)
115. NIH, *Draft Report of the Task Force on Cesarean Childbirth*. [↑](#footnote-ref-140)
116. NIH, “The National Institutes of Health (NIH) Consensus Development Program: Cesarean Childbirth,” September 1980, <https://consensus.nih.gov/1980/1980cesarean027html.htm>. [↑](#footnote-ref-141)
117. Walter J. Hannah, Thomas F. Baskett, and Graham W. Chance, “Indications for Cesarean Section: Final Statement of the Panel of the National Consensus Conference on Aspects of Cesarean Birth,” *CMAJ* 134(12) (1986): 1348–52, 1350. [↑](#footnote-ref-142)
118. For more on the women health movement, see: Francine H. Nichols, “History of the Women’s Health Movement in the 20th Century,” *JOGNN* 29(1) (2000): 56–64; M. S. Geary, “An Analysis of the Women’s Health Movement and Its Impact on the Delivery of Health Care within the United States,” *Nurse Practitioner* 20(11) Pt 1 (1995): 24, 27–28, 30–31; Sandra Morgen, *Into Our Own Hands: The Women’s Health Movement in the United States, 1969–1990* (New York: Rutgers University Press, 2002). [↑](#footnote-ref-143)
119. The Boston Women’s Health book collective has published numerous editions in the “Our Bodies Ourselves” series, including translated versions in many languages. (“OBOS Timeline: 1969–Present” n.d.). [↑](#footnote-ref-144)
120. For example: Frederick M. Ettner, “Hospital Technology Breeds Pathology,” *Women & Health* 2(2) (1976): 17–23; Pamela Daniels and Kathy Weingarten, “A New Look at the Medical Risks in Late Childbearing,” *Women & Health* 4(1) (1979): 5–36; Erma F. Dingley, “Birthplace and Attendants:,” *Women & Health* 4(3) (1979): 239–53; Jeffrey L. Adams, “The Use of Obstetrical Procedures in the Care of Low-Risk Women,” *Women & Health* 8(1) (1983): 25–34. Most of the authors practiced medicine. [↑](#footnote-ref-145)
121. Boston Women’s Health Collective, *Women and Their Bodies* (Boston Women’s Health Collective, 1970), 149; [↑](#footnote-ref-146)
122. Boston Women’s Health Book Collective, *Our Bodies, Ourselves: A Book by and for Women* (New York: Simon & Schuster, 1979), 272 [↑](#footnote-ref-147)
123. Suzanne Arms, for example, barely mentioned breech delivery in her book *Immaculate Deception: A New Look at Women and Childbirth in America* (Boston: Houghton Mifflin, 1975). [↑](#footnote-ref-148)
124. Ina May Gaskin, *Spiritual Midwifery* (Summertown, TN: Book Pub. Co., 1975). [↑](#footnote-ref-149)
125. Lewis E. Mehl, “Options in Maternity Care,” *Women & Health* 2(2) (1976): 29–42; Lewis E. Mehl, “Statistical Outcomes of Homebirths in the U.S.: Current Status,” in *Safe Alternatives in Childbirth: Based on the First American NAPSAC Conference, May 15, 1976, Arlington, Virginia*, ed. David Stewart and Lee Stewart (Marble Hill, MO: National Association of Parents & Professionals for Safe Alternatives in Childbirth, 1977), 118–54; Ettner, “Hospital Technology Breeds Pathology.” [↑](#footnote-ref-150)
126. For example: “Report of NICHD Cesarean Childbirth Consensus Conference,” *Women & Health*, News & Notes 5(4) (1981): 89–95; Brigitte Jordan, “External Cephalic Version,” *Women & Health* 7(3–4) (1983): 83–102. [↑](#footnote-ref-151)
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