Obstetrics Practice and the Pelvic Floor

Stephen Jeffery
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Groote Schuur Hospital and University of Cape Town
THE ISSUE

Does vaginal delivery damage the pelvic floor sufficiently to cause –

- UI
- Anal incontinence
- Prolapse
- Sexual dysfunction?
THE ISSUE

Does elective c/s protect against

- UI
- Anal incontinence
- Prolapse
- Sexual dysfunction?
Women’s advocacy

The THINKING WOMAN'S GUIDE to a BETTER BIRTH

Guía de la Mujer Consciente para un mejor Parto

Henci Goer
A laudable objective

- “Intervention during childbirth, except during extreme cases, is almost always unnecessary, unnatural, detrimental”

Natural Birth Lobby
“If you don’t want an episiotomy, or a forceps delivery, or a c/s, you simply make certain that when you are in labour you have chosen a place where these procedures are unable to be performed. It is simple as that”
Protecting Your Pelvic Floor

Written by Jacque Shannon-McNulty

During childbirth classes, as soon as everyone is comfortable and ready to get down to the nitty gritty details of birth, almost every mom confesses an often very specific and gory fear about tearing during birth. Vaginal and perineal injury is a major concern among pregnant women. Fortunately, there are many things that you can do to keep your pelvic floor strong and protect it during your pregnancy, birth and postpartum.

The pelvic floor is the complex series of muscles around the urethral opening, the vagina, the perineum (which is the tissue between the vaginal opening and the anus) and the anus. The deep muscles in this area form a figure eight around the urethral and vaginal openings. A strong, healthy pelvic floor is important for sexual function and orgasm, to support the reproductive organs and bladder, and to prevent incontinence, a widespread problem among women. Pelvic floor injury, left untreated, can contribute to later urinary incontinence, uterine prolapse, sexual dysfunction and even bowel incontinence.

Over the last few years, there has been some media attention of physicians advocating elective or “patient-choice” cesarean as a way to prevent pelvic floor damage. This is dangerously misguided. Study after study has found that planned cesarean section more than quadruples (4-7 times, depending on the research study) the chances that a mother will die during her birth as opposed to a vaginal birth, not to mention a dramatic increase in infant mortality, infection, hemorrhage, permanent injury, organ damage, future placental anomalies, future stillbirth, prematurity and respiratory problems in the baby. C-section surgery should only be performed when there is a serious medical necessity. On top of that, a cesarean section is not likely to protect your pelvic floor at all. Medical research has found that women experience incontinence and sexual dysfunction equally in their menopausal years whether they gave birth surgically or vaginally. While some doctors still insist that c-sections prevent pelvic floor problems, that belief is not evidence-based advice grounded in solid scientific research.

The key to protecting your pelvic floor is prevention.

Here are some excellent strategies to help you protect your pelvic floor before, during and after your birth.

Kegel. Correctly-performed kegel exercises strengthen the pelvic floor, increasing circulation, elasticity and awareness of the area. This will make it easier to avoid incontinence in the future. It is especially important to strengthen your pelvic floor when you are pregnant, as the weight of the baby will cause pressure on the muscles. Your pelvic floor muscles are the ones you squeeze when you urinate.
Labor and give birth in an upright position. Walk around. Stand. Dangle from your partner as you learned in childbirth preparation. Lean over on the bed like a sideways L. Squat, being sure that your feet are facing forward and not to the side, and lean forward and allow your hips and coccyx forward and backward motion as your baby descends. Women’s bodies were designed to birth in an upright position. When you are upright during birth, you are in an anatomically optimal position to make your birth faster and easier. The lithotomy position, lying on your back, puts an inordinate amount of pressure on your perineum when your baby comes out. This pressure dramatically increases the likelihood of a tear. If you must lie down, lay on your side with one leg supported by your partner, doula or a nurse.

Don’t push. Forceful, bearing down, white-knuckled directed (“PUSH!! PUSH!!”) pushing is unnecessary and unwise. A recent obstetric study found that this type of coached pushing does not significantly increase the length of time it takes for the baby to be born. Forceful pushing does not allow for the gradual stretching of your tissues. Gradual stretching, with baby moving down the birth canal, then sliding back just a little gently eases your perineum into the stretch that needs to happen.

Vocalize during pushing. Sing your baby out. Open your mouth and pant or just breathe during the pushing stage. The root muscles of the mouth and throat directly correlate to the muscles of the vagina and pelvic floor. Vocalizing actually opens and relaxes the pelvic floor. Be sure to vocalize deeply to open the pelvic floor, screaming and high pitched vocalization tenses the pelvic floor. Women giving birth naturally are noisy. Let it out and your baby will follow.
The Problem

The c/s rate has increased over the past 2 decades: Why?

• Progress in obstetrics and neonatology
  ▪ Smaller neonates can survive
  ▪ Breech / twins delivered by c/s
  ▪ Avoidance of operative delivery

• Increased HIV
• Fear of litigation
• C/S more convenient than NVD
The Problem

Dogmatic pronouncements by all and sundry
Experts call for cut in rate of Caesarean births

Incidence of C-sections in South Africa is far higher than the WHO norm, reports Health Writer SIPOKAZI FOKAZI

Caesarean births - also known as Caesarians - are growing at an alarming rate in South Africa, health experts reveal. And one of the biggest drivers is medical schemes - claims they are paying to hospitals for Caesareans that are not medically required.

One of the country's biggest insurers, Discovery Health, has reported that 17.2% of deliveries claimed from the scheme were Caesareans. The scheme said that of the 41,000 deliveries claimed to general hospitals between October 2009 and September 2010, 38,200 were Caesareans, while 2,800 were normal vaginal deliveries. The number of Caesareans topped the scheme's list of admissions during the same period, followed by digestive system diagnoses, and pneumonia and bronchiolitis.

Between May 2006 and April 2007, the scheme paid for 23,684 Caesarean deliveries. Normal births at 91,384 were just 30.6% of that number.

Both medical schemes had a total number of 90,000 deliveries during that year, and just 10% of these were Caesareans. The previous year the scheme paid for 50,000 deliveries, of which 8,186 were Caesareans. While the World Health Organisation (WHO) advises a maximum of 15% of deliveries per country in South Africa's private sector the rate was about 13% in that sector.

Last year the South African Children's Foundation reported that 15% of deliveries in the country were Caesareans. The report said that 15% of doctors' claims are normal deliveries but these are Caesareans. In the US, the rate is about 1%.

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“Women are being duped into believing c/s is easier, quicker and that it will prevent injury to the bladder and rectum. This is not true. Unnecessary interventions in childbirth, such as c/s without medical indications are bad practice and an assault on women and their babies”
What is the evidence?

Vaginal birth damages the pelvic floor:
- Prolapse
- Incontinence
- Sexual Dysfunction

Elective c/s spares pelvic floor:
- Prolapse
- Incontinence
- Sexual Dysfunction
Evidence: Its not that easy!!

- Need large numbers
- Numerous confounders
- Outcome measures vary
- Obstetrics practices vary
- Women vary
- Insult occurs at a young age and dysfunction many years later
- Data is contradictory
In Summary:
Obstetric Practice and Pelvic Floor Dysfunction

NVD
Vacuum
Forceps
Episiotomy
Elective C/S
Emergency C/S

Urinary Incontinence
Faecal Incontinence
Pelvic Organ Prolapse
Sexual Dysfunction
Obstetrician’s view
Fetus’s view
Vaginal delivery damages the pelvic floor

Levator Trauma After Vaginal Delivery

Hans Peter Dietz, PhD, and Valeria Lanzarone, MB

Levator Hiatus = 6-36 cm²
Fetal Head = 70-90 cm²
After 36% of deliveries avulsions demonstrated.

Fig. 4. Axial-rendered volume representation of the puborectalis–pubococcygeus complex on 3-dimensional pelvic floor ultrasound at 38 weeks of gestation (A) and 4 months postpartum (B). Both images were obtained on Valsalva maneuver. The arrows indicate a bilateral avulsion injury, which was associated with markedly increased pelvic organ descent.

Levator trauma is associated with pelvic organ prolapse

HP Dietz, a JM Simpsonb

a Department of Obstetrics and Gynaecology, Nepean Clinical School, University of Sydney, Nepean Hospital, Penrith, New South Wales, Australia b School of Public Health, University of Sydney, Sydney, New South Wales, Australia

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Figure 2. Tomographic ultrasound (axial plane) of a normal puborectalis muscle (A, top three images), a typical right-sided avulsion (B, middle three images) and a bilateral avulsion (C, bottom three images). Defects are indicated by ‘*’. The images are obtained at a slice interval of 2.5 mm, at the plane of minimal dimensions (left three images), as well as at 2.5 and 5 mm cranial to this plane (middle and right three images, respectively). Reproduced from: Dietz HP, Shek KL. Single validity and reproducibility of the digital detection of levator trauma. Int Urogynecol J 2008. DOI: 10.1007/s00192-008-0575-1. With kind permission of Springer Science and Business Media.
Table 1. RR (95% CI) of each type of significant prolapse (stage II and higher) in women with levator avulsion relative to those with intact levator ani

<table>
<thead>
<tr>
<th></th>
<th>Cystocele (n = 781)</th>
<th>Uterine prolapse (n = 681)*</th>
<th>Rectocele (n = 781)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unilateral avulsion</td>
<td>2.2 (1.9–2.7)</td>
<td>2.0 (1.0–4.1)</td>
<td>1.2 (0.9–1.7)</td>
</tr>
<tr>
<td>Bilateral avulsion</td>
<td>2.5 (2.1–3.0)</td>
<td>7.1 (4.3–11.6)</td>
<td>1.6 (1.2–2.1)</td>
</tr>
<tr>
<td>Any levator avulsion</td>
<td>2.3 (2.0–2.7)</td>
<td>4.0 (2.5–6.5)</td>
<td>1.4 (1.1–1.7)</td>
</tr>
</tbody>
</table>

*Excluding 100 women who had had a hysterectomy.
Obstetric Factors Associated With Levator Ani Muscle Injury After Vaginal Birth

Rohana Kearney, MRCOG, Janis M. Miller, PhD, James A. Ashton-Miller, PhD, and John O. L. DeLancey, MD
Obstetric Factors Associated With Levator Ani Muscle Injury After Vaginal Birth

Rohna Kearney, MRCOG, Janis M. Miller, PhD, James A. Ashton-Miller, PhD, and John O. L. DeLancey, MD

• Levator ani injury
  • 66% forceps
  • 25% vacuum
  • 10% NVD

62% of women with a pubovisceral injury had a sphincter defect
The case **FOR CS in preventing Pelvic Floor Disorders**
Parity, Mode of Delivery, and Pelvic Floor Disorders

Emily S. Lukacz, MD, Jean M. Lawrence, ScD, MPH, Richard Contreras, Charles W. Nager, MD, and Karl M. Luber, MD

N=4500
“Vaginal delivery had a significantly higher chance of every pelvic floor disorder in this study”
Urinary Incontinence

The Case for CS
Outcomes at 3 Months After Planned Cesarean vs Planned Vaginal Delivery for Breech Presentation at Term
The International Randomized Term Breech Trial

Mary E. Hannah, MDCM
Walter J. Hannah, MD
Ellen D. Hodnett, RN, PhD
Beverley Chalmers, PhD
Rose Kung, MD
Andrew Willan, PhD
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Amiram Gafni, PhD

for the Term Breech Trial 3-Month Follow-up Collaborative Group

Context  The Term Breech Trial found a significant reduction in adverse perinatal outcomes without an increased risk of immediate maternal morbidity with planned cesarean delivery compared with planned vaginal birth. No randomized controlled trial of planned cesarean delivery has measured benefits and risks of postpartum outcomes months after the birth.

Objective  To compare maternal outcomes of planned cesarean delivery and planned vaginal birth at 3 months post partum.

Design  Follow-up study to the Term Breech Trial, a randomized controlled trial conducted between January 9, 1997, and April 21, 2000.

Setting and Participants  A total of 1596 of 1940 women from 110 centers worldwide who had a singleton fetus in breech presentation at term responded to a follow-up questionnaire at 3 months post partum.

Main Outcome Measures  Breastfeeding; infant health; ease of caring for infant and adjusting to being a new mother; sexual relations and relationship with husband/partner; pain; urinary, flatus, and fecal incontinence; depression; and views regarding childbirth experience and study participation.

Results  Baseline information was similar for both the cesarean and vaginal delivery groups. Women in the planned cesarean delivery group were less likely to report urinary incontinence than those in the planned vaginal birth group (36/798 [4.5%] vs 58/797 [7.3%]; relative risk, 0.62; 95% confidence interval, 0.41-0.93). Incontinence of flatus was not different between groups but was less of a problem in the planned cesarean delivery group when it occurred (P = .006). There were no differences between groups in other outcomes.

Rates of cesarean delivery vary tremendously in different countries and regions.

D
Prospective study
N=3887
Follow up at 6 months
Urge incontinence
Stress incontinence

Figure 2. OR (95% CI) for stress incontinence according to obstetric antecedents.
Anal incontinence

Figure 3. OR (95% CI) for anal incontinence according to obstetric antecedents.
Obstetric management of a woman’s first delivery and the implications for pelvic floor surgery in later life

Ramalingam Uma,\textsuperscript{a} Gillian Libby,\textsuperscript{b} Deirdre J. Murphy\textsuperscript{a}

\begin{table*}[h]
\centering
\begin{tabular}{|l|c|c|c|c|}
\hline
 & Cases, \( n = 352 \) (%) & Controls, \( n = 1403 \) (%) & Unadjusted OR (95\% CI), difference of means (95\% CI) & Adjusted OR\textsuperscript{1} (95\% CI) \\
\hline
Mode of delivery & & & & \\
Spontaneous vaginal\textsuperscript{ii} & 270 (76) & 995 (71) & 1.00 & 0.94 (0.71, 1.25) \\
Forceps & 74 (21) & 287 (21) & 0.95 (0.71, 1.27) & 0.24 (0.19, 0.51) \\
Caesarean & 8 (2) & 121 (9) & 0.24 (0.19, 0.51) & 0.16 (0.05, 0.55) \\
\hline
\end{tabular}
\caption{Intrapartum and postpartum factors.}
\end{table*}
Prevalence of Urinary Incontinence

Nulliparous 10%
CS only 15.9%
NVD only 21%

The attributable risk — that is, the proportion of any incontinence among women who delivered vaginally that would be preventable by cesarean sections — was 35 percent. The population attributable risk
Planned cesarean section versus planned vaginal delivery: comparison of lower urinary tract symptoms

Åsa Ekström • Daniel Altman • Ingela Wiklund • Christina Larsson • Ellika Andolf

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© International Urogynecology Journal 2007
Table 3  Predictors for stress urinary incontinence, urge urinary incontinence and urinary urgency at nine month follow-up

<table>
<thead>
<tr>
<th></th>
<th>Stress urinary incontinence</th>
<th></th>
<th>Urge urinary incontinence</th>
<th></th>
<th>Urinary urgency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RR</td>
<td>95% CI</td>
<td>RR</td>
<td>95% CI</td>
<td>RR</td>
<td>95% CI</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>1.0</td>
<td>Ref</td>
<td>1.0</td>
<td>Ref</td>
<td>1.0</td>
<td>Ref</td>
</tr>
<tr>
<td>Vaginal delivery</td>
<td>8.9</td>
<td>1.9–42</td>
<td>4.1</td>
<td>0.6–29</td>
<td>7.3</td>
<td>1.7–32</td>
</tr>
<tr>
<td>Instrumental delivery</td>
<td>0.7</td>
<td>0.2–2.8</td>
<td>0.7</td>
<td>0.1–6.4</td>
<td>0.6</td>
<td>0.1–2.8</td>
</tr>
<tr>
<td>Fetal birth weight ≥3500g</td>
<td>2.1</td>
<td>0.7–5.8</td>
<td>3.2</td>
<td>0.7–15</td>
<td>0.7</td>
<td>0.2–1.8</td>
</tr>
<tr>
<td>Perineal tear (I-III)</td>
<td>0.7</td>
<td>0.3–1.2</td>
<td>0.5</td>
<td>0.2–1.3</td>
<td>0.7</td>
<td>0.4–1.3</td>
</tr>
<tr>
<td>Symptoms at baseline</td>
<td>5.2</td>
<td>1.5–19</td>
<td>4.7</td>
<td>0.2–91</td>
<td>0.6</td>
<td>0.1–3.8</td>
</tr>
<tr>
<td>Symptoms at 3m FU</td>
<td>3.9</td>
<td>1.7–8.5</td>
<td>11</td>
<td>3.0–39</td>
<td>2.3</td>
<td>1.5–5.1</td>
</tr>
</tbody>
</table>

Multivariable logistic regression analysis adjusted for maternal age, maternal weight and level of education.
Delivery mode is a major environmental determinant of stress urinary incontinence: Results of the Evanston-Northwestern Twin Sisters Study

Roger P. Goldberg, MD MPH, * Yoram Abramov, MD, Sylvia Botros, MD, Jay-James Miller, MD, Sanjay Gandhi, MD, Angel Nickolov, Wendy Sherman, Peter K. Sand, MD

Evanston Continence Center, Northwestern University Medical School, Evanston, IL

Received for publication January 15, 2005; revised June 14, 2005; accepted July 31, 2005
was used to evaluate risk factors and accounting for shared genetics within pairs.

**Results:** The twins had a mean age of 47.1 years (range 15 to 85 years), and stress urinary incontinence was reported by 51.8%. Stress urinary incontinence was associated with age ($P = .001$), parity ($P = .001$), obesity ($P = .002$), and birth mode, with vaginal delivery conferring a considerable increase in stress urinary incontinence risk relative to cesarean section (odds ratio 2.28, 95% confidence interval 1.14 to 4.55, $P = .019$).

**Conclusion:** Vaginal delivery mode represents a potent determinant of stress urinary incontinence, carrying more than twice the risk of cesarean section. This study of identical twins provides new insight into the epidemiology of female incontinence.
Does Cesarean Section Reduce Postpartum Urinary Incontinence?  
A Systematic Review

Joshua Z. Press, MD, Michael C. Klein, MD, Janusz Kaczorowski, PhD,  
Robert M. Liston, MBChB, and Peter von Dadelszen, MBChB, DPhil
ABSTRACT: Background: The impact of delivery mode on the development of urinary incontinence has been much debated. The primary objective of this systematic review was to compare the prevalence of postpartum urinary incontinence after cesarean section compared with vaginal birth. Methods: The MEDLINE (1966–2005) and CINAHL (1982–2005) databases were searched for reports specifying postpartum prevalence or incidence of unspecified, stress, urge, and mixed urinary incontinence by mode of birth. Primary authors were contacted to request unpublished data about severity, parity, and timing of cesarean section. All data were entered into Review Manager software, and odds ratio (OR), absolute risk reduction, and number needed to prevent were calculated. Results: Cesarean section reduced the risk of postpartum stress urinary incontinence from 16 to 9.8 percent (OR = 0.56 [0.45, 0.68], number needed to prevent = 15 [12,22]) in 6 cross-sectional studies, and from 22 to 10 percent in 12 cohort studies (OR = 0.48 [0.39, 0.58], number needed to prevent = 10 [8,13]). Differences persisted by parity and after exclusion of instrumental delivery, but risk of severe stress urinary incontinence and urge urinary incontinence did not differ by mode of birth. Conclusions: Although short-term occurrence of any degree of postpartum stress urinary incontinence is reduced with cesarean section, severe symptoms are equivalent by mode of birth. Risk of postpartum stress urinary incontinence must be considered in the context of associated maternal and newborn morbidity and mortality. (BIRTH 34:3 September 2007)
PROLAPSE

The Case for CS
One or more VD was associated with a 3 to 5 fold higher odds of having symptomatic POP
The distribution of pelvic organ support in a population of female subjects seen for routine gynecologic health care

Steven E. Swift, MD
Charleston, South Carolina

Table IV. Percentages of subjects in each vaginal delivery history category with various stages of pelvic organ support according to pelvic organ prolapse quantification system

<table>
<thead>
<tr>
<th>Vaginal deliveries</th>
<th>Stage 0</th>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (n = 104)</td>
<td>17.3%</td>
<td>60.6%</td>
<td>22.1%</td>
<td>—</td>
</tr>
<tr>
<td>1-3 (n = 272)</td>
<td>4.0%</td>
<td>42.6%</td>
<td>50.7%</td>
<td>2.6%</td>
</tr>
<tr>
<td>&gt;3 (n = 121)</td>
<td>2.5%</td>
<td>29.8%</td>
<td>62.8%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Macrosomia

>4000g = 64% stage 2 or more
<4000g = 53% stage 2 or more
OBJECTIVE: The objective of the study was to investigate the association between cesarean section and pelvic organ prolapse.

STUDY DESIGN: The Swedish Hospital Discharge Registry was used to identify women with an inpatient diagnosis of pelvic organ prolapse, and the data were linked to the Swedish Medical Birth Registry. Odds ratios (ORs) were estimated using the Mantel-Haenszel procedure and Cox analyses to estimate hazard ratios. The material was stratified for age and parity.

RESULTS: A total of 1.4 million women were investigated. A strong and statistically significant association between cesarean section and pelvic organ prolapse was found. Adjusted OR was 0.18 (0.16-0.20) and overall hazard ratio 0.20 (0.18-0.22).

CONCLUSION: Cesarean section is associated with a lower risk of pelvic organ prolapse than vaginal delivery.

Key words: obstetric labor complications, pelvic floor, uterine prolapse
<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Prolapse (n = 15,007)</th>
<th>No prolapse (n = 1,444,548)</th>
<th>Crude OR</th>
<th>Adjusted OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal deliveries</td>
<td>13,935 (92.9)</td>
<td>1,193,661 (83.5)</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal and CS</td>
<td>791 (5.3)</td>
<td>108,212 (7.6)</td>
<td>0.63</td>
<td>0.75 (0.69-0.81)</td>
</tr>
<tr>
<td>CS only</td>
<td>281 (1.9)</td>
<td>127,668 (8.9)</td>
<td>0.19</td>
<td>0.18 (0.16-0.20)</td>
</tr>
</tbody>
</table>

The odds ratios (ORs) were obtained after stratification for maternal year of birth, year of last delivery, and parity at last delivery. CI, confidence interval; CS, cesarean section.

FIGURE
Risk of surgery for pelvic organ prolapse
SEXUAL FUNCTION

The Case for CS
FAECAL INCONTINENCE

The Case for CS
The case AGAINST CS in preventing Pelvic Floor Disorders
Urinary Incontinence

The Case for VAGINAL DELIVERY
Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial

Mary E. Hannah, MDCM, a,d,e Hilary Whyte, MD, b,d Walter J. Hannah, MD, a Sheila Hewson, BA, e Kofi Amankwah, MD, a Mary Cheng, MD, g Amiram Gafni, PhD, e,h Patricia Guselle, BA, e Michael Helewa, MD, j Ellen D. Hodnett, RN, PhD, f Eileen Hutton, PhD, a Rose Kung, MD, a Darren McKay, BCS, e Susan Ross, PhD, a,d,e Saroj Saigal, MD, i Andrew Willan, PhD, c,e for the 2-year maternal follow-up Term Breech Trial Collaborative Group*
Objective: This study was undertaken to compare maternal outcomes at 2 years postpartum after planned cesarean section and planned vaginal birth for the singleton fetus in breech presentation at term.

Study design: In selected centers in the Term Breech Trial, mothers completed a structured questionnaire at 2 or more years postpartum to determine their health in the previous 3 to 6 months.

Results: A total of 917 of 1159 (79.1%) mothers from 85 centers completed a follow-up questionnaire at 2 years postpartum. There were no differences between groups in breast feeding, relationship with child or partner, pain, subsequent pregnancy, incontinence, depression, urinary, menstrual or sexual problems, fatigue, or distressing memories of the birth experience. Planned cesarean section was associated with a higher risk of constipation ($P = .02$).
Symptoms of anal and urinary incontinence following cesarean section or spontaneous vaginal delivery

Daniel Altman, MD, PhD; Åsa Ekström, MD; Catharina Forsgren, MD; Johan Nordenstam, MD; Jan Zetterström, MD, PhD

OBJECTIVE: The objective of the study was to compare the prevalence of incontinence disorders in relation with spontaneous vaginal delivery or cesarean section.

STUDY DESIGN: Two hundred women with spontaneous vaginal deliveries only were compared with 195 women with cesarean deliveries only 10 years after first delivery.

RESULTS: When compared with cesarean section, vaginal delivery was associated with an increased frequency of stress urinary incontinence ($P = .006$) and an increased use of protective pads ($P = .008$) as well as an increased frequency of fecal urgency ($P = .048$) and gas incontinence ($P = .01$). At multivariate regression analysis, mode of delivery showed no significant association with incontinence symptoms other than an increased risk for flatus incontinence in women with a history of obstetric anal sphincter injury (odds ratio 3.1; 95% confidence interval, 1.5 to 8.9).

CONCLUSION: Incontinence symptoms are more common following spontaneous vaginal delivery when compared with cesarean section 10 years after first delivery. However, cesarean section is not associated with a major reduction of anal and urinary incontinence.

Key words: cesarean section, incontinence, observational, vaginal delivery

Mode of delivery and severe stress incontinence.  
A cross-sectional study among 2625 perimenopausal women

Xavier Fritel, Virginie Ringa, Noëlle Varnoux, Arnaud Fauconnier,  
Stéphanie Piault, Gérard Bréart

Objective  To estimate the prevalence of severe stress urinary incontinence (SUI) among perimenopausal women and to examine potential obstetric risk factors.

Design  Mail survey of female volunteers for epidemiological research.

Setting  Postal questionnaire on SUI.

Population  Three thousand one hundred and fourteen women aged 49–61 years who comprised the GAZEL cohort.

Methods  Logistic regression using data from the entire cohort to estimate the impact of risk factors. A second logistic regression using data from women who had given birth included obstetric history.

Main outcome measure  Prevalence of severe SUI defined by the response ‘often’ or ‘all the time’ to the question ‘Does urine leak when you are physically active, cough or sneeze?’

Results  Two thousand six hundred and twenty-five women (85%) completed and returned the questionnaire. The frequency of SUI reported in the preceding four weeks was as follows: ‘never’ 32%, ‘occasionally’ 28%, ‘sometimes’ 26%, ‘often’ 10% and ‘all the time’ 5%. Prevalence of severe SUI was lowest among nulliparous women (7%), but it was similar among parous women regardless of birth number (14–17%). The prevalence of severe SUI was not associated with mode of delivery (14% for women delivered by caesarean only vs 16% for vaginal births). Significant risk factors for severe SUI were high body mass index (BMI >30), diabetes mellitus, previous incontinence surgery, parity and first delivery under the age of 22 years.

Conclusion  Previous pregnancy itself is a risk factor for severe SUI among women who reach the age of 50. In this age group the impact of the mode of delivery (spontaneous, forceps or caesarean) on severe SUI is slight.
FAECAL Incontinence

The Case for VAGINAL DELIVERY
A Systematic Review of the Efficacy of Cesarean Section in the Preservation of Anal Continence

Richard L. Nelson, M.D., Matthew Westercamp, Ph.D., Sylvia E. Furner, Ph.D.

1 Department of Surgery, Northern General Hospital, Sheffield, South Yorkshire, United Kingdom
2 Epidemiology/Biometry Division, University of Illinois School of Public Health, Chicago, Illinois

N>14000
15 studies
Need to do 167 CS to prevent 1 case of Anal Incontinence
Does the mode of delivery predispose women to anal incontinence in the first year postpartum? A comparative systematic review

SJ Pretlove,¹ PJ Thompson,¹ PM Toozs-Hobson,¹ S Radley,² KS Khan²

¹Department of Obstetrics and Gynaecology, Birmingham Women’s Hospital, Edgbaston, Birmingham, UK ²Department of Colorectal Surgery, University Hospital Birmingham, Queen Elizabeth Site, Edgbaston, Birmingham, UK

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Accepted 16 September 2007.

18 studies
Mode of Delivery and Fecal Incontinence at Midlife
A Study of 2,640 Women in the Gazel Cohort

Xavier Fritel, MD, Virginie Ringa, MD, PhD, Noëlle Varnoux, Marie Zins, MD, and Gérard Bréart, MD, PhD

OBJECTIVE: To estimate obstetric risk factors of fecal incontinence among middle-aged women.

METHODS: We conducted a mail survey of the Gazel cohort of volunteers for epidemiologic research. In 2000, a questionnaire on anal incontinence was mailed to 3,114 women who were then between the ages of 50 and 61 years; 2,640 (85%) women returned the completed questionnaire. Fecal incontinence was defined by involuntary loss of stool. Logistic regression was used to estimate the effect of obstetric and general risk factors.

RESULTS: Prevalence of fecal incontinence in the past 12 months was 9.5% (250). Significant risk factors for fecal incontinence were completion of high school (adjusted odds ratio [OR] 1.5, 95% confidence interval [CI] 1.1–2.0), self-reported depression (OR 2.1, 95% CI 1.6–2.7), overweight or obesity measured by body mass index (BMI) (OR 1.5 for BMI of 25–30, 95% CI 1.1–2.0; OR 1.6 for BMI more than 30, 95% CI 1.1–2.5), surgery for urinary incontinence (OR 3.5, 95% CI 2.0–6.1), and anal surgery (OR 1.7, 95% CI 1.1–2.9). No obstetric variable (parity, mode of delivery, birth weight, episiotomy, or third-degree perineal tear) was significant. Prevalence of fecal incontinence was similar for nulliparous, primiparous, secundiparous, and multiparous women (11.3%, 9.0%, 9.0%, and 10.4%, respectively), and among parous women, it was similar for women with spontaneous vaginal, instrumental (at least one), or only cesarean deliveries (9.3%, 10.0%, and 6.6%, respectively).

CONCLUSION: In our population of women in their 50s, fecal incontinence was not associated with either parity or mode of delivery.

(Obstet Gynecol 2007;110:31–8)
LEVEL OF EVIDENCE: III

Fecal incontinence is a serious handicap and its prevalence increases with age.1–3 Because injury to the anal sphincter may occur during vaginal delivery, childbirth is thought to be a predisposing event that may lead to fecal incontinence.4,5 Several months after delivery, fecal incontinence is more frequent in women with instrumental deliveries and less frequent in those with cesarean deliveries than among women with vaginal deliveries.6 It is unclear, however, if cesarean delivery still exerts a protective effect later in life.7,8

Our main purpose was to estimate the prevalence of fecal incontinence among middle-aged women...
Faecal incontinence and mode of first and subsequent delivery: a six-year longitudinal study

Christine MacArthur, a Charis Glazener, b Robert Lancashire, a Peter Herbison, c Don Wilson, c Adrian Grant b

CONCLUSIONS

This study has shown that about half of cases of faecal incontinence that occur soon after a first birth persist to at least five years later. A first birth by forceps delivery incurs about a twofold increase in the risk of having persistent faecal incontinence. Increased risk of a similar order to forceps was found for older maternal age and numbers of births and there was a substantially increased risk for Asian ethnic group, although based on relatively small numbers. We found no evidence that exclusive caesarean section deliveries protect against subsequent faecal incontinence.
Cesarean delivery for the prevention of anal incontinence.

Nelson RL, Furner SE, Westercamp M, Fardougher C.
Department of General Surgery, Northern General Hospital, Herries Road, Sheffield, Yorkshire, UK, S5 7AU.

Abstract

BACKGROUND: Cesarean delivery (CD) is a common form of delivery of a baby, rising in frequency. One reason for its performance is to preserve maternal pelvic floor function, part of which is anal continence.

OBJECTIVE: To assess the ability of CD in comparison to vaginal delivery (VD) to preserve anal continence in a systematic review.

SEARCH STRATEGY: Search terms include “Cesarean section, Cesarean delivery, vaginal delivery, incontinence and randomised”. PubMed, EMBASE and the Cochrane Central Register of Controlled Trials (Central) were searched from their inception through July, 2008.

SELECTION CRITERIA: Both randomised and non-randomised studies that allowed comparisons of post partum anal continence (both fecal and flatus) in women who had had babies delivered by either CD or VD were included.

DATA COLLECTION AND ANALYSIS: Mode of delivery, and when possible mode of all previous deliveries prior to the index pregnancy were extracted, as well as assessment of continence post partum of both faeces and flatus. In Non-RCTs, available adjusted odds ratios were the primary end point sought. Incontinence of flatus is reported as a separate outcome. Summary odds ratios are not presented as no study was analysed as a randomised controlled trial. Numbers needed to treat (NNT) are presented, that is, the number of CDs needed to be performed to prevent a single case of fecal or flatus incontinence, for each individual study. Quality criteria were developed, selecting studies that allowed maternal age adjustment, studies that allowed a sufficient time after the birth of the baby for continence assessment and studies in which mode of delivery of prior pregnancies was known. Subgroup analyses were done selecting studies meeting all quality criteria and in comparisons of elective versus emergency CD, elective CD versus VD and nulliparous women versus those delivered by VD or CD, in each case again, not calculating a summary risk statistic.

MAIN RESULTS: Twentyone reports have been found eligible for inclusion in the review, encompassing 31,698 women having had 6,020 CDs and 25,170 VDs as the index event prior to anal continence assessment. Only one report randomised women (with breech presentation) to CD or VD, but because of extensive crossing over, 52.1%, after randomisation, it was analysed along with the other 20 studies as treated, i.e. as a non-randomised trial. Only one of these reports demonstrated a significant benefit of CD in the preservation of anal continence, a report in which incontinence incidence was extremely high, 39% in CD and 48% in VD, questioning, relative to other reports, the timing and nature of continence assessment. The greater the quality of the report, the closer its Odds ratio approached 1.0. There was no difference in continence preservation in women have emergency versus elective CD.

AUTHORS' CONCLUSION: Without demonstrable benefit, preservation of anal continence should not be used as a criterion for choosing primary CD. The strength of this conclusion would be greatly strengthened if there were studies that randomised women with average risk pregnancies to CD versus VD.

21 studies
N=31698
No benefit from cs
Without demonstrable benefit, preservation of anal continence should not be used as a criterion for choosing elective primary CD.
Original Article

Sexual function, delivery mode history, pelvic floor muscle exercises and incontinence: A cross-sectional study six years post-partum

Nicola DEAN,¹* Don WILSON,¹ Peter HERBISON,² Cathryn GLAZENER,³ Thiri AUNG⁵ and Christine MACARTHUR⁴

Departments of ¹Women’s and Children’s Health, and ²Preventive and Social Medicine, University of Otago, Dunedin, New Zealand, ³Health Services Research Unit, University of Aberdeen, Aberdeen, ⁴Department of Public Health and Epidemiology, University of Birmingham, Birmingham, UK, and ⁵Department of Emergency Medicine, Box Hill Hospital, Melbourne, Victoria, Australia
SEXUAL FUNCTION

The Case for VAGINAL DELIVERY
Table 1 Sexual function outcomes according to mode of delivery history group (mean scores of the rating for the sexual function)

<table>
<thead>
<tr>
<th>Sexual function questions</th>
<th>Mean (standard deviation)</th>
<th>Overall analysis of variance (P-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual function questions</td>
<td>SVD only  ( n = 1419 )</td>
<td>Mixed SVD and CS  ( n = 219 )</td>
</tr>
<tr>
<td>Desire</td>
<td></td>
<td></td>
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<tr>
<td>Do you feel uninterested in sex?</td>
<td>3.00 (0.87)</td>
<td>2.99 (0.98)</td>
</tr>
<tr>
<td>Arousal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you become easily sexually aroused?</td>
<td>3.63 (0.82)</td>
<td>3.57 (0.88)</td>
</tr>
<tr>
<td>Do you feel moisture or lubrication during sexual activity?</td>
<td>4.18 (0.87)</td>
<td>4.12 (0.94)</td>
</tr>
<tr>
<td>Orgasm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are you able to experience orgasm with your partner?</td>
<td>3.83 (1.01)</td>
<td>3.87 (1.05)</td>
</tr>
<tr>
<td>For some women both the vagina and the clitoris are important for sexual pleasure. How important for you at present are the vaginal feelings?</td>
<td>3.75 (1.10)</td>
<td>3.63 (1.25)</td>
</tr>
<tr>
<td>Satisfaction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you find your sexual relationship with your partner satisfactory?</td>
<td>4.12 (0.83)</td>
<td>4.12 (0.90)</td>
</tr>
<tr>
<td>How adequate do you think your vaginal tone is for your own satisfaction?</td>
<td>3.21 (0.99)</td>
<td>3.28 (1.05)</td>
</tr>
<tr>
<td>How adequate do you think your vaginal tone is for your partner’s satisfaction?</td>
<td>3.45 (0.97)</td>
<td>3.52 (0.96)</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you ever have pain with sexual intercourse?</td>
<td>1.81 (0.94)</td>
<td>1.78 (0.95)</td>
</tr>
<tr>
<td>Does urinary incontinence interfere with your sex life?</td>
<td>1.18 (0.53)</td>
<td>1.12 (0.39)</td>
</tr>
</tbody>
</table>
Delivery mode and episiotomy were not associated with intercourse resumption or anorgasmia; dyspareunia was only associated with breast-feeding at 12 weeks (RR = 3.36, 95% CI = 1.77–6.37). Most women resumed painless intercourse by 6 weeks and experienced orgasm by 12 weeks postpartum. Function was described as similar to or improved over that prior to pregnancy.
PISQ 12 @ 6 months

Only those women with 3rd and 4th degree tears had were less likely to be sexually active

Similar PISQ scores for all modes of delivery
How protective then is CS for

Urinary incontinence  somewhat

Faecal Incontinence none

Prolapse a lot

Sexual Dysfunction very little
How Safe is C/S?
Postpartum Maternal Mortality and Cesarean Delivery

Catherine Deneux-Tharaux, MD, MPH, Elodie Carmona, MPH, Marie-Helene Bouvier-Colle, PhD, and Gérard Bréart, MD

OBJECTIVE: A continuous rise in the rate of cesarean delivery has been reported in many countries during the past decades. This trend has prompted the emergence of a controversial debate on the risks and benefits associated with cesarean delivery. Our objective was to provide a valid estimate of the risk of postpartum maternal death directly associated with cesarean as compared with vaginal delivery.

METHODS: A population-based case-control study was designed, with subjects selected from recent nationwide surveys in France. To control for indication bias, maternal deaths due to antenatal morbidities were excluded. For the 5-year study period 1990–2000, 65 cases were included. The control group was selected from the 1998 French National Perinatal Survey and included 10,244 women. Multivariable logistic regression analysis was used to adjust for confounders.

RESULTS: After adjustment for potential confounders, the risk of postpartum death was 3.6 times higher after cesarean than after vaginal delivery (odds ratio 3.64 95% confidence interval 2.15–6.19). Both prepartum and intrapartum cesarean delivery were associated with a significantly increased risk. Cesarean delivery was associated with a significantly increased risk of maternal death from complications of anesthesia, puerperal infection, and venous thromboembolism. The risk of death from postpartum hemorrhage did not differ significantly between vaginal and cesarean deliveries.

CONCLUSION: Cesarean delivery is associated with an increased risk of postpartum maternal death. Knowledge of the causes of death associated with this excess risk informs contemporary discussion about cesarean delivery on request and should inform preventive strategies. (Obstet Gynecol 2006;108:541-8)

LEVEL OF EVIDENCE: II-2

A continuous rise in the rate of cesarean delivery has been reported in many developed countries during the past decades. In France, this rate increased from 10.8% in 1981 to 20.2% in 2003, representing approximately 160,000 women having cesarean delivery each year. A concomitant increase in the prevalence of situations where cesarean delivery is indicated to prevent severe maternal or infant complications is unlikely. It seems likely that the range of indications for cesarean delivery has broadened considerably, and that more cesarean deliveries are performed with few or no medical indications. In France, the recent rise in the global cesarean rate is explained entirely by the rise in prepartum cesarean delivery. Recently, some professionals have gone so far as to

3.3 x greater risk of maternal death after cs
Anaesthesia
Sepsis
VTE
Maternal mortality and severe morbidity associated with low-risk planned cesarean delivery versus planned vaginal delivery at term

Shiliang Liu, Robert M. Liston, K.S. Joseph, Maureen Heaman, Reg Sauve, Michael S. Kramer for the Maternal Health Study Group of the Canadian Perinatal Surveillance System
Abstract

Background: The rate of elective primary cesarean delivery continues to rise, owing in part to the widespread perception that the procedure is of little or no risk to healthy women.

Methods: Using the Canadian Institute for Health Information's Discharge Abstract Database, we carried out a retrospective population-based cohort study of all women in Canada (excluding Quebec and Manitoba) who delivered from April 1991 through March 2005. Healthy women who underwent a primary cesarean delivery for breech presentation constituted a surrogate "planned cesarean group" considered to have undergone low-risk elective cesarean delivery, for comparison with an otherwise similar group of women who had planned to deliver vaginally.

Results: The planned cesarean group comprised 46,766 women vs. 2,292,420 in the planned vaginal delivery group; overall rates of severe morbidity for the entire 14-year period were 27.3 and 9.0, respectively, per 1000 deliveries. The planned cesarean group had increased postpartum risks of cardiac arrest (adjusted odds ratio [OR] 5.1, 95% confidence interval [CI] 4.1–6.3), wound hematoma (OR 5.1, 95% CI 4.6–5.5), hysterectomy (OR 3.2, 95% CI 2.2–4.8), major puerperal infection (OR 3.0, 95% CI 2.7–3.4), anesthetic complications (OR 2.3, 95% CI 2.0–2.6), venous thromboembolism (OR 2.2, 95% CI 1.5–3.2) and hemorrhage requiring hysterectomy (OR 2.1, 95% CI 1.2–3.8), and stayed in hospital longer (adjusted mean difference 1.47 d, 95% CI 1.46–1.49 d) than those in the planned vaginal delivery group, but a lower risk of hemorrhage requiring blood transfusion (OR 0.4, 95% CI 0.2–0.8). Absolute risk increases in severe maternal morbidity rates were low (e.g., for postpartum cardiac arrest, the increase with planned cesarean delivery was 1.6 per 1000 deliveries, 95% CI 1.2–2.1). The difference in the rate of in-hospital maternal death between the 2 groups was nonsignificant (p = 0.87).

Interpretation: Although the absolute difference is small, the risks of severe maternal morbidity associated with planned cesarean delivery are higher than those associated with planned vaginal delivery. These risks should be considered by women contemplating an elective cesarean delivery and by their physicians.

Mortality Rates per 1000

CS 27.3
VD 9.0

Increased
Cardiac arrest
Wound haematoma
Hysterectomy
Major puerperal infection
Anaesthetic complications
VTE
Cesarean section and risk of pelvic organ prolapse: a nested case-control study

Christina Larsson, MD; Karin Källen, PhD; Ellika Andolf, MD, PhD

OBJECTIVE: The objective of the study was to investigate the association between cesarean section and pelvic organ prolapse.

STUDY DESIGN: The Swedish Hospital Discharge Registry was used to identify women with an inpatient diagnosis of pelvic organ prolapse, and the data were linked to the Swedish Medical Birth Registry. Odds ratios (ORs) were estimated using the Mantel-Haenszel procedure and Cox analyses to estimate hazard ratios. The material was stratified for age and parity.

RESULTS: A total of 1.4 million women were investigated. A strong and statistically significant association between cesarean section and pelvic organ prolapse was found. Adjusted OR was 0.18 (0.16-0.20) and overall hazard ratio 0.20 (0.18-0.22).

CONCLUSION: Cesarean section is associated with a lower risk of pelvic organ prolapse than vaginal delivery.

Key words: obstetric labor complications, pelvic floor, uterine prolapse

Women already request a cesarean section to protect the pelvic floor without evidence that it is protective, although in certain cases it may be.\textsuperscript{28} Fortunately, most women will not need surgical intervention to treat the condition. Even nulliparous women do occasionally develop pelvic organ prolapse. Only 1\% of vaginally delivered women in our study developed pelvic organ prolapse before the age of 60 years. Pelvic organ prolapse is a multifactorial disease, which is why optimal design of studies to determine all potential contributory factors is difficult. The benefits and potential risks of a cesarean section\textsuperscript{29,30} with resultant uterine scar\textsuperscript{31} have to be weighed against the risk of developing pelvic organ prolapse. Decisions on the mode of delivery can be complex which is why accurate information should be provided to women requesting a cesarean section.
Informed consent

- Duty to inform patient’s pro’s and con’s
- Supply with current data regarding pelvic floor damage
- Long term effect (if any) explained
- Fetal outcomes
- Risks and benefits of c/s – protection of pelvic floor
- Cost alone should not drive options
- Is “choice” feasible?
CONSENT TO OPERATION/PROCEDURE
TOESTEMMING VIR OPERASIE/PROSEDURU

BOOKED OPERATION/PROCEDURE
BESPREKTE OPERASIE/PROSEDURU


I, the undersigned, hereby consent to the administration of General/Regional/Local Anaesthetic and to the performance of Ek, die ondergetekende, gee hiermee toestemming vir die toedien van Algemene/Streeks-/Lokale Narkose en die uitvoer van

<table>
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<tr>
<th>Lift my bladder. Remere my womb.</th>
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<td>and stiffen my mysoles.</td>
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(operation/procedure) (operasie/proessedur)

The above-mentioned operation/procedure was explained to me by Bogenoeemde operasie/proosedur is aan my verduidelik deur

(name of doctor) (naam van geneesheer)

I hereby authorise Melomed Hospital Holdings to destroy any tissue or part of my / the patient's body which may be removed, in any manner which they deem fit.

Ek magtig hiermee Melomed Beperk om enige weefsel of gedeelte van my / die pasiënt se liggaam wat verwyder mag word, na hul goeddunken te vernietig.

By signing this consent, I indemnify Melomed Hospital Holdings against all liability.

Deur ondertekening van hierdie toestemming, vywaar ek Melomed Hospitals Eendom Beperk van alle aanspreeklikheid.

COMPLETE SECTION A, B OR C
VOLTOOI GEDURELTE A, B OF C

A. Legally Competent Person: Patient
Regasbevoegde Persoon: Pasiënt

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<tr>
<th>Signature</th>
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B. Legally Competent Person: Legal Parent/Guardian/Concerned Doctor
Regasbevoegde Persoon: Wettinge Ouer/Voog/Betrokke Geneesheer

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<td>Verwantskap</td>
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C. Legally Competent Person: Telephonically
Regasbevoegde Persoon: Telefonies

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CAVEATS

- Costs of prolapse surgery
- QOL costs
“Midwives should do deliveries”
- Are there enough of them?
- Can they monitor fetal condition?
- Can they sustain lawsuits?
- Fewer good midwives – more c/s
LETITIA WATSON IN KAAPSTAD
letitia.watson@sake24.com

'n Tekort aan verpleegkundiges met grade en diplomaskan oor die volgende tien jaar 'n stokkie steek voor die regering se planne om verpleërs onder 'n nasionale gesondheidsversieringsstelsel (NGV) sekere dokterspligte te laat oorneem om gesondheidsorg aan die groter bevolking uit te brei.

Volgens die syfers van die Suid-Afrikaanse Verpleegingsraad (Sanc) was daar in 2009 221 817 verpleërs op sy database geregistreer:

- 111 299 wat 'n diploma of graad in verpleegkunde het (hulle word geregistreerde verpleërs genoem);
- 48 078 wat twee jaar se opleiding voltoo het; en
- 62 440 wat een jaar opleiding het.

Sanc se register gee egter nie die werklik beeld van Suid-Afrika weer nie omdat heelwat verpleërs op die register bly hoewel hulle in die buiteland werk.

Navorsing van die Raad op Gees- wesentweskappe (RGN) in 2009 het bevestig dat sommige hul registrasie hier behou as hulle oorsee werk met die oog daarop om eendag terug te keer.

Me. Mariné Erasmus, senior ekonom of die ekonomiese navorsingsmaatskappy Econex, sê be-rekeningeg gronk op die gemiddelde jaarlikse stiging van 4.8% in verpleegkundige getalle in die land oor die afgelope vyf jaar, toon die getal verpleërs wat oor die volgende dekade tot 291 942 teen 2020 toeneem.

"Dit skots 'n baie donker prentjie vir die verskaffing van gehalte-verpleegdiens in die land oor die volgende paar jaar."

- ME. MARINÉ ERASMUS,
  SENIOR EKONOM VAN DIE EKONOMIESE NAVORSINGS-
  MAATSKAPPY ECONEX.

Gevolglik sal daar na verwagting 560 verpleërs vir elke 100 000 mense in daardie jaar wees.

"Dit vergelyk nie sleg met die meeste middelskomselande wat 400 per 100 000 mense het nie en lyk gunstiger as die verwagte tekort aan dokters in die nabye toekoms. Die probleem is egter die tekorte in die poel van beskikbare geregistreerde verpleegkundiges, dié wat grade of diplomask het," sê sy.

In 2000 was die geregistreerde verpleërs 54,4% van die getal aktiewe verpleërs in die land behels, maar dit het elke jaar afgeneem tot 50,2% in 2009. As die huidige afname-tempo volhou, sal dit na raming in 2022 tot 42,6% in 2015 en 37,5% teen 2020 krimp.

Econex-navorsing dui daarop dat tot 50% van die geregistreerde verpleërs oor as 50 is, wat beteken amper die helfte van die huidige groep kan oor tien tot vyftien jaar aftreek.

Uit die poel verpleegkundiges is dit boonop ook meestal geregistreerde verpleërs wat emigrere.

"Dit skots 'n baie donker prentjie vir die verskaffing van gehalte-verpleegdiens in die land oor die volgende paar jaar, veral teen die agtergrond van die regering se plan om die gesondheidsbedryf te hervorm.

"Dit was nie emigrere noch aftrek nie, dra 'n groeiende werklike weens Suid-Afrika se groot getal MIV/vigs- en tuberkulosepatiënte.

Daar is verskeie verpleegopleidinge in die land en universitete leeg ook verpleegkundiges op. 'n Groot bydrae word gelewer deur private hospitale wat verpleegkundige opleiding gee – die verpleërs werk later in die private en die staatsektor. Geregistreerde verpleërs word egter hoogskaaklik deur universiteitse opgelei.

"Private hospitale lei jaarliks so wat 5 000 verpleërs in verskille kategorieë op. Dit lewer 'n gode bydrae tot die poel van gekwalifiseerde verpleegkundiges in die land," sê adv. Kurt Worrall-Clare, uitvoerende hoof van die Suid-Afrikaanse Hospitaalvereniging (Hasa).

Worrall-Clare sê Hasa is egter ook bekommerd oor die algemene tekort aan verpleërs in die land.
The fallacy of a “c/s rate”

- Impossible to establish a number
- No c/s rate fits all situations
- No evidence to arrive at consensus
Problems of litigation

• Unethical lawyer’s touting has arrived
• Adverse outcome implies negligence
• Public perception that science has overcome reproductive problems so perfect outcomes are the norm
• Impossibly raised expectations – if not met, call a lawyer
The problem of predicting the future

- There is no way of predicting sustained pelvic floor damage by vaginal birth (or emergency c/s)
- At present, no markers for the future prolapse, incontinence, sexual dysfunction
- Instrumental delivery, macrosomia, episiotomy
Is protection of the pelvic floor an acceptable indication for elective c/s?

Does the data support this?