COLLEGE POUR LA MERE ET LE NOUVEAU-NE –SECTION MATERNITE

RAPPORT 2008

Vous trouverez en annexe le rapport d'activité 2008 du Collège Mère – Nouveau-Né relatif à l'analyse des taux de césariennes. Une enquête a été réalisée en 2008 par le Collège sur les habitudes des candidats spécialistes et des spécialistes en gynécologie par une interrogation de
15 questions organisées selon une méthodologie structurée.

Un total de 1172 questionnaires ont été envoyés aux praticiens obstétriciens, 54 % des praticiens ont répondu, 86 réponses des candidats spécialistes ont été obtenues avec un taux de réponse également de 50 %.

Vous trouverez copie en annexe des données relatives à chacune des questions posées ainsi que l'analyse des résultats.

Il apparaît que 14 % des gynécologues sont d'accord de réaliser une césarienne élective à la demande des patients. 25 % réalisent des césariennes en cas de prématurité importante, 50 % réalisent des césariennes d'emblée en cas de présentation du siège.

Le taux de réponse n'est pas influencé par le sexe des gynécologues leur expérience, l'origine de l'Université où ils ont été formés, ni par le nombre d'autres Collègues au sein de leur maternité. Néanmoins, pour certaines habitudes de pratiques, les paramètres les plus importants influençant le taux de césariennes est l'âge du gynécologue et leur localisation géographique. En particulier, les gynécologues francophones privilégient davantage la réalisation des césariennes. Les résidents spécialistes des deux régions ne présentent pas ces caractéristiques.

Il apparaît donc de ce questionnaire que la plupart des différences au sein de la Belgique en ce qui concerne le taux de césarienne sont liées à des habitudes locorégionales.

En ce qui concerne les questions 10 à 15, le questionnaire évalue l'habitude des gynécologues en terme de césarienne élective, d'induction de travail ou d'une expectative armée.

L'analyse multifactorielle montre clairement que le sexe, le nombre d'années d'expérience et le nombre de médecins travaillant au sein de la maternité, ont peu d'influence sur les pratiques d'induction de césarienne élective ou d'expectative. Les centres universitaires et périphériques ont des politiques identiques. Les centres MIC réalisent deux fois plus de césariennes que les centres non MIC. Par ailleurs, les gynécologues les plus expérimentés, au-delà de 49 ans, préfèrent induire un travail trois fois plus fréquemment que leurs jeunes collègues. Finalement, les différences régionales sont également importantes puisque les gynécologues francophones sont également plus prompts à réaliser une césarienne en cas de complication obstétricale.

Finalement, le Collège a également élaboré un protocole détaillé de visite sur site de maternités présentant les taux les plus faibles et les plus élevés de césarienne afin d'éclairer l'Autorité sur les raisons qui expliquent probablement les différences d'attitude au sein des maternités belges. Ce protocole ainsi que le guide d'entretien figurent en annexe.

Veuillez croire à l'assurance de mes sentiments les meilleurs.

Professor J.M. FOIDART
Head of Dpt OB/GYN
University of Liege
Liege - Belgium

Caesarean sections

SURVEY ANALYSIS

E. Martens, G. Martens, JM. Foidart, M. Temmerman

College of physicians for Mother and Newborn

2008

Project participants

Project "Caesarean sections in Belgium"
Chair: Marleen Temmerman

Steering committee

Jean-Michel Foidart, Hendrik Cammu, Guy Martens, Evelyne Martens, Anne Clercx

Members of the college of physicians for Mother and Newborn

Maternity section
Chair: Jean-Michel Foidart

Jean-Luc Deville, Roland De Vlieger, Marleen Temmerman, André Van Assche, Johan Van Wiemeersch, Ann Verougstraete

Neonatology section
Chair: Piet Vanhaesebrouck

Sophie Alexander, Dominique Haumont, Jean-Paul Laghendries

Table of Contents

1. Previous work

1.1 Knowledge Center for Health Care (KCE)

The KCE report has the following conclusions:

- The Caesarean sections (C-sections) with complications (gravity scale >1) have increased significantly from 38.9% in 1997 to 50.9% in 2002
- In Belgium there are large geographical differences in numbers of C-sections. These differences are not explained by a spread in maternal and/or perinatal morbidity
- For term pregnancies (without foetal or maternal pathology) the Agpar scores lower than 7 are less favourable after section deliveries than after vaginal deliveries

1.2 Intermutualistic Agency (IMA)

The IMA report concludes and advises:

- The continuous increase in C-sections has consequences for the quality of care and the budget of healthcare
- Starting up experimental programs to reduce the number of C-sections
- Investigate the factors that explain the high percentage of C-sections and explain the large differences between the hospitals in Belgium

1.3 Minimal Clinical Data (MKG)

The MKG report has the following conclusion:

- There are large differences in prevailing practices for low risk deliveries between hospitals. The C-section numbers cannot be explained by the differences in the patient population or by the type of hospital
- A part of the C-sections is performed because of non- medical reasons
- In spite of the complexity of choice between elective section and vaginal delivery with low risk deliveries, the existing evidence is in favour of the vaginal delivery

In light of quality improvement, Aelvoet showed in his study that there was a steady rise a of the national C-section number with low risk deliveries, but this high C-section rate did not result in a better neonatal result.

Even though methodologies differ, the results point in the same direction. The percentage of C-sections in Belgium is constantly rising. There is a strong variability between the different hospitals, the different regions and between medical professionals (physicians).

These variations in CS pertain not only to the whole group of delivered women but also to the group with at low risk for a C-section, even after being corrected for the age of the mother (study MKG, Aelvoet).

2. Methodology

The College of Physicians for Mother and Newborn (hereafter named the College) tries to determine, through an anonymous survey, whether or not Belgian gynaecologists would perform a C-section in particular cases.

The methodology presented by the researchers is twofold: one in which cases are offered, and another with questions on delivery policies.

The survey 'C-sections 2007' consists of 15 questions. These were previously tested by the heads of maternity wards of the four Flemish universities and the gynaecologists who are part of the Board of Directors of the SPE or its Scientific Commission. Questions about cases that resulted in similar answers (and therefore were impossible to differentiate), were kept out and replaced by different and more relevant cases.

When compiling the questions, there was an emphasis on situations where the patient demanded for an elective section, whether or not a section should be done in case of a premature or multiple birth, in case labour was prolonged after being induced, and what position one should take when confronted with a women who had had a previous C-section.

Purposely no opinion was asked about the method of delivery with breech positions, as 90% of these deliveries are performed with C-section.

Part I: Question 1 through 9 (Likert scale)

Nine cases are presented with as primary question: 'Is section justified in these cases?'

To achieve this, we offer a "Likert scale" per case. It was Rensis Likert who published this scale named after him in 1932. This scale is used to provide information that is hard to quantify with an ordinal measuring level. The respondent is asked for his level of agreement with a specific statement through a multiple choice answer device. The answer categories are organised in a hierarchical fashion, from "strongly agree" to "no opinion" to "strongly disagree". Much used scale lengths are 5 and/or 7 points Likert scales, but from experiments based on measuring theory it has been determined that people usually, for most psychometric constructions, do not differentiate between more then 5 different answer categories.

It was decided to use a 5 point Likert scale: strongly agree (1), agree (2), no opinion (3), disagree (4), and strongly disagree (5).

Part II: Question 10 through 15

Questions 10 through 15 concern the obstetrical policy. The survey asked about the position of the gynaecologist in 6 different cases, with the following answer possibilities: elective section, induction with trial of labour (TOL) or wait.

To be able to perform comparative analysis, we asked gynaecologists about their gender, age in years, average number deliveries per year, type of hospital were they work, as well as with how many colleagues they work within their maternity ward.

The survey "C-section 2007" was approved by the working group "C-sections" of the College.

The study was requested by the Ethical Committee of the University Hospital in Ghent.

3. Procedure

The survey was aimed to all Belgian gynaecologists. The questions are originally compiled in Dutch and were also translated to French.

From the database of the Federal Government Services (FOD), a list was compiled with the addresses of all gynaecologists in Belgium, whom according to the RIZIV had performed at least 1 procedure during the year 2005.

The survey forms were sent along with a pre-stamped envelope. When completed, they were sent back to: The SPE in Brussels for the Flemisch surveys, and to Prof. Dr. J-M. Foidart (chairman of the College for Mother and Newborn) in Liege for the French surveys.

The due date to return the surveys was December 1st, 2007.

Separate from the above initiative, the opportunity was seized to present all residents with the same questionnaire. To be able to separate them from the gynaecologists, these surveys were printed on coloured paper.

The forms for the residents were sent later and had a due date of January 1st, 2008.

Finally, on January 15 2008, the survey "C-section 2007" was closed and processing began.

4. Response

A total of 1190 survey forms were sent out of which 18 forms were return to sender. This results in a total of 1172 forms.

When closing the study period, 636 were received, which correspond with a response rate of 54%. Sending a reminder to everyone was not deemed opportune by the College because it

was an anonymous survey. Prof. Louckx, sociologist at the VUB, thought that the response rate was satisfactory. Because the French forms were printed double sided, contrary to the Flemish ones, the backsides were not answered in 10 cases and in 24 cases the general information was not completed.

The residents returned 86 survey forms. The response rate was approximately 50%. The residents were not addressed personally, but a package of surveys was delivered to each maternity. This means that residents who do their training abroad, did not receive a form.

5. Describing statistics

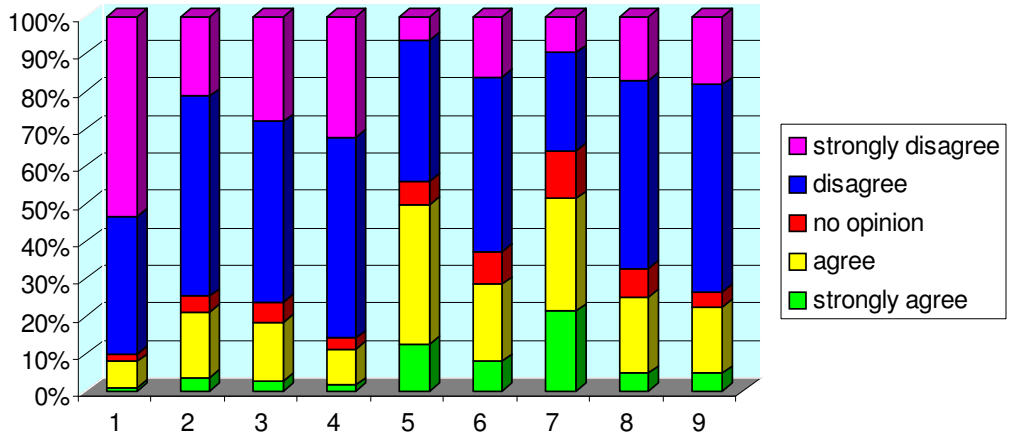
5.1 Questions 1 through 9

In cases 1 through 9 the question is asked if a C-section is justified in these cases. Answers were shown on a 5 points Likert scale.

In figure 1 the percentages of the answers are displayed. These will be analysed question by question in this chapter.

With the description of the answers, (question by question), the survey attemped to include the ideal answer or golden standard. These answers were determined by Prof. Dr. H. Cammu, the man who created the questions. The golden standard was based on “evidence” and “good clinical practice”.

Figure 1: Overview of the answers in % for cases 1 through 9



Question 1:

Primiparous woman, 29 years old, 165cm tall, 40 weeks pregnant, cephalic presentation, estimate birth weight around 3500 grams, uneventful pregnancy, ***requests an elective setion*** *because her mother suffered from prolapse and incontinence. She thinks that's a frightening prospect and wishes to keep an undamaged vagina.*

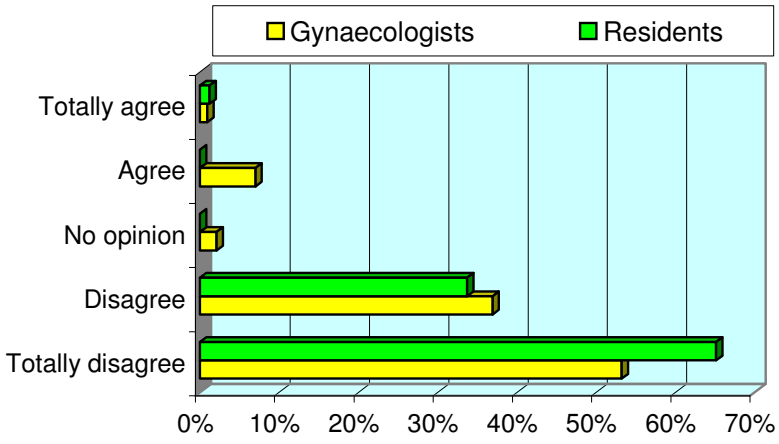
Table 1: Categories of answers: question 1

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	0.9 %	7.0 %	2.1 %	36.9 %	53.2 %
Residents	1.2 %	0.0 %	0.0 %	33.7 %	65.1 %

Of the 632 answers, 7.9% strongly agreed and 7% agreed to perform a C-section, while 2.1% had no opinion here. The large majority, 36.9% disagreed and 53.2% stronly disagreed.

With the residents 33.7% disagreed and 65.1% strongly disagreed, only one person or 1.2% thought a C-section was justified.

The ideal answer is strongly **disagree.**



Question 2:

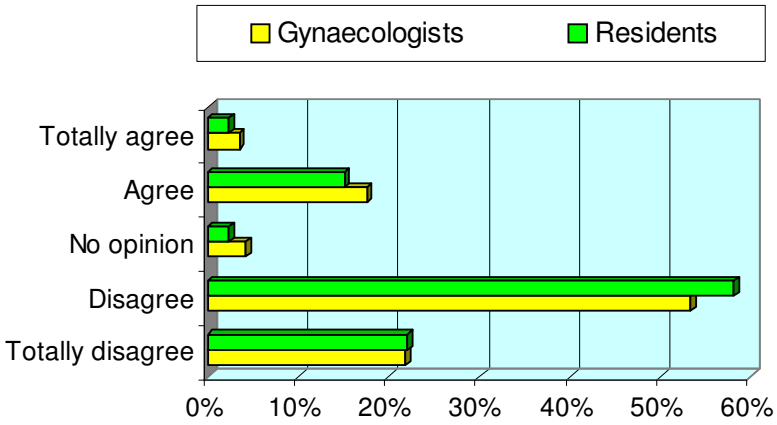
Multiparous woman, 31 years old, 165 cm tall, 40 weeks pregnant, cephalic presentation, estimated birth weight 3500 grams, uneventful pregnancy, ***requests an elective section*** *because her 1st delivery was also an elective section for a complete breech.*

Table 2: Answer categories: question 2

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	3.5 %	17.6 %	4.3 %	53.2 %	21.9 %
Residents	2.3 %	15.1 %	2.3 %	58.1 %	22.1 %

Of the 631 answers, 21% agree or strongly agree to perform a C-section. The answer of the residents is similar (17%). When a C-section was previously performed, even though for a complete breech, they are more inclined to opt for a C-section again. The large majority, 75.1% of gynaecologists and 80.2% of residents disagree with the statement.

The ideal answer for this case is "disagree"



Question 3:

Primiparous woman, 38 years old, 165 cm tall, history of infertility, pregnant after 4th attempt IVF, now 39 weeks pregnant, baby in cephalic presentation, estimated weight 2950 gram, admitted due to premature labour at 30 weeks, ***requests elective section*** *because of fear and because it will probably be her only child.*

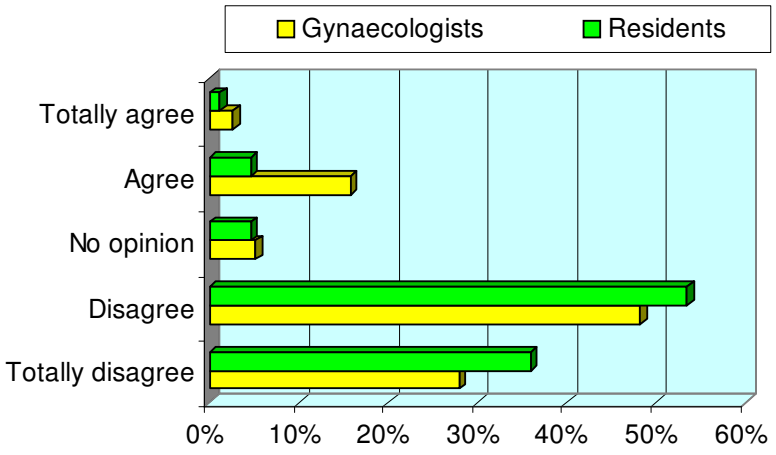
Table 3: Answer categories: question 3

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	2.7 %	15.8 %	5.2 %	48. 3 %	28.0 %
Residents	1.2 %	4.7 %	4.7 %	53.5 %	36.0 %

Of the 632 answers, 18.5% of the gynaecologists prefer a C-section against only 5.9% of the residents. Three out of four gynaecologists do not follow the patient in this case, while for the residents this is nine out of ten.

This case is obviously interpreted differently by the residents. Wouldn't the emotional character of this case be the determining factor here?

The golden standard here is "disagree" and is followed by approximately 50%.



Question 4:

Multiparous woman, first deliver after a difficult vacuum extraction of a baby weighting 4100 grams, with good Apgar and in good health. The lady is very frightened and ***requests a section.*** *The baby of her actual pregnancy has an estimated weight of 3450 grams.*

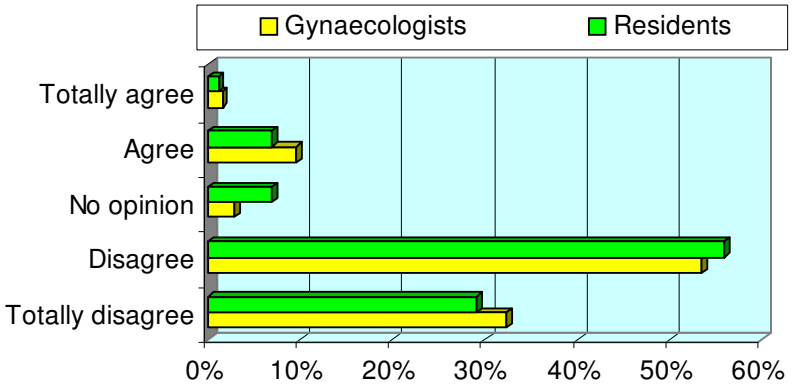
Table 4: Answer categories: question 4

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	1.6 %	9.6 %	3.0 %	53.4 %	32.4 %
Residents	1.2 %	7.0 %	7.0 %	55.8 %	29.1 %

According to Prof. Dr. Cammu this is the most prevaling question in a gynaecologists practice. 11.2% of the gynaecologists and 8.2% of the residents choose C-section. With the gynaecologists as well as the residents 86% at least disagree.

Remarkable is the high number of "no opinion" answers (7%) with the residents.

The ideal answer is "disagree" and is followed by more than 50% of the respondants.



Question 5:

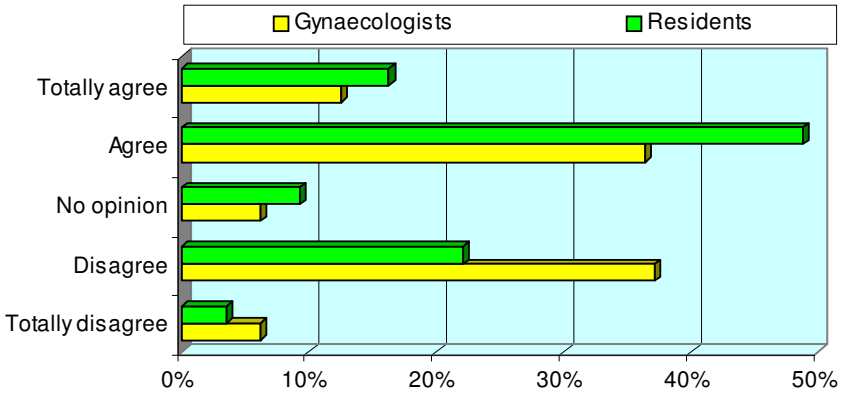
Primiparous woman, 41 1/7 weeks, the head is not engaged. Induced at 41 2/7 weeks at her request, receives Prostin, water broke at 8 a.m., at 3cm dialation. At 6 p.m. she has 4-5 cm dialation but has been having painful contractions for at least 8 hours. The head is engaged, the CTG normal. There is no fever. The lady has a properly functioning epidural. ***Section?***

Table 5: Answer categories: question 5

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	12.5 %	36.4 %	6.2 %	37.1 %	6.2 %
Residents	16.3 %	48.8 %	9.3 %	22.1 %	3.5 %

This question was answered 623 times. Answers seem to be slightly more in favour of C-section, 49.8% to be exact (divided into 12.7% "strongly agree" and 37.1% "agree"), as opposed to 44% against C-section (of which 37.7% "disagree" and 6.3% "strongly disagree"). Whith this question the residents answered 65.1% in favour of C-section and 25.6% against C-section. According to Prof. Dr. Cammu one can choose for two directions in this case: both agree and disagree are justifiable.

The golden standard was "no opinion" and corresponds to the average answer.



Question 6:

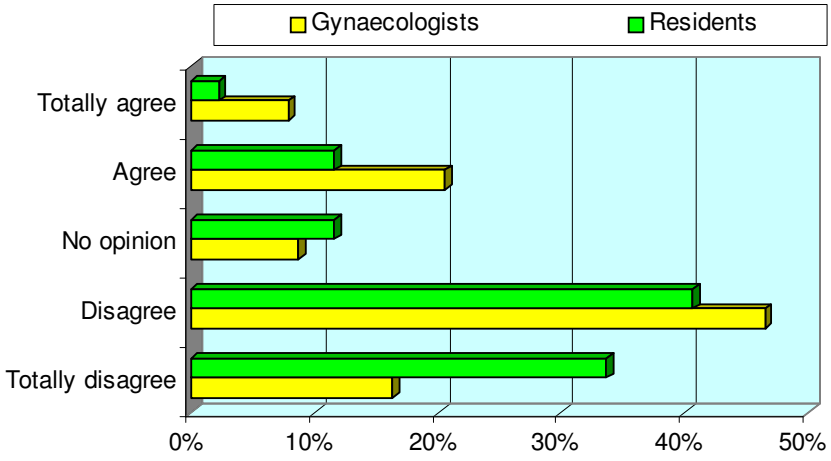
Primiparous woman, 35 years old, ruptured membranes, ***26*** *weeks, normal foetal growth, goes into active labour at a dialation of 2 cm. Foetus in cephalic presentation. Normal CTG, no infections.* ***Section?***

Table 6: Answer categories: question 6

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	7.9 %	20.6 %	8.7 %	46.5 %	16.3 %
Residents	2.3 %	11.6 %	11.6 %	40.7 %	33.7 %

Out of 620 answers, 28.5% of the gynaecologists at least agree to perform a C-section as opposed to 13.9% of the residents. The answer "no opinion" has relatively high scores with both groups. The majority disagrees, 62.8% of the gynaecologists and 74.4% of the residents.

The golden standard for question 6 is "disagree". This is also the opinion of 46.5% and 40.7% of the doctors.



Question 7:

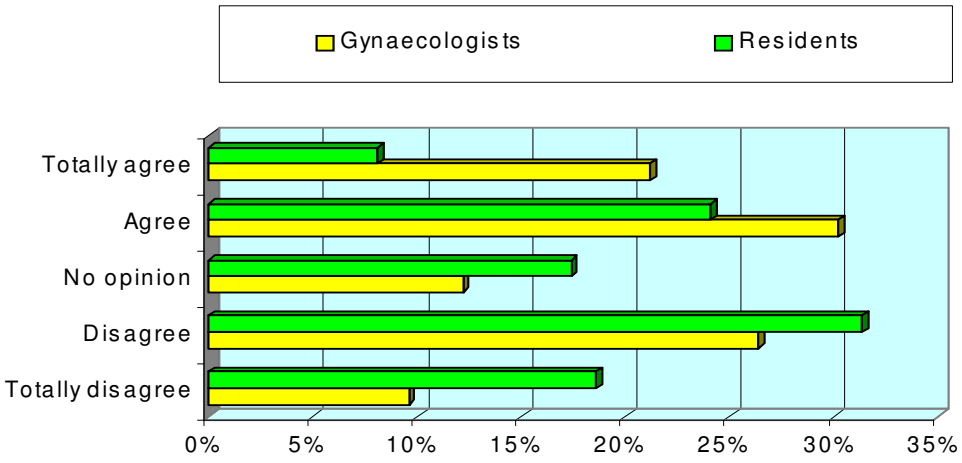
Primipaous woman, 35 years old, ruptured membranes, ***25*** *weken, normal foetal growth, goes into uncontrollable labour with a beginning dialation of 2 cm. Breech presentation. Normal CTG, no foetal distress and no infections.* ***Section?***

Table 7: Answer categories: question 7

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	21.2 %	30.2 %	12.2 %	26.4 %	9.6 %
Residents	8.1 %	24.1 %	17.4 %	31.4 %	18.6 %

With 622 answers, more than half of the gynaecologists (51.4%) and residents (32.2%) at least agree to perform a C-section. The answer "no opinion" scores even higher here than with the previous question (12.2% and 17.4%). More than one third of gynaecologist (36%) and half of the residants (50%) at least disagree.

The golden standard is discribed as "agree" to perform a C-section in this case.



Question 8:

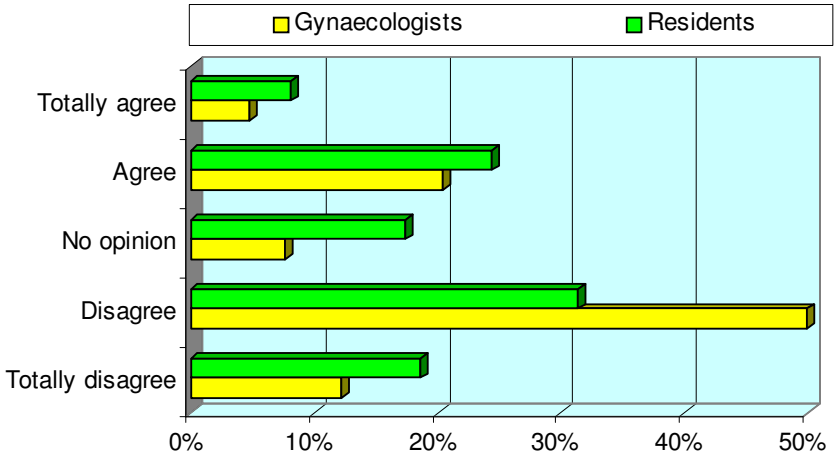
*Multiparous woman, 35 years old, previous easy and uneventful vaginal delivery at 36 weeks.. This time, she ruptured her membranese at **26** weeks and went into active labour, normal foetal growth. Foetus in cephalic presentation. Normal CTG, no infections. The parents request a section. **Section?***

Table 8: Answer categories: question 8

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	4.8 %	20.4 %	7.7 %	49.9 %	12.2 %
Residents	1.2 %	15.3 %	8.2 %	42.4 %	32.9 %

Question 8 was answered by 623 gynaecologists, 25.2% would perform C-sections with extremely premature pregnacies of 26 weeks, while for the residents this number is significantly lower at 16.5%.

The golden standerd for question is 'disagree".



Question 9:

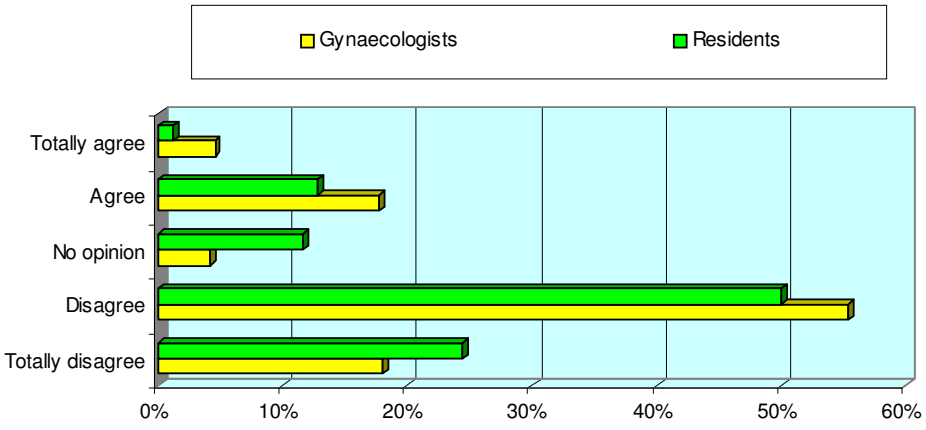
Primiparous woman, 28 years old, 165 cm tall, twin pregnancy (1st head presentation and 2d breech) both babies have normal weight. Spontaneous labour at 35 weeks. ***Section?***

Table 9: Answer categories: question 9

	strongly agree	agree	no opinion	disagree	strongly disagree
Gynaecologists	4.6 %	17.8 %	4.2 %	55.4 %	18.1 %
Residents	1.2 %	12.8 %	11.6 %	50.0 %	24.4 %

Of 625 registered answers, one out of five gynaecologists would consider a C-section. With the residents this is one out of seven. The large majority, 73.5% of the gynaecologists and 74.4% of the residents, have a different opinion.

The golden standard is "disagree" and is confirmed by more than half of the gynaecologists.

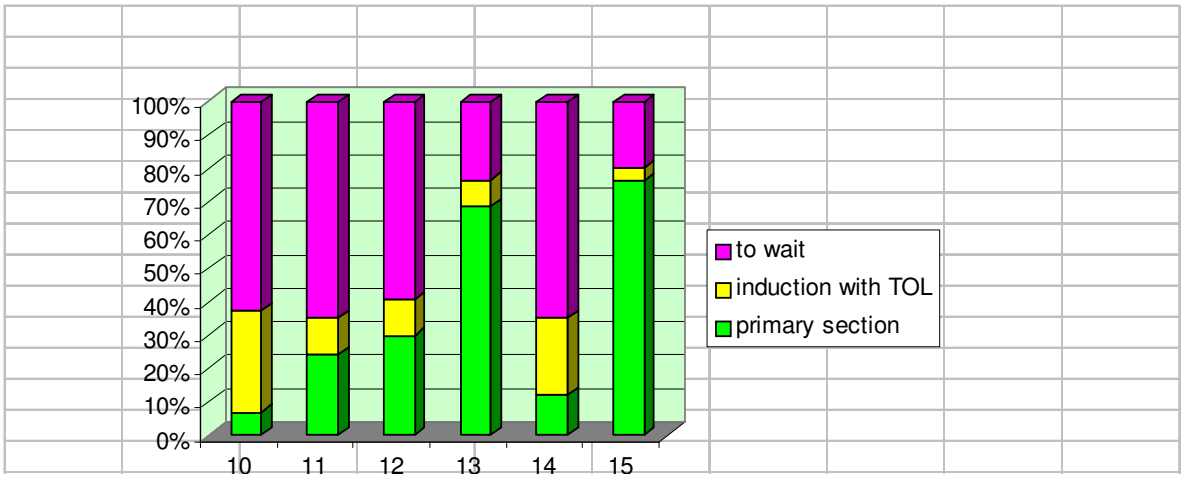


5.2 Questions 10 through 15

With questions 10 through 15, we examined the position of the gynaecologist. There is a choice between “elective section” or “induction with trial of labour” or “to wait”.

Figure 2 demonstrates the percentages of the received answers for questions 10 through 15.

Figure 2: Overview of the answers in % for cases 10 through 15



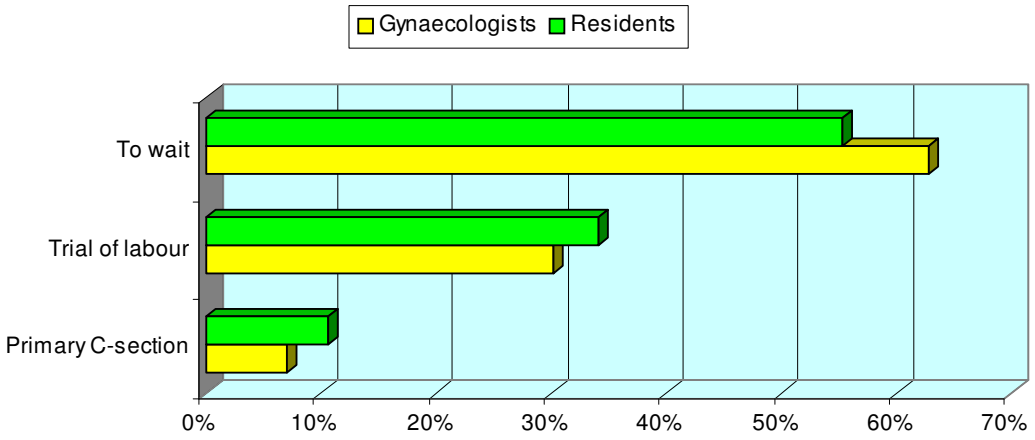
Question 10:

29 year old woman. First delivery with section because of breech presentation. Now, pregnant with baby in cephalic presentation. Estimated weight 3150 grams. Reaches ***41*** *1/7* ***week*** *and requests a vaginal delivery. Elective section, induction with trial labour or wait?*

Table 10: Answer categories: question 10

	primary C-section	trial of labour	to wait
Gynaecologists	7.0 %	30.2 %	62.8 %
Residents	10.6 %	34.1 %	55.3 %

Out of 629 answers, 7% of the respondents would opt for an elective section, while 30.2% propose trial of labour. The large majority here chooses to wait, which is also the prescribed golden standard for this case. One out of ten residents would immediately consider a C-section, one third chooses trial of labour, while just over half opts to wait.



Question 11:

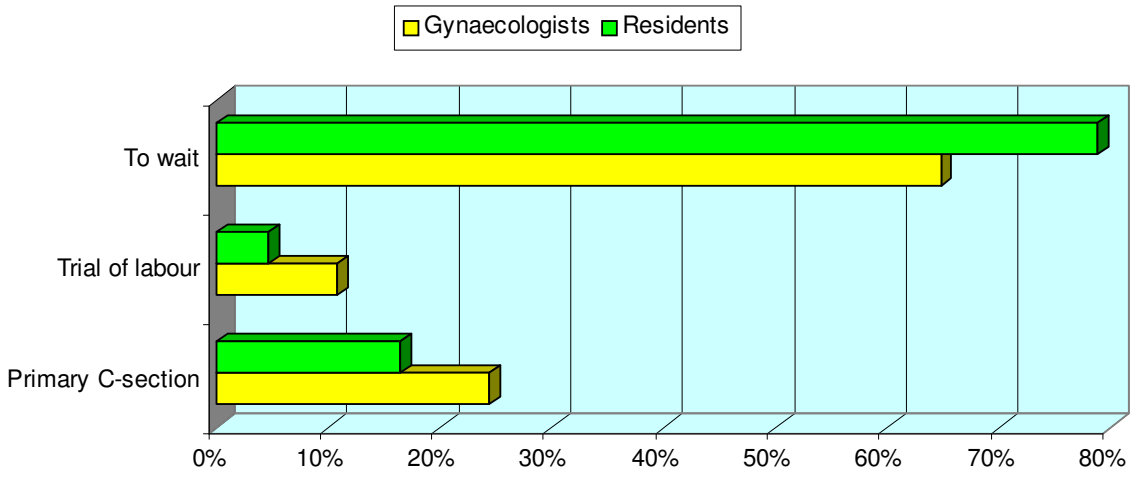
29 year old woman. First delivery with section because of breech presentation. Now pregnant with baby in cephalic presentation. Estimated weight 3150 grams. Reaches the 40 1/7 week and asks for a C-section again. Bishop score 4. Elective section, induction with trial labour or wait?

Table 11: Answer categories: question 11

	primary C-section	trial of labour	to wait
Gynaecologists	24.4 %	10.8 %	64.8 %
Residents	16.5 %	4.7 %	78.8 %

Of 631 registered answers , one out of four gynaecologists would opt for a C-section, one out of ten chooses trial of labour, but the large majority (68.4%) wants to wait. The residents have the same opinion, almost 80% wishes to wait.

The golden standard here is “to wait”.



Question 12:

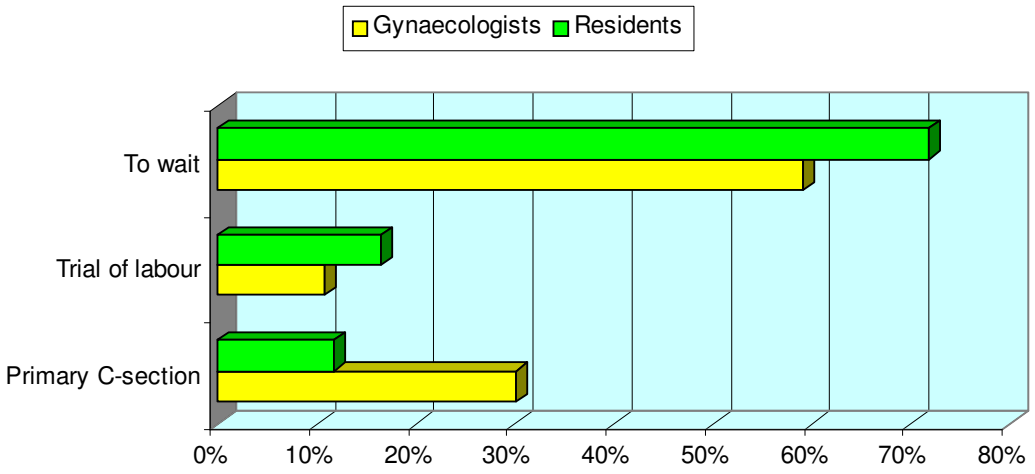
Multiparous woman, 30 years old, 165 cm tall, first pregnancy (40 weeks) was a section because of stagnation at 4 cm dialation. The position of the head at the time of the section was not noted. The baby weighed 3500 g. Now she's at term and the baby's weight is estimated at 3450 g. The baby is in breech position, not engaged and the pelvic seems normal. Elective section, induction with trial of labour or wait?

Table 12: Answer categories: question 12

	primary C-section	trial of labour	to wait
Gynaecologists	30.1 %	10.8 %	59.1 %
Residents	11.8 %	16.5 %	71.8 %

In these 628 answers, there is a huge difference in preference to perform a caesarean section: 30.1% according to the gynaecologists as opposed to 11.8% in the residents. The latter group prefers to wait.

"To wait" was also the proposed golden standard in this case.



Question 13:

Identical story as in question 12 with the only difference that stagnation was reached at 8 cm with a non-engaged head. Electieve section, induction with trial labour or wait?

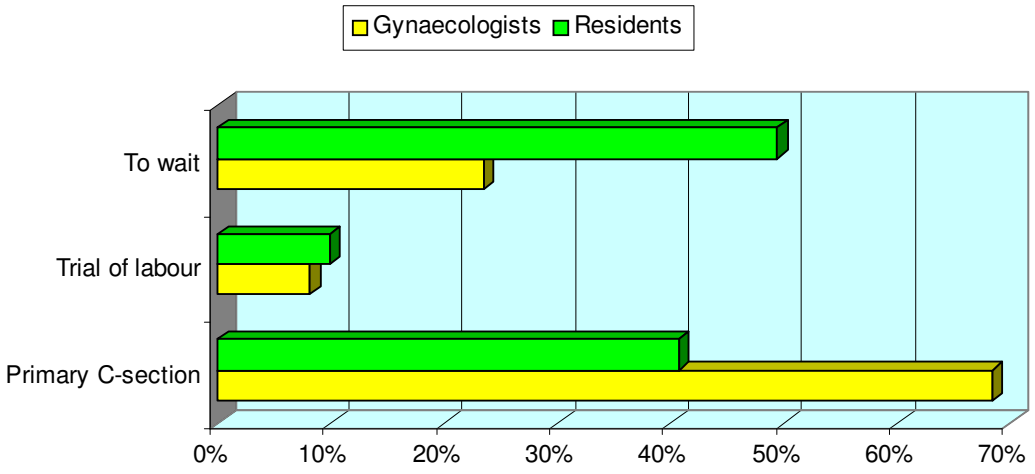
Table 13: Answer categories: question 13

	primary C-section	trial of labour	to wait
Gynaecologists	68.4 %	8.1 %	23.5 %
Residents	40.7 %	9.9 %	49.4 %

There were 618 registered answers. In this case, stagnation at 8 cm dialation with a non-engaged head, the percentage of C-sections almost doubles in comparison with the previous case (question 12).

Now 68.4% chooses C-section, while 23.5% opt to wait. The opinion of the residents is more in balance, 40.7% in favour of C-section and 49.4% in favour of waiting.

The golden standard in this case is to consider elective, primary C-section.



Question 14:

First pregnancy, 37 year old woman, 165 cm tall, twin pregnancy after IVF, 38 weeks, estimated weight 2450 and 2380 g. Both baby's in cephalic presentation. Unripe cervix. Elective section, induction with trial labour or wait?

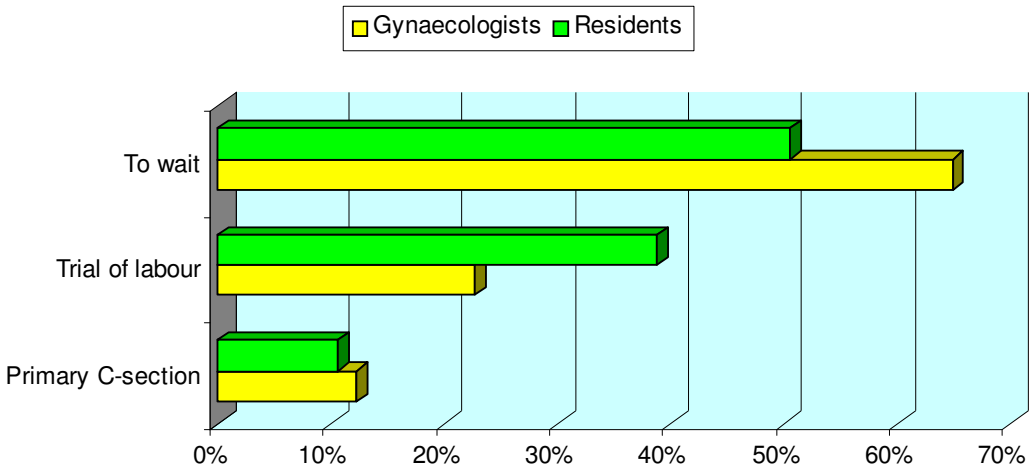
Table 14: Answer categories: question 14

	primary C-section	trial of labour	to wait
Gynaecologists	12.3 %	22.7 %	64.9 %
Residents	10.6 %	38.8 %	50.6 %

With the 633 registered answers of the gynaecologists, the majority (64.9%) opts to wait while 22.7% of the gynaecologists and even 38.8% of the residents would consider an induction with trial of labour.

In this case it is better to induce a trial of labour.

This case is the only one of the fifteen where the "probably most correct answer" deviates from the median answer. Here the majority chooses to wait.



Question 15:

Woman of 16 5cm tall. Third pregnancy. First two ended in elective section each time for a complete breech. Now, head presentation, 39 weeks, in active labour, estimated weight 3100g. Head engaged in cervical entrance. Elective section, induction with trial labour or wait?

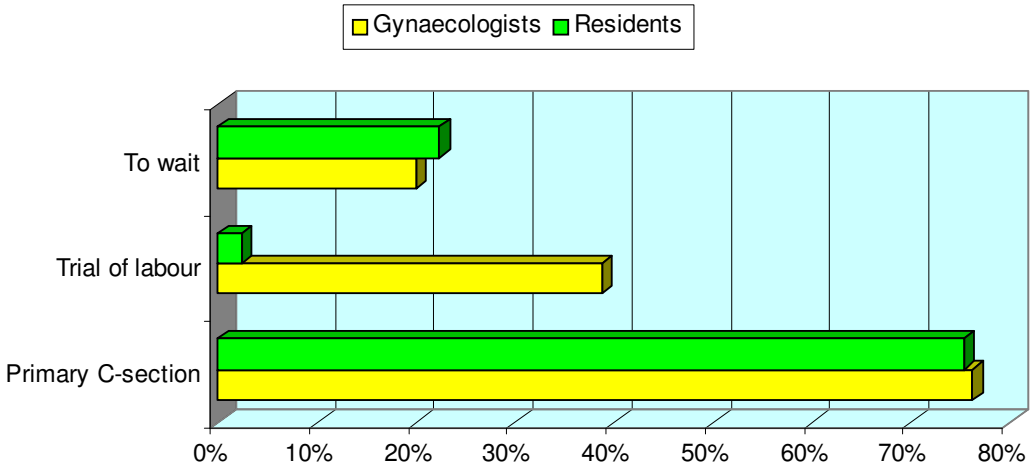
Table 5: Answer categories: question 15

	primary C-section	trial of labour	to wait
Gynaecologists	76.2 %	3.8 %	20.0 %
Residents	75.3 %	2.4 %	22.4 %

Out of 629 answers concerning the case in which the woman already had 2 C-sections in her history, 76.2% of the gynaecologists and 75.3% of the residents opted for a third C-section.

Trial of labour is only preferred by 3%, while one out of five gynaecologists would opt to wait.

The golden standard here is elective C-section.



6. Analysis of the results

6.1 Differences according to gender

When looking at the gender of the respondents, one notes that **57%** is **male** and 38% is female. In 5% of the cases, the gender was a "missing value". Of the 36 respondents who failed to complete the gender, 24 were found in the French language survey which was printed double sided. In 12 cases the gender block was crossed out.

Is this representative for Belgium?
For the Flemish gynaecologists the SPE also holds the gender records. In 2006 there were 62% male and 38% female gynaecologists in Flanders, which corresponds closely with our sample.

In residents, 72.1% is women and **26.7% men**. Only one respondent did not answer the gender question.

The Fisher exact test helps us to determine whether there is a difference between the answers of the male and female gynaecologists. To ensure clarity, the tables only show the p-values.

For questions 1 through 9 (5 points Likert scale) and the questions 10 through 15 (policy), the degree of significance is set at **p<0.01**. When the p-value is smaller than 0.01, the result is printed in red.

Table 16: p-value of the Fisher exact test in gender

Questions	Likert scale 1-5	"Agree" versus "disagee"
	p- value	p- value
1	0.043	0.171
2	0.091	0.022
3	0.433	0.275
4	0.026	0.509
5	0.536	0.547
6	0.115	0.058
7	0.777	0.784
8	0.569	0.492
9	0.891	0.762

Questions	C-section – TOL – to wait
	p- value
10	0.061
11	<0.001
12	0.220
13	0.897
14	<0.001
15	0.421

There are no detectable gender differences in the answers to questions 1 through 9.

When adding answer options “strongly agree” (1) and “agree” (2) and opposing these to “disagree” (4) and “strongly disagree” (5), still no significance can be found (table 16).

With questions 10 through 15, two questions are significant, namely questions 11 and 14.

Table 17: Percentages by significance: question 11

Question 11	Primary C-section	Trial of labour	To wait
Male	26.9 %	14.2 %	58.9 %
Female	19.8 %	5.1 %	75.1 %

Here the male gynaecologist opts for C-section sooner (26.9%), or proposes an induction with trial of labour (14.2%), while the female gynaecologist obviously chooses to wait (75.1%) (table 17).

Table 18: Percentages by significance: question 14

Question 14	Primary C-section	Trial of labour	To wait
Male	14.4 %	16.9 %	68.7 %
Female	8.0 %	32.8 %	59.2 %

When delivering twins, the female gynaecologist chooses much more for an induction with trial of labour, 32.8% as opposed to 16.9% of their male colleagues (table 18).
Both statistical differences were further analysed by performing a χ^2. In table 19, frequencies and percentages of the given answers are showed. Column 4 shows the odds ratios (OR) and the 95% reliability intervals (BI) with the p-values next to it.

Table 19: χ^2 results of the significant questions

Question 11	male (n=360)	female (n=237)	OR [95 % BI]	p-value
Primary section	97 (27 %)	47 (20 %)	1.49 [0.99-2.26]	<0.05
Trial of labour	51 (14 %)	12 (5 %)	3.09 [1.55-6.28]	<0.001
To wait	212 (59 %)	178 (75 %)	0.47 [0.33-0.69]	<0.001

Question 14	male (n=360)	female (n=238)	OR. (95 % BI)	p-value
Primary section	52 (14 %)	19(8 %)	1.95 [1.09-3.52]	<0.05
Trial of labour	61 (17 %)	78(33 %)	0.42 [0.28-0.63]	<0.001
To wait	247 (69 %)	141 (59 %)	1.50 [1.05-2.15]	<0.05

Trial of labour is significantly higher with male gynaecologists in question 11. The trial of labour answer in question 14 is significantly more given by female gynaecologists. These two results compensate each other.

Globally one can say gender is of little influence in caesarean section preferences.

Men and women get the same training and the financial compensation is also equal, therefore the percentages of C-sections should be comparable (Poma, 1999).

6.2 Differences according to type of institution

Three "types" are presented.
The university institution (1), the maternity wards which house residents but are not university institutions (2) (in the tables called "reference centres"), and the peripheral hospitals (3).

The answers given by the gynaecologists referring to the type of hospitals where they work resulted in the following: 16% university institutions, 30% institutions with training facilities and 50% peripheral hospitals. 4% of the respondents didn't complete this item.

Table 20: p-value of the Fisher exact test in types of hospitals

Questions	p-value	Questions	p-value
1	0.726	10	0.003
2	0.976	11	0.571
3	0.933	12	0.014
4	0.754	13	0.137
5	0.164	14	0.072
6	0.752	15	0.365
7	0.048		
8	0.982		
9	0.040		

For questions 1 through 9, no significance is to be detected according to the type of institution to which the gynaecologist belongs.

For questions 10 through 15, questions 10 and 12 ("borderline missed") are significantly different according to type of hospital (table 20).

After closer investigation concerning question 10, we see that the preference for an elective section is similar for gynaecologists connected to university institutions and peripheral hospitals (5%) while the gynaecologists connected to the reference centres perform twice as much sections.

The option to do a trial of labour is most frequently seen in the reference centres at 38%, 31% in the university institutions and 27% in the peripheral hospitals. Waiting scores were highest in the peripheral hospitals (68%), followed by the university institutions (64%) and finally the reference centres (51%).

Table 21: Percentages by significance: question 10

Question 10	Primary C-section	Trial of labour	To wait
University	5.0 %	31.0 %	64.0 %
Reference	11.2 %	37.8 %	51.1 %
Peripheral	5.4 %	27.0 %	67.7 %

Globally one can say that only one out of fifteen questions is interpreted differently. It is peculiar that exactly this specific question has a deviating percentage of C-sections in the reference centres. On the whole, this question scores lowest on performance of C-section.

6.3 Differences by number of performed deliveries

The average number of deliveries performed by the "respondents" to the survey was 144 with a low of 0 deliveries and a high of 1800 deliveries. The respondent with 1800 deliveries works abroad. Doctors with 0 deliveries are for example employed in IVF centres or were retired at the time of the survey.
When eliminating the absolute minimum and maximum number, the lowest number is 10 deliveries and the highest number is 710 deliveries. The average number of deliveries then comes to 155.
For the comparison with the average number we've adjusted the average to 150 deliveries annually.

Table 22: p-value of the Fisher exact test between more or less than 150 performed deliveries

Questions	p-value	Questions	p-value
1	0.479	10	0.591
2	0.870	11	0.462
3	0.002	12	0.001
4	0.782	13	0.434
5	0.886	14	0.023
6	0.000	15	0.208
7	0.036		
8	0.001		
9	0.862		

For questions 1 through 9, questions 3, 6 and 8 are significantly different with regard to more or less deliveries than average.

Table 23: Percentages by significance: question 3

question 3	strongly agree	agree	no opinion	disagree	strongly disagree
<150	2.5 %	18.3 %	5.9 %	49.9 %	23.4 %
>150	2.6 %	8.8 %	3.5 %	50.4 %	34.6 %

The answers of the group <150 deliveries (n=355) are obviously more in favor of C-section , 20.8% as opposed to 11.4% with the group ≥150 deliveries (n=228). The answer option “no answer” scored slightly higher with the group <150 deliveries, namely 5.9% as opposed to 3.5% (table 23).

Table 24: Percentages by significance: question 6

Question 6	strongly agree	agree	no opinion	disagree	strongly disagree
<150	9.3 %	22.9 %	11.0 %	47.3 %	9.3 %
>150	4.8 %	15.4 %	5.7 %	46.7 %	27.3 %

With question 6, on extreme prematurity, one gets a similar answer as with question 3. Here 32.1% of the group <150 chooses C-secton, while this is 20.2% for the group with above average delivery numbers. Once again, the option “no answer” is remarkebly higher with the group <150 deliveries, with 11.0% against 5.7% (table 24).

Table 25: Percentages by significance: question 8

Question 8	strongly agree	agree	no opinion	disagree	strongly disagree
<150	5.1 %	22.9 %	8.8 %	50.7 %	12.5 %
>150	3.5 %	14.9 %	6.6 %	50.0 %	25.0 %

For question 8 the same phenomenon: 28% of the group <150 deliveries chooses C-section as opposed to 18.4% in the other group. Here again several respondents of the <150 group have no opinion, namely 8.8% against 6.6% of the group ≥150 deliveries (table 25).

The trend is clear here. A gynaecologist prefers more C-sections when performing less than 150 deliveries per year. The number of C-sections is inversely proportional with the number of deliveries annually. The option “no opinion” is also clearly elevated here. The possibility that in practise they would join the section group, is real.

For questions 10 through 15, only question 12 is significant. After a previous C-section, due to stagnation at 4 cm, a delivery needs to be done of a child in head presentation, not engaged and with an estimated weight similar to the previous delivery. Almost 40% of the group with ≥150 deliveries chooses elective section, while in the other group this is only one gynaecologist out of four (table 26).

Table 26: Percentages by significance: question 12

Question 12	C-section	trial of labour	to wait
<150	25.0 %	10.8 %	64.2 %
>150	39.2 %	8.8 %	52.0 %

6.4 Differences by age: younger or older than the average age (49y)

The average age of the male gynaecologists was 53, with the youngest at 32 years old and the oldest at 85. The average age of the female gynaecologists was 44, with 31 years old for the youngest and 63 for the oldest. The average age of 49 is the result of the combination of the male and female gynaecologists.

Table 27: p-value of the Fisher exact test between younger or older than the average age (49 years old)

Questions	p-value	Questions	p-value
1	0.365	10	0.019
2	0.235	11	<0.001
3	<0.001	12	0.251
4	0.867	13	0.022
5	0.272	14	<0.001
6	0.078	15	<0.001
7	0.625		
8	0.123		
9	0.187		

Only question 3 (4th IVF attempt, fear of delivery, probably her only child) is significantly different.

Table 28: Percentages by significance: question 3

Question 3	strongly agree	agree	no opinion	disagree	strongly disagree
<49 years old	1.3 %	10.2 %	4.9 %	48.9 %	34.8 %
>49 years old	3.9 %	21.1 %	5.5 %	49.0 %	20.5 %

The group of gynaecologists older then 49 would much sooner perform a C-section, namely 25% as opposed to 11.5% (table 28).

When inquiring about the position and policy, questions 11, 14 and 15 have a strong significance.

Table 29: Percentages by significance: question 11

Question 11	C-section	trial of labour	to wait
<49 years old	25.5 %	5.2 %	69.5 %
>49 years old	23.2 %	15.7 %	61.1 %

The section rate is similar in both groups. Here the difference is the choice whether or not to start induction with trial of labour. The gynaecologists older than 49 opt for trial of labour three times as much as the younger group (table 29).

Table 30: Percentages by significance: question 14

Question 14	C-section	trial of labour	to wait
<49 years old	9.8 %	31.7 %	58.2 %
>49 years old	14.0 %	15.0 %	71.0 %

This question is concerning twins after IVF of a first baring woman with a term of 38 weeks, and unripe cervix. Here 31.7% of the group of gynaecologists <49 years old chooses trial of labour where this number is halved, namely 15.0%, for the other group (table 30).

Table 31: Percentages by significance: question 15

Question 15	C-section	trial of labour	to wait
<49 years old	85.2 %	2.6 %	12.2 %
>49 years old	66.6 %	5.2 %	28.2 %

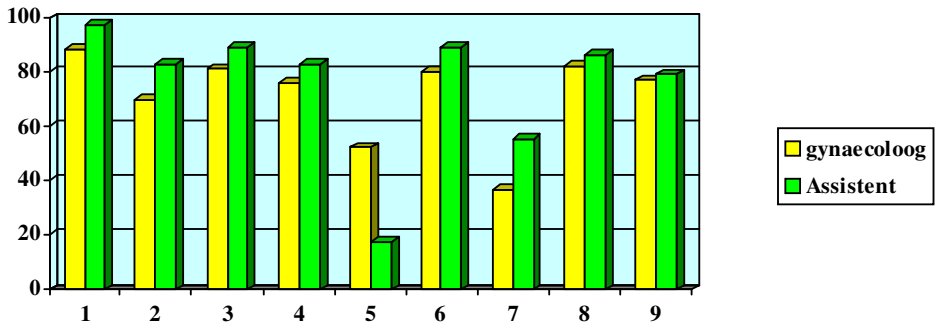
The last two deliveries both ended in C-section. A third C-section is not far off, because 85.2% of the gynaecologists <49 years old resolutely opts for a section. This is 1/5th higher than with the gynaecologists >49 years old (66.6%) (table 31).

Trial of labour is only a treatment option by 24 gynaecologists out of 609.

With the questions on position and policy, the trend is that the gynaecologist >49 opts to wait.

6.5 Differences between gynaecologist and residents in training

Figure 3: Percentage "disagree" on section; gynaecologists versus residents



In figure 3, the option “disagree” with performing a section according to the gynaecologist and the resident are projected alongside each other. In eight out of nine questions, the resident chooses more than the gynaecologist not to perform a C-section.
There is one exception, question 5, where after an induction with at least 8 hours of strong contractions, there is only 2 cm dilatation. Here, 65% of residents opt for C-section, while only 50% of gynaecologists will.

Questions 1, 3, 5, 6, 7, 12, 13 and 14 are all significant (table 32).

There is obviously more unanimity in answering the cases among the 86 residents.

Table 32: p-value of the Fisher exact test between gynaecologists and residents in training

Questions	p-value	Questions	p-value
1	0.01	10	0.232
2	0.442	11	0.05
3	0.000	12	0.000
4	0.394	13	0.000
5	0.01	14	0.01
6	0.01	15	0.849
7	0.01		
8	0.080		
9	0.05		

6.6 Differences between Flemish speaking and French speaking gynaecologists

The region in which the gynaecologist operates was not questioned but completing the Flemish- or French-language survey form, enabled us to examine the completion behaviour.

Significance was examined on the entire Likert scale (5 possibilities) for question 1 through 9.

Questions 4, 6 and 8 are significantly different. The percentage “in favour of caesarean section” is displayed in the table below.

Table 33: Percentages by significance: questions 4, 6 en 8

Question	Flemish speaking	French speaking	p-value
4	21.5 %	6.8 %	<0.001
6	16.3 %	33.8 %	<0.001
8	14.8 %	29.6 %	<0.001

For questions 10 through 15, questions 12, 13 and 14 seem significantly different between the two language regions.

Table 34: Percentages by significance: questions 12, 13 en 14

Question	Flemisch speaking	French speaking	p-value
12	39.3 %	26.0 %	0.003
13	58.4 %	73.0 %	0.001
14	5.8 %	15.1 %	0.001

Once able to demonstrate a relevant difference between the two language regions, the question arises what the situation is with the residents in the two language regions.

Starting from the survey questions which were obviously different with the gynaecologists, the percentage of C-sections of the residents was displayed alongside.

Table 35: Percentages by significance between Flemish speaking and French speaking gynaecologists and residents

	Flemish speaking	Flemish speaking	French speaking	French speaking
Question	Gyn. %	Ass. %	Gyn. %	Ass. %
4	21.5	14.0	6.8	0.0
6	16.3	6.0	33.8	24.3
8	14.8	8.2	29.6	27.0
12	39.3	14.0	26.0	8.3
13	58.4	34.0	73.0	53.1
14	5.8	8.0	15.1	13.9

Questions 4 and 12 had more results in favor of C-section from the Flemish gynaecologists. The Flemish residents feel the same.

Questions 6, 8, 13 and 14 had more results in favor of C-section from the French speaking gynaecologists. The French language residents also agree with their older colleagues in these cases (table 35).

The policy of whether or not to perform C-section is clearly different in the two language regions. This is in keeping with the training, as the residents share the same opinions. This fact enables us to partly explain the difference of the 2% higher section rate in the French language region as opposed to the Flemish language region.

6.7 Individual scores: gynaecologist - resident

6.7.1 Questions 1 through 9 (5 point Likert scale) per gynaecologist

The score of the gynaecologist is now examined individually. The lower the sum of scores per individual gynaecologist, the more sections are performed. The lowest score can be 9 (9x1), the highest can be 45 (9x5). When one answer was missing in the list of 9 cases, the sum of scores of this gynaecologist was not taken into consideration. By doing so, 19 gynaecologists were taken out of the calculation (3%).

Two boundaries were set arbitrarily: a total score below 26 points and a total score above 35 points. In the first group we find the gynaecologists who opt for C-section in the majority of cases. In the group above 35 points we find the gynaecologists who rarely opt for C-section. Ten percent of the respondents would opt for C-section with all 9 cases, while 25% definitely wouldn't (table 36).

Table 36: Frequencies and percentages of the total score per gynaecologist

total score/ per gynaecologist	number (n=617)	percentage (%)
≤ 15	3	0.5
16-20	9	1.5
21-25	48	7.8
26-30	154	25.0
31-35	247	40.0
36-40	130	21.1
41-45	26	4.2

For the residents all questions for each case were completed, therefore the division could be made on the total of 86.

Table 37: Frequencies and percentages for the total score per resident

total score / per resident	number (n=86)	percentage (%)
≤ 15	1	1.2
16-20	0	0.0
21-25	3	3.5
26-30	13	15.1
51-35	30	34.9
36-40	34	39.5
41-45	5	5.8

Using the same norm as for the gynaecologists, approximately 5% of the residents would opt for C-section, while 45% of the residents don't prefer C-section (table 37).

6.7.2 Questions 10 through 15

The minimum total score here is 6 and the maximum score is 18. Six means that every questions was answered with “elective section”, while eightteen means that one opts to wait in all cases.

Table 38: Frequencies and percentages for the total score per gynaecologist

total score/ per gynaecologist	number (n=605)	percentage (%)
≤9	59	9.8
10-12	227	37.5
13-15	235	38.8
16-18	84	13.9

In these calculations 31 gynaecologists were left out once again due to incomplete or missing answers.

Here again 10% of gynaecologists is prepared to perform C-section in almost all presented cases.

Table 39: Frequenties and percentages for the total score per resident

total score / per resident	number (n=83)	percentage (%)
≤9	4	4.8%
10-12	21	25.3%
13-15	39	47.0%
16-18	19	22.9%

Three residents didn’t answer questions 10 through 15. With the other 83, one sees that 5% of the residents would opt for C-section (table 39).

With equal measures taken in the total scores by individual, we can tell that for both the first part (questions1-9) and the second part (questions 10-15) the resident would perform only half the amount of C-sections, if the descibed case would present itself in reality.

7. Univariate Analysis

Univariate analysis was performed , individually for each dependent variable: gender, age, number of deliveries annually in logarithms, type of institution, number of colleagues and region. This for questions 1 through 9. In table 40 we show the significant value reached through the ANOVA test.

Table 40: Significance values after ANOVA test for questions 1 through 9

Questions	Gender	Age	Deliv./year	Type inst.	Colleages	Region
1	0.11	0.44	0.86	0.38	0.27	0.82
2	0.04	0.94	0.83	0.82	0.50	0.78
3	0.35	0.001	0.008	0.73	0.85	0.03
4	0.38	0.78	0.13	0.59	0.86	<0.001
5	0.90	0.004	0.23	0.40	0.08	0.005
6	0.37	0.58	0.18	0.27	0.10	<0.001
7	0.54	0.17	0.08	0.02	0.52	0.31
8	0.17	0.09	0.17	0.44	0.23	<0.001
9	0.73	0.74	018	0.11	0.65	0.25

* p<0.05 ** p<0.01 *** p<0.001

With questions 1 through 9, the significant differences are clearly to be found with the regions.

A multinominal regression was performed for questions 10 through 15, with 3 options: elective section, trial of labour, or to wait; and this for the above described variables.

Table 41: Significance values after multinominal regression for questions 10 through 15

Questions	Gender	Age	Deliv./year	Type inst.	Colleagues	Region
10	0.07	0.26	0.61	0.007	0.50	0.078
11	0.004	0.03	0.78	0.63	0.67	0.890
12	0.16	0.39	0.83	0.008	0.76	<0.001
13	0.33	0.05	0.02	0.02	0.57	<0.001
14	0.15	<0.001	0.74	0.24	0.05	<0.001
15	0.42	<0.001	0.02	0.11	<0.001	0.152

* p<0.05 ** p<0.01 *** p<0.001

For the questions concerning policy the significances are to be found with the regions, but also with the age of the gynaecologist (higher or lower than 49 years old).

8. Factoranalysis

Factor analysis is a multivariat statistical technique where for a large number of observed variables, a smaller number of underlying variables are defined. Factor analysis is used for reduction of data and to gain insight in the structure of a set of data.

A good factor result determines a relatively small number of factors that together explain a large part of the variance which is present in the original variables.

For the execution of the facor analysis we've appealed to Prof. Yves Rosseel, head of data analyses within the psychology department of the University of Ghent.

He was not aware of the content of the questions and only had the raw data at his disposal. He would try to find out, through the results of questions 1 through 9 (5 points Likert scale), whether there was a pattern to be detected within the group of 9 questions.

A 2-factor solution leads to the following factor loads (table 42).

Table 42: Factor load after factor analysis for two factors

Questions	Factor 1	Factor 2
1	0.728	
2	0.631	
3	0.633	
4	0.620	
5	0.177	
6		1.009
7		0.254
8		0.739
9	0.263	

From the first analysis one can conclude that a first factor could be composed of items 1 through 4, while a second factor could be composed of items 6 and 8. Items 5, 7 and 9 have a relatively weak load and are dropped.

In reality, questions 1 through 4 are linked. They are all about the patient's request for a C-section and this for 4 widely differing reasons. Questions 6 through 8 also belong together and deal with the extremely preterm pregnancies. Here, question 7 falls outside the factor analysis, because the supplementary addition of the breech phenomenon with preterm pregnancies takes a completely different attitude in favor of C-section. Questions 5 and 9 were not linked to other cases, which explains the rather weak load of respectively 0.18 and 0.26.

A 3-factor solution leads to the following factor structure (table 43)

Table 43: Factor load after factor analysis for three factors

Questions	Factor 1	Factor 2	Factor 3
1	0.745		
2	0.635		
3	0.636		
4	0.603	-0.117	
5	0.185		
6		1.005	
7			0.728
8		0.732	
9	0.233		0.191

Again a factor analysis based on items 1 through 4. A second factor with items 6 and 8, and a third factor only composed of item 7.

Based on contextual arguments one has to choose between a two- or a three-factor solution.

This way we can compose two 'new' variables by taking the sum of the respective items: 1, 2, 3 and 4 (for the first factor), and items 6 and 8 (for the second factor). These sum scores replace the original 9 items in further analysis.

9. MANOVA test: Wilks test statistic

Starting from the result of the factor analysis, where there is obviously a factor load for questions 1, 2, 3 and 4 , we proceed to process the predictions in a multivariate analysis.

Table 44: Multivariat analysis for (Y= 1, 2, 3, 4)

	p-value	significance
Region	<0.001	***
Age	<0.001	***
Gender	0.009	**
Log. Number of deliveries	0.017	*
Type of institution	0.48	NS
Number of colleagues	0.80	NS

For questions 1 through 4, where the patient requests a C-section without medical grounds, one sees a strong significance on the one side between regions, and on the other side between the age of the gynaecologists. Next in significance are gender with a $p<0.01$ and finally the

logistic account of the number of deliveries for p<0.05. The type of institution, as well as the total number of colleagues are not significant.

When one takes the 9 questions into account, we see that the significance of gender and the number of deliveries disappears and only the regions and the age of the gynaecologists stay significant.

Table 45: Multivaraat analysis for (Y= 1, 2, 3, 4, 5, 6, 7, 8, 9)

	p-value	significance
Region	<0.001	***
Age	<0.001	***
Log. Number of deliveries	0.060	NS
Gender	0.066	NS
Type of institution	0.28	NS
Number of colleagues	0.51	NS

When combining the two factor analyses (2 variables)
Factor 1 = sum of questions 1, 2, 3 and 4
Factor 2 = sum of questions 6 and 8
only the region stays significant (*** p<0.001): the other significances disappear.

With 3 variables, where next to factors 1 and 2 as described above, a third variable is added (question 7), then only the significance of the regions lasts (p<0.001).

10. Conclusion

Questions 1 through 9:

When starting from the calculation of the factor analysis, questions 1, 2, 3 and 4 present as one factor load. Whether it is for fear of pain, anxiety after a C-section for malpresentation in the medical history of the patient, a negative experience with a previous vaginal delivery or emotionally determined, one gynaecologist out of seven, or 14% of the gynaecologists, will perform an elective section in Belgium, when the patient requests it (on demand).

Questions 6 and 8 discuss extreme preterm births (26 weeks) and are considered as a second factor load in the factor analysis. At least one gynaecologist out of four would perform a section. Add the complication of “breech” (question 7), then the percentage of C-sections rises to 51.4% or one out of two gynaecologists.

The univariate analysis shows that for these cases (questions 1 through 9) there are roughly no differences for gender, number of annual deliveries, type of institution where one works and the number of colleages within the ward. Only the age of the gynaecologist and more importantly the region in which one works are deviant for some questions. With the five significant questions, the gynaecologists from the French speaking region score four times as high on performing C-sections. The residents in both regions share the same opinions.

When executing the MANOVA test for questions 1, 2, 3 and 4, where the patient requests a section without medical grounds, one sees a strong significance on the one hand between the regions and on the other hand between the age groups of the gynaecologists. The gender and the number of deliveries annually are also still significant.

When performing the multivariat analysis for questions 1 through 9, only the regions and the age remain significant.

With further analysis with 2 or 3 variables, only the region can maintain its position of significance.

Questions 10 through 15:

These questions ask about the position of the gynaecologist in terms of electively performing a section, induction with trial labour or wait.

Through a multinominal regression it is clear that gender, the number of annual deliveries and the number of colleagues have little influence on the three offered options.

The type of institution is clearly significant with 2 cases (questions 10 and 12). University institutions and peripheral hospitals have similar policies regarding C-section, while the reference centres score twice as much in the willingness to perform a caesarean section.

The age of the gynaecologist is important in the decision of ‘waiting’ or ‘inducing labour’. Older gynaecologists (>49y) prefer to induce labour three times more than their younger collegues. No differences were found between older and younger gynaecologists in the decision making of performing a caesarean section.

Differences between the two regions are striking. French speaking gynaecologists from the south of Belgium are much more willing to perform a caesarean section. Within the regions, the residents follow their regional colleagues completely.

Enquête « étude multifactorielle du taux de césariennes en Belgique par visite de maternités »

Protocole

1. Objectifs

L'augmentation du taux de césariennes est une problématique largement répandue qui n'épargne pas la Belgique.

En particulier, le Ministère de la Santé Publique a présenté, il y a un an, ses conclusions sur la pratique des césariennes dans les maternités belges en soulignant que le taux de césariennes observé dans les cas à faible risque avait augmenté au cours des 10 dernières années et en mettant en évidence des disparités importantes entre les hôpitaux. Le but n'est pas de savoir ou de montrer quelle est la meilleure façon de fonctionner mais bien de mieux comprendre pourquoi il existe une si grande différence entre les hôpitaux en ce qui concerne les taux de césariennes.
La problématique des césariennes et de leur augmentation est complexe. C'est donc une approche multifactorielle qui doit être envisagée si nous voulons cerner les causes de cette tendance avérée. Cette étude vise à obtenir des réponses aux questions suivantes :

- Y a-t-il des raisons autres que médicales qui sont en lien avec la pratique des césariennes ?
- Un dispositif est-il mis en place pour diminuer la pratique des césariennes ? Le(s)quel(s) ?
- Ce qui est mis en place à l'étranger, qui a été validé, fonctionne-il ici ? Serait-il possible de l'envisager ?

2. Échantillonnage et modalités de contact

Le Collège Mère–Nouveau-Né organise la visite 12 maternités: 6 maternités francophones et néerlandophones à taux élevé (3+3), et faible (3+3) de césariennes. Pour rappel :

(1) un groupe caractérisé par un "Taux de Césariennes (TC) élevé", composé des hôpitaux dont l'écart se situe au-delà de la zone de non-interprétation[1] et dont la borne inférieure de l'intervalle de confiance (après correction de Bonferroni) ≥ 0;
(2) un groupe caractérisé par un "TC faible", composé des hôpitaux dont l'écart se situe en-deçà de la zone de non-interprétation et dont la borne supérieure de l'intervalle de confiance (après correction de Bonferroni) ≤ 0; et,
(3) dans les autres cas, un groupe caractérisé par un "TC moyen".

Cette visite prévoit des entretiens avec les membres de l'équipe périnatale travaillant sur le site (la Direction médicale, le chef de service obstétrical, la chef du nursing du bloc

[1] La zone de non-interprétation étant ainsi définie:"Pour déterminer les limites de cette zone de non-interprétation, nous avons commencé par calculer l'écart d'un hôpital par rapport au taux national et à la tendance nationale en appliquant la formule suivante: écart (en %) = (RR -1) x 100. La limite inférieure a ensuite été définie pour le TC comme un écart de - 25 % - ce qui correspond au RR de 0,75 - et sa limite supérieure (équivalent statistique de la limite inférieure) comme un écart de + 35%.".

d'accouchement, 2 gynécologues et 1 sage femme) en vue d'obtenir le relevé précis des stratégies institutionnelles, des attitudes obstétricales et de l'équipe soignante ainsi que du fonctionnement de l'équipe périnatale multidisciplinaire, de même que tout élément permettant d'identifier, en fonction de critères établis par Chaillet (BIRTH 34:1 March 2007), les raisons qui pourraient expliquer les différences par rapport à la norme.

L'ensemble des maternités a été contactée et à quelques rares exceptions près, elles ont marqué leur accord pour accueillir l'équipe de recherche. **Le choix des maternités visitées** est réalisé par échantillonnage aléatoire au départ des données disponibles au Ministère de la Santé publique sur ces deux types de maternités.
Précisons que pour contribuer à dissiper le doute selon lequel il pourrait s'agir d'une étude réalisée par l'administration ou un ministère, les maternités recevront une lettre de soutien concernant cette étude signée par les présidents des deux sociétés scientifiques.

Un contact entre le chef de service et l'équipe de chercheurs sera pris pour organiser les modalités de l'enquête ; en effet, il lui est demandé de fournir au chercheur une liste des praticiens de son service. Cette liste devrait s'assortir des caractéristiques suivantes pour chaque praticiens (gynécologue et sage-femme) :

- Âge
- Sexe
- Nombre moyen d'accouchement par an
- Statut du praticien dans l'hôpital : obstétricien indépendant, faisant partie intégrante du staff de l'hôpital ou encore cumulant les deux positions
- Ancienneté dans la profession en nombre d'années

Et si possible :

- Occupation d'un autre emploi de la personne ou poste dans une autre maternité
- Lieu où elle a fait ses études

D'une part, ces informations permettront d'avoir une vision globale du service (type d'hôpital, âge moyen du personnel du service obstétrique (30-50 ans ou >50 ans), nombre d'hommes et de femmes dans le service, etc.). D'autre part, elles permettront aux chercheurs de réaliser des échantillonnages qui favoriseront un maximum de diversité parmi les personnes interviewées :

- Des membres du personnel médical représentatif des jeunes mais aussi des plus âgés
- aussi bien des hommes que des femmes
- des obstétriciens pratiquant peu d'accouchements sur un an ainsi que ceux en pratiquant plus
- si l'organigramme le permet : des gynécologues indépendants et des gynécologues qui font partie intégrante du staff hospitalier

Trois échantillonnages seront préparés dont deux de « réserve »; il sera demandé au chef de service de fixer une journée durant laquelle le chercheur pourra réaliser tous les entretiens et de demander ainsi la participation aux personnes du premier échantillon proposé. Si certaines de ces personnes ne sont pas disponibles, il pourra alors compenser ces refus ou impossibilités au moyen du deuxième échantillon et il en sera de même si nécessaire avec le troisième.

Afin de faciliter les contacts avec les maternités, il a paru judicieux que le Collège n'intervienne pas « de front » et que l'enquête soit conduite sous la supervision de deux experts extérieurs au Collège dont le rôle sera, dans chaque région linguistique, de :

- garantir l'anonymisation des données et le travail en aveugle ;
- superviser les équipes qui rencontreront le nursing, les obstétriciens, les chefs de service et tout autre acteur de terrain jugé utile ;
- respecter la rigueur méthodologique : les équipes sur le terrain sont spécialisées dans la réalisation des enquêtes, pas en obstétrique !
- veiller à ce que les données collectées soient représentatives du site.

Chaque entretien durera entre 30 minutes et 60 minutes, ce qui semble la durée maximale acceptable par les praticiens en hôpital.

3. Technique d'entretien

Nous avons opté pour une **méthode d'entretien semi directive ;** elle est une des méthodes qualitatives les plus fréquemment utilisées. Ce type d'entretien permet de centrer le discours des personnes interrogées autour de différents thèmes définis au préalable par les enquêteurs et consignés dans un guide d'entretien. Il s'oppose en cela à l'entretien non directif qui se déroule très librement à partir d'une question. C'est l'interaction interviewer/interviewé qui va décider du déroulement de l'entretien. En fonction de ce qui sera exprimé ou pas, l'interviewer pourra introduire de nouveaux thèmes ou utiliser des relances. Les relances prennent pour objet le dire antérieur de l'interviewé. Elles ne commandent pas le discours de l'interviewé comme les questions directes, elles ne s'opposent pas aux arguments énoncés, mais elles coulent dans ce discours.

En effet, l'entretien est une rencontre et comporte toujours un certain nombre d'inconnues inhérentes au fait qu'il s'agit d'un processus interlocutoire, et non pas simplement d'un prélèvement d'information.

Concrètement, un guide d'entretien est élaboré notamment en fonction des objectifs de l'enquête, des hypothèses de l'enquêteur et des résultats dans la littérature, des conseils des experts sur les questions les plus acceptables et les plus significatives. Ce guide comporte donc 3 à 5 questions principales et pour chacune d'elles une série de sous-thèmes ou questions de relance.

L'entretien à proprement parler commence comme un entretien non directif : une consigne de départ très large portant sur un sujet large avec une attitude non directive. - A la fin de cette phase d'entretien non directif, on fait une reformulation de synthèse et on introduit les sous thèmes du guide non abordés spontanément par l'interviewé. Lorsque l'on introduit un nouveau thème de façon directive, on repasse ensuite à une technique de non directivité. - A la fin de cette phase non directive, on procède à une reformulation de synthèse du sous thème. - Si l'interviewé repart sur ce sous thème l'entretien non directif continue, si l'interviewé acquiesce à cette reformulation, on introduit un nouveau sous-thème. Ainsi de suite jusqu'à avoir abordé les thèmes définis préalablement dans le guide.

Références sur la technique d'entretiens semi-directifs

- Alain Blanchet, *L'entretien dans les Sciences sociales*, Dunod, 1995

- Roger Mucchielli, *L'entretien de face à face dans la relation d'aide*, Paris, Ed. ESF, 1998, p. 53

4. Modalités d'analyse des entretiens.

Il nous semble pertinent d'opter pour une technique d'*analyse thématique*. Les thèmes récurrents et pertinents sont repris pour l'analyse. Ce codage thématique permet de réduire de grandes quantités de données en un petit nombre d'unités analytiques et lorsque plusieurs chercheurs sont engagés dans l'étude, il établit les bases d'une analyse inter-site en révélant des thèmes communs et des processus de causalité.
Pour être le plus efficient possible et ne pas élever inutilement les coûts attribués à l'encodage, il a été décidé que 10 entretiens seront retranscrits, 5 par équipe. Une première analyse des codes sera réalisée et une réunion entre les deux équipes aura lieu en vue d'obtenir des catégories d'analyse communes.
Le reste de l'analyse se ferait via l'écoute des entretiens restant en fonction des catégories définies préalablement. Evidemment, si un thème revient, il sera toujours possible de noter des thèmes supplémentaires en sus de ces catégories.
Suite à ce découpage en codes, le logiciel N'VIVO nous aidera à terminer l'analyse des entretiens, notamment de trier les encodages thématiques en fonction du type de maternité (bas, moyen et haut taux de césariennes).

<u>Références sur la technique d'analyse thématique</u>

- Miles, M.B., & Huberman, A.M. (2003). Analyse des données qualitatives. Bruxelles : De Boeck.
- Mucchielli, A. (sous la direction de) (1996). Dictionnaire des méthodes qualitatives en sciences humaines et sociales. Paris : Armand Colin.

Enquête « étude multifactorielle du taux de césariennes en Belgique par visite de maternités »

Guide d'entretien

Remarques préliminaires pour l'enquêteur
Ce questionnaire concerne aussi bien le chef de service, les gynécologues que les sages femmes. Il est simplement à noter que certaines formulations semblent mieux correspondre à un entretien avec une sage-femme ; ces formulations sont indiquées en italique bleu
Les questions principales (ou thèmes) sont indiquées en gras. Les sous-thèmes et questions listés en dessous et en retrait ne doivent être posés que dans un deuxième temps si ce point n'a pas été abordé spontanément par la personne interviewée.

Introduction : mise en place du cadre
Avant de débuter vraiment l'entretien, je vous remercie d'avoir accepté de participer à cette étude.

Je m'appelle Stéphanie Bednarek, je suis psychologue de formation et je travaille à l'APES-ULg. Ce service est composé d'une équipe multidisciplinaire spécialisée dans des recherches concernant la santé publique et la prévention.

Pour rappel, elle a pour but d'approcher et de comprendre au mieux les facteurs qui expliquent des prises de décisions différentes au niveau de la pratique des césariennes lorsqu'il s'agit au départ de « grossesses normales », « à bas risques » (primipare ou multipare d'au moins 37 semaines de grossesse, pas de présentation en siège de l'unique fœtus porté, qui n'est pas mort né et qui pèse entre 3 et 4 Kg et n'est porteur d'aucune malformation congénitale).

Je vais vous poser quelques grandes questions et l'entretien se déroulera comme une discussion. Il n'y a ni bonne ni mauvaise réponse. Le but n'est pas d'évaluer mais de mieux comprendre.
Notre équipe de recherche s'engage à respecter la confidentialité de cet entretien. Vos réponses seront anonymisées dès le dépouillement des informations. Je vous demande simplement l'autorisation d'enregistrer cet entretien pour pouvoir retranscrire et analyser les résultats de la manière la plus complète et fiable possible. Il nous semble important de préciser qu'aucune donnée individuelle ne sera transmise, ni utilisée par quelque administration publique que ce soit.
Vous aurez bien entendu un feedback des résultats à la fin cette étude ; ce feedback ne sera pas nominatif, mais offrira une vue globale de la situation aussi bien du côté francophone que néerlandophone.

1. **Il y a 20 ans le taux de césarienne était d'environ 9%, maintenant il se situe, à de nombreux endroits, à environ 20%. Plus concrètement, selon vous, pourquoi, à l'heure actuelle décide-t-on plus systématiquement/fréquemment de pratiquer une césarienne ?**

a. Demandes de césariennes spontanées
    i. Que faites-vous face à une demande de césarienne spontanée de la femme lorsqu'il n'y a pas d'indication médicale ?
    ii. Une plus grande attention à la communication aussi bien avec l'équipe qu'avec la patiente pourrait-elle influencer la prise de décision de faire une césarienne ? (Exemples : créer avec la patiente une relation de confiance, lui donner des explications précises sur les modes d'accouchement, les risques, etc.)
    iii. Y a-t-il une pratique d'informations à la patiente qui passe par une autre voie que celle de la consultation avec le gynécologue ?
    iv. Si vous ou une proche deviez accoucher, en l'absence de problème médical, vers quel type d'accouchement vous orienteriez-vous?
b. Raisons d'organisation
    i. Arrive-t-il parfois, régulièrement, souvent que l'on pratique une induction de travail pour des raisons d'organisation (de l'hôpital, de l'obstétricien, de la patiente) ?
        - Comment le score de Bishop/le pelvic score intervien(nen)t-il(s) dans vos prises de décisions ?
    ii. Pensez-vous que les pratiques d'induction peuvent influencer le taux de césariennes ?
c. Difficultés médicales ou médico-légales

2. **Comment se prennent les décisions de pratiquer une césarienne au sein de votre maternité ?**

    i. Durant les heures normales de travail, mais aussi durant les nuits et les week-ends ?
        - Y a-t-il un gynécologue sur place *en continu (jours et heures ouvrables <u>et</u> non ouvrables) ?*
    ii. Comment vous positionnez-vous dans ce processus de décision ? A quels moments et dans quelle mesure intervenez-vous dans cette décision ?
    iii. Attention, veiller à faire émerger les éléments suivants
        a. La disponibilité d'un anesthésiste
        b. L'utilisation des monitorings
        c. La proximité du bloc césarienne et de la salle d'accouchement
        d. La prise de décision en équipe
        e. Le respect de la position d'un leader
        f. L'organisation du rôle de garde
        g. Les scénarii en cas d'urgence.

3. **Question de transition :**
Quel est le taux de césariennes de votre hôpital ? D'après vous, où se situe ce taux par rapport aux autres hôpitaux ?

4. **Y a –t-il une politique au sein de l'hôpital concernant les césariennes? Si oui, quelle est-elle ?**
Avez-vous, vous ou vos collègues, des suggestions pour améliorer, si faire se peut, la pratique institutionnelle et individuelle des accouchements ?

   Que pensez-vous de la mise en application par les gynécologues des stratégies pour améliorer le fonctionnement du service ?

   Grâce à ces questions, rechercher quelles stratégies sont acceptables parmi les suivantes.
   a. Publication vers l'extérieur des taux de césariennes par hôpital
   b. Information régulière sur l'évolution des taux de césariennes en interne à l'hôpital
   c. Politique institutionnelle de surveillance et de traitement actif du travail (active management of labor), avec optimalisation des contractions par ocytocine, analgésie obstétricale, rupture précoce des membranes…
   d. Définition d'une norme de département (trial of labour, doulas, gestion de la douleur, etc.)
   e. Evitement de l'admission qui présente de faux signes de travail
   f. Référence à des guidelines (lesquelles ?)
   g. Cycle : discussion à priori des indications de césariennes programmable, peer review (ou second avis) au moment de la prise de décision et ensuite organisation de colloque obstétrico-pédiatrique

5. **En conclusion, quelle est votre position personnelle : Pensez-vous qu'il est important de contenir les taux de césariennes ?**