

MINISTERE DU TRAVAIL,
DE L'EMPLOI ET DE LA SANTE

Direction Générale de la Santé

Direction de la Recherche, des Etudes, de
l'Evaluation et des Statistiques

INSTITUT NATIONAL
DE LA SANTE ET DE LA
RECHERCHE MEDICALE

Unité de Recherche Epidémiologique
en Santé périnatale et Santé des
Femmes et des Enfants

FRENCH NATIONAL PERINATAL SURVEY 2010

SITUATION IN 2010 AND TRENDS SINCE 2003

Béatrice BLONDEL, Morgane KERMARREC
Epidemiological Research Unit on Perinatal Health and Women
and Children's Health, INSERM - U. 953, Paris

Mai 2011

Content

Abstract

List of tables

Tables

Publications from the national perinatal surveys

How to cite data from the French National Perinatal Surveys

Trends from 1995 to 2010:

B Blondel, N Lelong, M Kermarrec, F Goffinet. Trends in perinatal health in France between 1995 and 2010. Results from the National Perinatal Surveys. J Gynecol Obstet Gynec Biol Reprod. 2012 Jun;41(4):e1-e15.

<http://www.em-consulte.com/article/724373/alertePM>

Data from this report:

B. Blondel, M. Kermarrec. French national perinatal survey 2010. INSERM, Paris, 2011

<http://www.europeristat.com>.

For more information about this survey, contact Béatrice Blondel at beatrice.blondel@inserm.fr

Introduction

The national perinatal surveys were designed to provide reliable perinatal data, regularly updated, at the national level to monitor health trends, guide health policies, and assess the implementation of medical guidelines and preventive measures. They are based on information about health status and perinatal care collected from a representative sample of births. Three surveys were previously conducted and reported, in 1995, 1998 and 2003 [1].

Objectives of the national perinatal surveys

- to measure the principal indicators of health status, medical practices during pregnancy and delivery, and perinatal risk factors and follow their changes from the preceding surveys;
- to provide a reference national sample to enable comparisons with data from other sources;
- to contribute information to guide decision making in public health and assess health actions in the perinatal domain, based on specific questions in each survey.

The objective of this report is to describe the perinatal situation in 2010 in metropolitan France (overseas territories excluded) and put it into perspective by looking at results from the previous survey for the principal indicators of health, medical practices and risk levels. Results from 1995 to 2010 are published elsewhere [1].

Data and methods

Protocol

Every survey followed the same protocol. Data collection covered all births during one week, that is, all live born or stillborn children, in public and private maternity units – as well as children born outside these institutions and subsequently transferred to one – at a gestational age of at least 22 weeks or weighing at least 500 g at birth. In 2010, maternity units with more than 2000 annual deliveries were allowed to spread data collection out over two weeks, by collecting data for all births every other day. The design includes almost all births as only 0.4% of births take place out of hospital [2].

The information came from three sources: an interview with each woman in the postpartum ward, to obtain information about her social and demographic characteristics and prenatal care, data from the medical files about complications of pregnancy, delivery and the child's health status at birth, and another form completed by the head of the maternity unit describing its principal institutional characteristics.

Several institutions were involved in these surveys. The general organisation and development of the questionnaire were provided by the French national institute for health and medical research (Institut national de la santé et de la recherche médicale) (INSERM U953), and the Ministry of Health (the Directorate-General of Health (Direction générale de la santé) and the Direction of Research, Studies, Evaluation and Statistics (Direction de la recherche, des études, de l'évaluation et des statistiques, DREES)), as well as a scientific committee including representatives from district level Maternal and Child Health Services (physicians or midwives), directorates responsible for health care services and social services in the Ministry of Health, the French Institute for Public Health Surveillance (Institut de Veille Sanitaire), the regional and district social and health service bureaus (DRASS and DDASS), the regional health observatories (ORS), professional societies (anaesthetists, midwives, obstetricians and paediatricians), and consumer groups. INSERM coordinated the study at the national level, and the Maternal and Child Health Services of most districts at the district level. INSERM produced the report that served as the basis of this document [3]; in addition, for the 2010 survey, DREES drafted a report describing the characteristics and practices of the maternity units [4].

The National Council on Statistical Information (Comité du Label) and the French Commission on Information Technology and Liberties (CNIL) approved these surveys.

Data collected

An earlier publication described the sample studied in 2003 [1]. In principle, the surveys take place in the autumn to ensure some stability in the comparisons. Nonetheless, the last survey, which was initially planned for October 2009, was postponed until the spring of 2010 because of the A(H1N1) influenza pandemic. Data collection took place from 15 to 21 March 2010, or, in the largest units, from 15 to 28 March. The sample included 14 681 women and 14 903 children, including 440 twins and 3 triplets. The corresponding figures in 2003 were 14 482 women and 14 737 children. Of 535 maternity units operating in metropolitan France in 2010, one refused to participate, and another had no delivery during the study period. Interviews for 602 women either did not take place or were incomplete because the mother refused to participate or was discharged before the investigator saw her, or because of a language problem or the mother's or child's health status. In the absence of an interview, the minimal information was obtained from the first health certificate, required by law to be filed within eight days after the birth.

Main results

Data quality was good in 2010, and the estimates of the perinatal indicators and their trends since 2003 are therefore reliable. The number of births was very close to that

expected, the participation rate of women was very high and women's characteristics were similar to those found in the annual statistics derived from birth certificates.

The major changes since the 2003 National Perinatal Survey are the following:

- The socio-demographic situation of women has improved with increases in their educational level, labour force participation and the proportion with highly qualified jobs. For example, the percentage of women with education beyond high school increased from 42.6 to 51.9%. Tobacco consumption during the third trimester of pregnancy decreased. Other aspects are less favourable. The postponement of childbearing to a higher maternal age is troubling, as the risks of both mothers and newborns increase significantly with maternal age. The social situation of households appears to have deteriorated in the most vulnerable groups, and the unemployment rate of the husband (or partner) increased from 5.9% to 8.5%. The increase in women's body mass index is also a concern.
- The roles of the various types of health-care providers have changed, with greater involvement of GPs and especially midwives: 39% of women had at least one visit with a midwife in the maternity unit in 2010, compared with 27% in 2003. Prenatal admission rates remained stable. Attendance at antenatal classes became more frequent: 73% of nulliparae in 2010 and 67% in 2003 took these classes. Trends are less positive for two other indicators of prenatal care. The percentage of women who reported their pregnancy to the Social Security Agency after the first trimester of pregnancy increased slightly for the first time since 1995, and this may reflect a delay in the start of prenatal care for some women. In addition, a continued increase in the number of visits and ultrasound screenings raises questions about the risk of the over-medicalisation of pregnancy.
- Deliveries now take place more often in large maternity units of more than 2000 births per year (from 35.8% in 2003 to 48.0% in 2010); this is the consequence of facility closures and mergers. This change has not resulted in an increase in travel time for women to the maternity ward where they give birth.
- The rate of caesarean sections (21.0%) did not increase significantly between the two surveys, either in the overall population or in sub-groups of women. This finding suggests a general attitude to limit the number of caesarean births. The management of pain by epidural or spinal anaesthesia became more common: 75% of women in 2003 and 82% in 2010.
- The preterm delivery rate for singleton live births has increased steadily since 1995 (4.5%); from 2003 (5.0%) to 2010 (5.5%), this rate increased slightly, but not significantly. The proportion of low-birth-weight newborns did not increase between 2003 (5.5%) and 2010 (5.1%), although it had previously increased significantly (4.6% in 1995). The differences in trends of preterm delivery and low birth weight between 2003 and 2010 may be due to chance or reflect the effects of higher BMI or decreased tobacco

consumption.

Public health measures and medical guidelines have been implemented, although unevenly:

- The results are positive for many preventive measures and medical guidelines. The decrease in amniocentesis, especially among women aged 38 and older (from 61% to 42%) shows that recent recommendations to avoid systematic amniocentesis in this age group are being followed. The appropriateness of the initial level of maternity care to the newborns' risks appears to have improved, as neonatal transfers to another hospital continue to decline. The episiotomy rate has fallen by about one third among primiparae since 1998 (from 71% to 44%); this finding suggests that increased awareness that evidence does not show benefits to routine episiotomy and the recent recommendations by the French College of Obstetricians and Gynaecologists (CNGOF) to avoid the routine use of this procedure have had a strong impact on practice. Another important change concerns the prevention of postpartum hemorrhage: prophylactic oxytocin was administered in 83% of women, which shows that the CNGOF guidelines issued in 2004 are now widely applied. The rate of breastfeeding before discharge, which had increased significantly between 1998 and 2003, has continued to rise, due at least in part to a series of measures in favour of breastfeeding since the late 90s at the national, regional and local levels.
- Some recommendations or policies have been poorly implemented. Vaccination coverage against influenza A (H1N1) among pregnant women was 29%, although official recommendations called for vaccination of all women after the first trimester of pregnancy. The early interview with a midwife (also called the fourth-month interview), which is designed to provide medical and preventive information, is still not generally available: only 21% of the women reported having had one. The explanation for this gap is probably due to the extent of the work of training and organization necessary between the different teams before this new preventive measure can be implemented.

Conclusion

This survey yielded valuable data for monitoring health and answering important questions. Repeating this survey using the same methodology thus remains important. It has two major advantages over other French national data sources. On the one hand, the women's interview provides data on many maternal social and demographic characteristics, the content of prenatal care, and preventive health behaviour. On the other hand, the introduction of new questions in each survey can provide specific information about current health problems, the implementation of public health measures and compliance with professional recommendations about medical practice.

National perinatal surveys conducted fairly close to one another serve as an important monitoring tool in the French national perinatal information system, as there is no medical birth registry. This database is also essential for answering the questions that physicians and public health policymakers ask.

References

1. Blondel B, Lelong N, Kermarrec M, Goffinet F. Trends in perinatal health in France from 1995 to 2010. Results from the French National Perinatal Surveys. *J Gynecol Obstet Biol Reprod (Paris)*. 2012 Jun;41(4):e1-e15. <http://www.ncbi.nlm.nih.gov/pubmed/22613118>
2. Blondel B, Drewniak N, Pilkington H, Zeitlin J. Out-of-hospital births and the supply of maternity units in France. *Health Place* 2011;17:1170-1173.
3. Blondel B, Kermarrec M. Enquête nationale périnatale 2010. Les naissances en 2010 et leur évolution depuis 2003. Paris: INSERM, 2011. <http://www.sante.gouv.fr>.
4. Vilain A. Les maternités en 2010 et leur évolution depuis 2003. Paris : DREES, 2011. <http://www.sante.gouv.fr>.

TABLES

Table 1. Sample size

Table 2. Completeness of data collection

Table 3. Comparison of parental social and demographic characteristics in the national perinatal survey and the vital statistics

Table 4. Demographic characteristics

Table 5. Educational level and geographic origin

Table 6. Women's employment

Table 7. Husband or partner's employment

Table 8. Living conditions

Table 9. Birth control and fertility treatments

Table 10. Psychological context

Table 11. Weight and height

Table 12. Tobacco use

Table 13. Cannabis and alcohol consumption during pregnancy

Table 14. Prenatal visits

Table 15. Health care providers for prenatal care

Table 16. Support during pregnancy, antenatal classes, home visits, medical booklet

Table 17. Information and prevention, folic acid, infectious diseases

Table 18. Prenatal screening

Table 19. Screening and diagnosis of Down syndrome

Table 20. A(H1N1) influenza: prevention and medical care

Table 21. Obstetric history

Table 22. Prenatal admissions and medical complications

Table 23. Place of birth

Table 24. Labour and delivery

Table 25. Analgesia and anaesthesia

Table 26. Trends in CS rates according to parity and obstetric history

Table 27. Onset of labour and mode of delivery by gestational age and birth weight

Table 28. Newborn characteristics

Table 29. Apgar scores and resuscitation

Table 30. Hospitalisation of newborns

Table 31. Mother's hospitalisation

Table 32. Gestational age and birthweight

Table 33. Birth weight according to gestational age

Table 34. Preterm birth and low birth weight by vital status and number of newborns

Table 35. Medical care for mothers of singletons and twins

Table 36. Newborn characteristics of singletons and twins

Table 37. Medical care and pregnancy outcome by household income

Table 38. Social characteristics and prenatal care by existence of financial hardship

Table 1. Sample size

Size	Metropolitan France	French Guyana, Guadeloupe, Réunion	France⁽¹⁾
Districts	96	3	99
Maternity units⁽²⁾	535 ⁽³⁾	17	552
Women	14 681	506	15 187
Births	14 903	515	15 418
singletons	14 460	497	14 957
twins	440	18	458
triplets	3	0	3
Babies	14 903	515	15 418
live births	14 761	503	15 264
stillbirths	84	9	93
termination of pregnancy	53	3	56
vital status unknown	5	0	5

(1) Metropolitan France, Guadeloupe, French Guyana and Réunion

(2) One maternity refused to participate; its 51 births were filed with the first health certificate (required by law to be filed in within eight days after birth)

(3) No birth during data collection period in one metropolitan France maternity

Table 2. Completeness of data collection (sample of women or births, metropolitan France (overseas territories excluded))

	n	%
Provided data for:		
maternal age ⁽¹⁾		
yes	14401	98.1
no	280	1.9
	(14 681)	
educational level ⁽¹⁾		
yes	14060	95.8
no	621	4.2
	(14 681)	
mode of delivery ⁽²⁾		
yes	147289	98.8
no	174	1.2
	(14 903)	
gestational age ⁽²⁾		
yes	14832	99.5
no	71	0.5
	(14 903)	
birthweight ⁽²⁾		
yes	14844	99.6
no	59	0.4
	(14 903)	
Incomplete questionnaire ^(2,3,4)	615	4.1
	(14 903)	
Reasons ⁽¹⁾		
women refused to participate	202	33.6
women were discharged before the investigator could see her	106	17.6
language problem	93	15.5
child's health status	22	3.7
mother's health status	23	3.8
anonymous delivery	12	2.0
other ⁽³⁾	124	20.6
unknown	20	3.3
	(602)	

(1) among women

(2) among births

(3) including the maternity which refused to participate (N=51)

(4) missing data for: country of birth, language spoken in childhood, household income, social security coverage, visits or examinations not done for financial reasons, housing accommodation, relatives' support, birth control, reaction to pregnancy discovery, psychological condition

Table 3. Comparison of parental social and demographic characteristics in the national perinatal survey and the vital statistics (sample of births in metropolitan France)

	French National Perinatal Survey 2010 %	Civil Registration - INSEE 2009 %
Age (years)^(1,2)		
< 20	1.4	1.7
20-24	12.2	13.3
25-29	30.3	31.9
30-34	33.2	31.6
35-39	18.0	17.2
≥ 40	5.0	4.2
	(14 535)	(793 420)
Parity⁽²⁾		
0	43.5	57.6
1	34.5	28.1
2	14.2	10.0
3	5.0	2.8
≥4	2.8	1.5
	(14 582)	(793 420)
Legitimate birth⁽²⁾	47.3	47.1
	(14 137)	(793 420)
Nationality⁽²⁾		
French	86.7	86.9
Other European (including Turkish)	3.3	3.2
North African	4.8	4.8
Other African	2.8	3.0
Other	2.5	2.2
	(14 123)	(793 420)
Husband's occupation^(2,3)		
farmer	1.7	1.2
artisan, small business owner	6.4	6.0
professional, manager, engineer	21.1	13.5
intermediate	15.9	19.6
employee	16.7	11.5
skilled, unskilled manual worker	26.2	29.1
no occupation ⁽⁴⁾	11.9	19.1
	(6 692)	(374 018)
Twin birth⁽⁵⁾	1.5	1.6
	(14 681)	(776 524)

(1) year of delivery minus year of birth

(2) live births only

(3) legitimate births

(4) including men without occupation, unemployed men at the time of child's birth and non-responders

(5) among women

Table 4. Demographic characteristics (*sample of women in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Age (years)					
< 20	2.7	<0.001	358	2.5	2.2 – 2.8
20-24	16.1		2 086	14.5	13.9 – 15.1
25-29	33.3		4 777	33.2	32.4 – 34.0
30-34	32.1		4 419	30.7	29.9 – 31.5
35-39	13.2		2 255	15.7	15.1 – 16.3
≥ 40	2.7		506	3.5	3.2 -3.8
Mean	(14 228) 29.3 ± 5.2		(14 401)	29.7 ± 5.3	
Number of pregnancies					
0	34.3	<0.001	4 771	32.9	32.1 – 33.7
1	32.4		4 568	31.5	30.7 – 32.3
2	18.1		2 674	18.4	17.8 – 19.0
3	7.9		1 311	9.0	8.5 – 9.5
≥ 4	7.3		1 191	8.2	7.8 – 8.7
	(14 400)			(14 515)	
Parity					
0	43.3	NS	6 396	43.4	42.6 – 44.2
1	35.0		5 004	34.5	33.7 – 35.3
2	14.2		2 069	14.3	13.7 – 14.9
3	4.7		730	5.0	4.6 – 5.4
≥ 4	2.9		400	2.8	2.5 – 3.1
	(14 258)			(14 499)	
Married					
yes	53.7	<0.001	6 610	47.3	46.4 – 48.1
no	46.4		7 369	52.7	51.8 – 53.5
	(13 962)		(13 979)		
Cohabiting with partner					
yes	92.7	NS	12 985	92.8	92.4 – 93.2
no	7.3		1 015	7.3	6.9 – 7.7
	(13 980)		(14 000)		
Residence at the end of pregnancy					
own accommodation	-		12 920	93.0	92.6 – 93.4
parents, family, friends' home	-		805	5.8	5.4 – 6.2
social care home	-		72	0.5	0.4 – 0.6
hotel	-		41	0.3	0.2 – 0.4
other	-		55	0.4	0.3 – 0.5
			(13 893)		

Table 5. Educational level and geographic origin (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Educational level					
primary or none	3.7	< 0.001	340	2.4	2.1 - 2.7
secondary: general	9.8		1 161	8.3	7.8 - 8.8
secondary: technical	22.4		2 473	17.6	17.0 - 18.2
high school: general	9.8		1 318	9.4	8.9 - 9.9
high school: technical	11.7		1 478	10.5	10.0 - 11.0
beyond high school	42.6		7 290	51.9	51.1 - 52.7
<i>some college</i>	-			2 996	21.3
<i>college</i>	-		2 487	17.7	17.1 - 18.3
<i>post-graduate</i>	-		1 807	12.9	12.3 - 13.5
	(13 736)		(14 060)		
Nationality					
French	88.2	NS	12 237	86.7	86.1 - 87.3
Other European	2.7		470	3.3	3.0 - 3.6
North African	4.4		675	4.8	4.4 - 5.2
Other African	2.5		395	2.8	2.5 - 3.1
Other	2.3		346	2.5	2.2 - 2.8
	(14 010)		(14 123)		
Maternal country of birth					
France	-		11 478	81.8	81.2 - 82.4
Other European countries	-		551	3.9	3.6 - 4.2
North Africa	-		988	7.0	6.6 - 7.4
Other African countries	-		550	3.9	3.6 - 4.2
Other countries	-		471	3.4	3.1 - 3.7
			(14 038)		
Year of arrival in France⁽¹⁾					
2009/2010	-		222	9.3	8.1 - 9.8
2005/2008	-		644	27.0	25.2 - 27.7
2000/2004	-		672	28.2	26.4 - 28.9
before 2000	-		847	35.5	33.6 - 36.3
			(2 385)		
Language spoken in childhood					
French	-		10 373	74.9	74.2 - 75.6
other language	-		1 885	13.6	13.0 - 14.2
French and other language	-		1 589	11.5	11.0 - 12.0
			(13 847)		

(1) If birth abroad and residence in France

Table 6. Women's employment – part 1 (sample of women in metropolitan France)

	2003		n	2010		
	%	p		%	95% CI	
Occupational status at the end of pregnancy						
employed	61.0	<0.001	9 507	67.2	66.4 – 68.0	
housewife	23.9		1 869	13.2	12.6 – 13.8	
student	1.7		344	2.4	2.1 – 2.7	
unemployed	10.0		1 711	12.1	11.6 – 12.6	
other status	3.5		718	5.1	4.7 – 5.5	
	(13 757)		(14 149)			
Unemployment duration⁽¹⁾						
< 3 months	-		193	13.1	11.4 – 13.7	
3 – 5	-		325	22.1	20.0 – 22.8	
6 – 11	-		528	35.9	33.4 – 36.7	
12 – 23	-		279	19.0	17.0 – 19.6	
24 and more	-		147	10.0	8.5 – 10.5	
			(1 472)			
Mother's occupation⁽²⁾						
farmer	0.8	< 0.001	55	0.6	0.4 – 0.7	
artisan. small business owner	2.4		170	1.8	1.5 – 2.0	
professional, manager, engineer	12.3		1 562	16.5	15.8 – 17.1	
intermediate	22.5		2 613	27.6	26.7 – 28.3	
office worker and lower level civil service	34.5		2 714	28.6	27.7 – 29.3	
shop assistant	13.3		902	9.5	8.9 – 10.0	
service worker	7.1		811	8.6	8.0 – 9.1	
skilled manual worker	3.6		283	3.0	2.7 – 3.3	
unskilled manual worker	3.2		339	3.6	3.2 – 3.9	
no occupation ⁽³⁾	0.3		33	0.4	0.3 – 0.5	
	(8 352)		(9 482)			
Worked during pregnancy⁽⁴⁾						
yes	66.0		< 0.001	9 898	70.2	69.4 – 71.0
no	34.0			4 205	29.8	29.0 – 30.6
	(13 904)	(14 103)				

(1) duration unknown for 14% of unemployed women

(2) for employed women at the end of pregnancy

(3) declared status : no occupation

(4) regardless of occupational status at the end of pregnancy

Table 6bis. Women's employment – part 2 (*sample of women in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Employment status⁽¹⁾					
permanent contract or civil servant	-		7 257	77.4	76.6 – 78.1
fixed-term contract	-		1 275	13.6	12.9 – 14.2
self-employed	-		482	5.1	4.7 – 5.5
trainee, apprentice	-		83	0.9	0.7 – 1.1
others	-		283	3.0	2.7 – 3.3
			(9 380)		
Working time⁽¹⁾					
full-time	-		7 632	79.4	78.6 – 80.1
part-time	-		1 978	20.6	19.8 – 21.3
			(9 610)		
Gestational age at last day worked^(1,2)					
1-14 weeks	8.5	<0.001	826	9.2	8.6 – 9.7
15-28	42.1		3 613	40.0	39.0 – 40.8
29-32	25.5		2 648	29.3	28.4 – 30.1
> 32	23.9		1 943	21.5	20.7 – 22.2
	(8 922)		(9 030)		

(1) for women employed during pregnancy

(2) cessation of work without resumption before delivery, for any reason (medical reasons, prenatal leave, employment contract termination, vacations, personal reasons...); gestational age estimated from the last date worked in 2010 and in weeks of gestation in 2003

Table 7. Husband or partner's employment⁽¹⁾ (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Occupational status at the time of the interview					
employed	90.4	<0.001	11 858	88.1	87.6 – 88.6
student	0.7		158	1.2	1.0 – 1.4
unemployed	5.9		1 139	8.5	8.0 – 9.0
other	3.0		312	2.3	2.0 – 2.5
	(13 406)		(13 467)		
Unemployment duration⁽²⁾					
< 3 months	-		235	24.5	21.8 – 25.2
3 - 5	-		214	22.3	19.7 – 30.0
6 - 11	-		247	25.8	23.0 – 26.5
12 - 23	-		148	15.4	13.1 – 16.0
24 and more	-		115	12.0	9.9 – 12.5
			(959)		
Occupation⁽³⁾					
farmer	2.2	<0.001	225	1.9	1.7 – 2.1
artisan, small business owner	7.5		827	7.0	6.5 – 7.4
professional, manager, engineer	16.7		2 365	20.0	19.3 – 20.7
intermediate	16.8		2 155	18.3	17.6 – 18.9
office worker and lower level civil service	16.1		1739	14.7	14.1 – 15.3
shop assistant	6.4		410	3.5	3.2 – 3.8
service worker	1.7		161	1.4	1.2 – 1.6
skilled manual worker	26.2		2 878	24.4	23.6 – 25.1
unskilled manual worker	6.0		1 017	8.6	8.1 – 9.1
no occupation ⁽⁴⁾	0.3		27	0.2	0.1 – 0.3
	(12 829)		(11 804)		

(1) for all women, including those who did not live with their husband or partner

(2) unemployment duration unknown for 15.8% of husbands or partners

(3) for employed husbands or partners at the time of the interview

(4) declared status: no occupation

Table 8. Living conditions⁽¹⁾ (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Income from employment					
yes	92.1	<0.001	12 480	90.6	90.1 – 91 .1
no	7.9		1 291	9.4	8.9 – 9.9
	(13 660)		(13 771)		
All resources⁽²⁾					
unemployment benefits	18.7	<0.001	1 972	14.3	13.7 – 14.9
other benefits			1 193	8.6	8.1 – 9.1
other financial support ⁽³⁾	2.8		766	5.5	5.1 – 5.9
income from work	77.5		9 789	70.8	70.0 – 71.6
none	1.0		107	0.8	0.7 – 0.9
	(13 780)		(13 827)		
Income per month					
less than 500 euros	-		289	2.1	1.9 – 2.3
500-999	-		1 072	7.9	7.4 – 8.3
1000-1499	-		1 385	10.3	9.8 – 10.8
1500-1999	-		1 988	14.7	14.1 – 15.3
2000-2999	-		4 113	30.4	29.6 – 31.2
3000-3999	-		2 810	20.8	20.1 – 21.5
4000 and more	-		1 856	13.7	13.1 – 14.3
			(13 513)		
Social Security at the beginning of pregnancy					
yes	97.3	<0.001	13 748	99.0	98.8 – 99.2
<i>with supplementary health insurance</i>	-		11 325	81.5	80.9 - 82.1
<i>without supplementary health insurance</i>	-		625	4.5	4.2 – 4.8
<i>Universal medical coverage (for the very poor)</i>	-		1 798	12.9	12.3 – 13.5
no	2.7		140	1.0	0.8 – 1.2
	(13 708)		(13 888)		
Any medical visits or examinations not done for financial reasons⁽⁴⁾					
yes	2.3	<0.001	611	4.4	4.1 – 4.7
no	97.7		13 231	95.6	95.3 – 95.9
	(13 734)		(13 842)		

(1) household income or woman's income for single mothers

(2) if several resources, classified in this order ; statistical test performed by combining unemployment and other benefits

(3) excluding family and housing benefits

(4) including dental care in 2010 only

Table 9. Birth control and fertility treatments (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Contraceptive method used in the past					
yes	-		12 673	91.7	91.2 – 92.2
no	-		1148	8.3	7.8 – 8.8
			(13 821)		
Last contraceptive method⁽¹⁾					
pill ⁽²⁾	-		9 959	80.4	79.7 – 81.1
intrauterine device	-		757	6.1	5.7 – 6.5
implant, patch, vaginal ring	-		357	2.9	2.6 – 3.2
condom	-		1 122	9.1	8.6 – 9.6
withdrawal	-		74	0.6	0.5 – 0.7
periodic abstinence	-		72	0.6	0.5 – 0.7
other method	-		40	0.3	0.2 – 0.4
			(12 381)		
Reasons for stopping birth control					
wish to become pregnant	-		10 044	80.0	79.3 – 80.7
already pregnant	-		946	7.5	7.0 – 7.9
other reasons	-		1 564	12.5	11.9 – 13.0
			(12 554)		
Fertility treatment⁽³⁾					
none	95.1	NS	12 908	94.4	94.0 – 94.8
in vitro fertilisation ⁽⁴⁾	1.7		317	2.3	2.0 – 2.5
intrauterine insemination	0.8		129	0.9	0.7 – 1.1
ovulation induction alone	2.4		320	2.3	2.0 – 2.5
	(13 530)		(13 674)		

(1) if several methods declared, selection in this order

(2) 1383 women among 9 959 combined contraceptive pill and condom

(3) Including treatments only listed below

(4) with or without ICSI

Table 10. Psychological context (sample of women in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
Reaction to pregnancy discovery					
happy to be pregnant now	-		10 433	75.5	74.5 – 76.2
pregnancy desired earlier	-		1 523	11.0	10.5 – 11.5
pregnancy desired later	-		1 442	10.4	9.9 – 10.9
would rather not be pregnant	-		428	3.1	2.8 – 3.4
			(13 826)		
Relatives support⁽¹⁾					
very well supported	-		9 246	67.0	66.2 – 67.8
well supported	-		3 778	27.4	26.7 – 28.1
not very supported	-		578	4.2	3.9 – 4.5
not supported	-		189	1.4	1.2 – 1.6
			(13 791)		
Psychological condition⁽¹⁾					
good	70.6	<0.001	9 571	69.3	68.5 – 70.1
fairly good	20.4		3 007	21.8	21.1 – 22.5
fairly bad	6.7		888	6.4	6.0 – 6.8
bad	2.4		349	2.5	2.2 – 2.8
	(13 706)		(13 815)		
Visits to health care professional for psychological problems					
no	-		13 093	94.6	94.2 – 95.0
yes, psychiatrist	-		142	1.1	0.8 – 1.2
yes, other doctor	-		69	0.5	0.4 – 0.6
yes, psychologist or psychotherapist	-		446	3.2	2.9 – 3.5
yes, other professional or unknown	-		92	0.7	0.1 – 0.3
			(13 842)		

(1) « On the psychological status, how did you feel during pregnancy? »

Table 11. Weight and height (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Height					
< 150 cm	0.7	NS	70	0.5	0.4 – 0.6
150-159	20.2		2 641	19.2	18.5 – 19.9
160-169	57.5		7 801	56.8	56.0 – 57.6
170-179	20.8		3 085	22.5	21.8 – 23.2
≥ 180	0.9		145	1.1	0.9 – 1.3
	(13 718)		(13 742)		
Weight before pregnancy					
≤ 39 kg	0.2	< 0.001	33	0.2	0.1 – 0.3
40-49	11.2		1 269	9.2	8.7 – 9.7
50-59	39.8		4 944	35.8	35.0 – 36.0
60-69	28.1		4 085	29.6	28.8 – 30.4
70-79	11.9		1 812	13.1	12.5 – 13.7
≥ 80	8.8		1 658	12.0	11.5 – 12.5
	(13 710)	(13 801)			
BMI before pregnancy					
< 18.5	9.3	<0.001	1 127	8.3	7.8 – 8.8
18.5 – 24.9	68.0		8 812	64.6	63.8 – 65.4
25 – 29.9	15.4		2 360	17.3	16.7 – 17.9
30 or more	7.5		1 347	9.9	9.4 – 10.4
	(13 605)		(13 646)		
Pregnancy weight gain⁽¹⁾					
< 5 kg	4.3	<0.001	623	4.6	4.2 – 4.9
5-9	17.6		2 158	15.8	15.2 – 16.4
10-12	26.4		3 489	25.5	24.8 – 26.2
13-15	24.7		3 309	24.2	23.5 – 24.9
16-19	16.8		2 398	17.5	16.9 – 18.1
≥ 20	10.2		1 704	12.5	12.9 - 13.0
	(13 589)	(13 681)			
Mean	12.9 ± 5.4			13.2 ± 5.6	

(1) known from weight before and after pregnancy

Table 12. Tobacco use (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Number of cigarettes before pregnancy					
0 per day	64.1	<0.001	9 655	69.5	68.7 – 70.3
1-9	9.9		1 510	10.9	10.4 – 11.4
≥ 10	26.0		2 723	19.6	18.9 – 20.3
	(13 172)		(13 888)		
Smoking cessation for pregnancy planning^(1,2)					
yes	-		362	5.9	5.3 – 6.3
no	-		5 823	94.2	93.6 – 94.6
			(6 185)		
Number of cigarettes in the 3rd trimester					
0 a day	79.2	<0.001	11 663	82.2	81.6 – 82.8
1-9	12.8		1 721	12.1	11.7 – 12.6
≥ 10	8.0		797	5.6	5.2 – 6.0
	(13 143)		(14 181)		
Smoking cessation time during pregnancy					
1st trimester	-		1471	81.2	79.4 – 81.8
2nd trimester	-		155	8.6	7.3 – 9.1
3rd trimester	-		29	1.6	1.0 – 1.8
unknown	-		156	8.6	7.3 – 9.1
			(1 811)		

(1) if non-smoker just before pregnancy

(2) 35.9% of non-smokers before pregnancy did not answer this question

Table 13. Cannabis and alcohol consumption during pregnancy (sample of women in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
Cannabis consumption					
yes	-		158	1.2	1.0 – 1.4
no	-		13 610 (13 768)	98.9	98.7 – 99.1
Cannabis consumption frequency⁽¹⁾					
Less than once a month	-		64	49.6	41.0 – 50.4
once or twice a month	-		22	17.1	10.6 – 17.7
three times a month or more	-		43 (129)	33.3	25.2 – 34.1
Alcohol consumption					
never	-		10 644	77.2	76.5 – 77.9
once a month or less	-		2 370	17.2	16.6 – 17.8
two-four times a month	-		341	2.5	2.2 – 2.8
before discovery of pregnancy	-		437 (13 792)	3.2	2.9 – 3.5
Usual number of drinks a day					
less than one	-		2 226	73.2	71.6 – 73.9
one	-		610	20.1	18.7 – 20.8
two or more	-		206 (3 042)	6.8	5.9 – 7.2
Consumption of three or more drinks at one event					
never	-		12 343	96.5	96.2 – 96.8
less than once a month	-		284	2.2	1.9 – 2.4
once a month and more	-		42	0.3	0.2 – 0.4
before discovery of pregnancy	-		121 (12 790)	1.0	0.8 – 1.2

(1) consumption frequency unknown for 18.5% of women who reported consuming cannabis during pregnancy

Table 14. Prenatal visits (*sample of women in metropolitan France*)

	2003		N	2010	
	%	p		%	95% CI
Medical certification of pregnancy for Social Security					
yes	99.5	NS	14 153	99.5	99.4 – 99.6
no	0.5 (13 826)		68 (14 221)	0.5	0.4 – 0.6
Certification trimester					
1 st trimester	95.1	<0.001	12 703	92.2	91.8 – 92.6
2 nd trimester	4.3		908	6.6	6.2 – 7.0
3 rd trimester	0.6 (13 459)		164 (13 775)	1.2	1.0 – 1.4
Number of prenatal visits⁽¹⁾					
0	0.2	<0.001	2	0.0	0.0 – 0.0
1-3	0.9		151	1.1	0.9 – 1.3
4-6	8.1		1 019	7.4	7.0 – 7.8
7	18.6		1 831	13.3	12.7 – 13.9
8	21.3		2 176	15.8	15.2 – 16.4
9	22.5		2 372	17.3	16.7 – 17.9
10-11	15.9		2 964	21.6	20.9 – 22.3
≥ 12	12.4 (13761)		3 235 (13 750)	23.5	22.8 – 24.2
Mean	8.9 ± 2.8				9.9 ± 3.7
Number of visits with the maternity ward team^(1,2)					
0	8.3	<0.001	716	5.2	4.8 – 5.6
1-3	28.8		3 541	25.8	25.1 – 26.5
4-6	22.4		3 178	23.2	22.5 – 23.9
7	11.1		1 329	9.7	9.2 – 10.2
8	10.6		1 318	9.6	9.1 – 10.1
9	8.9		1 178	8.6	8.1 – 9.1
≥ 10	9.9 (13 874)		2 459 (13 719)	17.9	17.3 – 18.5
Mean	5.3 ± 3.7				6.1 ± 4.0
All visits with the maternity team					
yes	33.4	<0.001	4 887	35.6	34.8 – 36.4
no	66.6 (13 672)		8 828 (13 715)	64.4	63.6 – 65.2

(1) including in 2010 visits to the emergency department

(2) visit at the maternity unit or visit with the obstetrician who delivered the baby

Table 15. Health-care providers for prenatal care (sample of women in metropolitan France)

	%	p	2010		
			N	%	95% CI
Certification of pregnancy by ⁽¹⁾					
general practitioner	24.3	<0.001	3 020	22.4	21.8 – 23.2
private obstetrician	46.8		6 414	47.6	46.8 – 48.4
obstetrician at the maternity ward	27.7		3 570	26.5	25.8 – 27.2
midwife at the maternity ward	1.2		481	3.6	3.2 – 3.8
midwife in private practice	-		149	1.1	0.9 – 1.3
midwife at MCH center ⁽²⁾	-		88	0.6	0.5 – 0.7
other	-		16	0.1	0.0 – 0.2
	(13 415)		(13 738)		
Professionals visited after certification ⁽³⁾					
General practitioner					
yes	15.4	<0.001	3 188	23.8	23.1 – 24.5
no	84.6		10 220	76.2	75.5 – 76.9
	(13 463)		(13 408)		
Private obstetrician					
in office	44.7	<0.001	6 430	47.0	46.2 – 47.8
in MCH center ⁽²⁾	1.3		158	1.2	1.0 – 1.4
in office and MCH center ⁽²⁾	0.2		48	0.4	0.3 – 0.5
no	54.0		7 045	51.5	50.7 – 52.3
	(13 561)		(13 681)		
Obstetrician in the maternity ward					
yes	66.4	<0.001	8 627	63.4	62.6 – 64.2
no	33.6		4 972	36.6	35.8 – 37.4
	(13 643)		(13 599)		
Midwife at the maternity ward					
yes	26.9	<0.001	5 320	39.5	38.7 – 40.3
no	73.1		8 149	60.5	59.7 – 61.3
	(13 487)		(13 469)		
Midwife not at the maternity ward					
in private practice	3.5	<0.001	2 068	15.4	14.8 – 16.0
in MCH center ⁽²⁾	1.5		495	3.7	3.4 – 4.0
in private practice and at MCH center ⁽²⁾	0.0		73	0.5	0.4 – 0.6
no	95.0		10 765	80.3	79.6 – 81.0
	(13 430)		(13 401)		
Prenatal care done by					
obstetrician essentially	-		9 209	66.8	66.0 – 67.6
general practitioner essentially	-		644	4.7	4.3 – 5.0
midwife essentially	-		1 613	11.7	11.2 – 12.2
several professionals	-		2 317	16.8	16.2 – 17.4
			(13 783)		
Anaesthetist visit					
in the 3 rd trimester	-		12 975	93.2	92.8 – 93.6
at delivery	-		475	3.4	3.1 – 3.7
at another time	-		289	2.1	1.9 – 2.3
never	-		188	1.4	1.2 – 1.6
			(13 927)		

(1) if certification of pregnancy done; statistical test excludes midwives in private practice, midwives at MCH center or others

(2) Maternal and Child Health centers

(3) if at least one prenatal visit

Table 16. Support during pregnancy: antenatal classes, home visits, medical booklet
(sample of women in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
4th month interview⁽¹⁾					
no	-		10 481	75.8	75.1 – 76.5
yes ⁽²⁾	-		2960	21.4	20.7 – 22.1
doesn't know	-		380	2.8	2.5 – 3.1
			(13 821)		
Interview conducted by					
midwife in the maternity ward	-		1 452	50.3	48.5 – 51.1
midwife in MCH center ⁽³⁾	-		279	9.7	8.6 – 10.2
midwife in private practice	-		1 021	35.4	33.7 – 36.2
Obstetrician	-		106	3.6	2.9 – 3.9
Other	-		29	1.0	0.6 – 1.2
			(2 887)		
Gestational age at interview⁽⁴⁾					
1 st to 3 rd month (<14GA)	-		374	16.4	14.9 – 17.0
4 th month	-		694	30.4	28.5 – 31.2
5 th month	-		457	20.0	18.4 – 20.7
6 th month	-		352	15.4	13.9 – 16.0
7 to 9 th month	-		409	17.9	16.3 – 18.5
			(2 286)		
Antenatal classes					
Nulliparas					
Yes	66.8	<0.001	4 470	73.2	72.1 – 73.9
No	33.2		1 634	26.7	25.6 – 27.4
	(5940)		(6 104)		
Multiparas					
Yes	25.1	<0.001	2 247	28.5	27.5 – 29.2
No	74.9		5 631	71.5	70.5 – 72.2
	(7 729)		(7 878)		
Home visits by midwife					
No	-		11 744	85.3	84.7 – 85.9
yes, midwife from MCH services	-		804	5.8	5.4 – 6.2
yes, midwife in private practice	-		1 161	8.4	7.9 – 8.9
yes, other ⁽⁵⁾	-		64	0.5	0.4 – 0.6
			(13 773)		

(1) appointment with a midwife or doctor, who would identify any problems and provide important prevention information

(2) women who answered yes: 30.7% of nulliparas women and 14.3% of multiparous women

(3) Maternal and Child Health centers

(4) month unknown for 22.8% of women who reported a 4th month interview

(5) midwives of different status or unknown status

Table 17. Information and prevention: folic acid, infectious diseases (*sample of women in metropolitan France*)

	2010		
	N	%	95% CI
Information on perinatal health network			
no	8 488	61.8	61.0 – 62.6
yes	4 352	31.7	30.9 – 32.5
doesn't know	905	6.6	6.2 – 7.0
	(13 745)		
Folic acid consumption			
no	7 397	53.5	52.7 – 54.3
yes	5 565	40.3	39.5 – 41.1
doesn't know	866	6.3	5.9 – 6.7
	(13 828)		
Time of folic acid consumption beginning			
more than 3 months before pregnancy	841	15.3	14.3 – 15.9
1 to 3 months before pregnancy	1 040	18.9	17.9 – 19.5
in the month before pregnancy	1 502	27.2	26.0 – 27.9
after the 1 st month of pregnancy	2 031	36.8	35.5 – 37.6
doesn't know	94	1.7	1.4 – 1.9
other	8	0.2	0.1 – 0.3
	(5 516)		
Advice on the prevention of toxoplasmosis			
no, immunized women	3 586	26.0	25.3 – 26.7
no, other reason	1 278	9.3	8.8 – 9.8
yes	8 492	61.6	60.8 – 62.4
doesn't know	420	3.1	2.8 – 3.4
	(13 776)		
Advice on rubella⁽¹⁾			
no	283	35.5	32.2 – 36.3
yes	465	58.3	54.9 – 59.1
doesn't know	50	6.3	4.6 – 6.7
	(798)		
Information on prevention of pertussis			
no	12 247	89.0	88.5 – 89.5
yes, vaccination of relatives	803	5.8	5.4 – 6.2
yes, other information	514	3.7	3.4 – 4.0
yes, unknown	201	1.5	1.3 – 1.7
	(13 765)		

(1) among women self-declared immunized

Table 18. Prenatal screening (*sample of women in metropolitan France*)

	2003		2010		
	%	p	n	%	95% CI
Number of ultrasound examinations					
0	0.1	<0.001	22	0.2	0.1 – 0.3
1	0.4		51	0.4	0.3 – 0.5
2	2.1		184	1.3	1.1 – 1.5
3	40.4		4 415	31.2	30.4 – 32.0
4-5	35.5		5 424	38.4	37.6 – 39.2
≥ 6	21.5		4 044	28.6	27.9 – 29.3
Mean	(13 940) 4.5 ± 2.2			(14 140) 5.0 ± 2.5	
Screening test for HIV during pregnancy⁽¹⁾					
yes	75.1	<0.001	10 121	72.9	72.2 – 73.6
no, not offered	9.3		1 181	8.5	8.0 – 9.0
no, refused	1.5		143	1.0	0.8 – 1.2
no, recent screening test	7.8		664	4.8	4.4 – 5.2
no, other or unknown	0.7		675	4.9	4.5 – 5.3
doesn't know	5.6		1 107	8.0	7.5 – 8.4
	(13 797)			(13 891)	
Screening for diabetes					
no	-		1 711	12.3	11.8 – 12.8
yes	-		11 935	85.9	85.3 – 86.5
doesn't know	-		252	1.8	1.6- 2.0
			(13 898)		
Screening for cervical cancer					
no	-		8 446	61.0	60.2 – 61.8
yes	-		3 951	28.5	27.7 – 29.2
doesn't know	-		1 460	10.5	10.0 – 11.0
			(13 857)		
If no screening, cervical smear in the previous 2 years					
no	-		2 855	35.0	34.0 – 35.8
yes	-		5 307	65.0	64.0 – 65.8
			(8 162)		

(1) in 2003, one question as in the table; in 2010, question in two parts: screening test for HIV, and the reasons if no screening.

Table 19. Screening and diagnosis of Down syndrome (*sample of women in metropolitan France*)

	2003		2010		
	%	p	n	%	95% CI
Nuchal translucency measurement⁽¹⁾					
yes	76.0	<0.001	12 690	86.5	85.9 – 87.1
no, visit too late	3.0		405	2.8	2.5 – 3.1
no, other or unknown reason	2.4		256	1.8	1.6 – 2.0
doesn't know	18.6		1 323	9.0	8.5 – 9.5
	(13 768)		(14 674)		
Serum screening for Down syndrome⁽¹⁾					
yes	79.7	<0.001	11 631	84.1	83.5 – 84.7
no, not offered	4.0		260	1.9	1.7 – 2.1
no, refused	6.1		758	5.5	5.1 – 5.9
no, too late	3.1		390	2.8	2.5 – 3.1
no, amniocentesis straightaway	2.3		164	1.2	1.0 – 1.4
no, other or unknown reason	1.5		246	1.8	1.6 – 2.0
doesn't know	3.4		377	2.7	2.4 – 3.0
	(13 775)		(13 826)		
Diagnosis for Down syndrome					
amniocentesis	10.8	<0.001	1 119	8.8	8.3 – 9.3
trophoblast biopsy	0.4		67	0.5	0.4 – 0.6
sample of maternal blood	0.2		13	0.1	0.0 – 0.2
none of these	87.0		11 190	88.5	87.9 – 89.0
doesn't know	1.6		261	2.1	1.9 – 2.3
	(13 465)		(12 650)		
Amniocentesis					
Women 38 years or older	61.4	<0.001	415	41.8	32.9 – 42.6
	(876)		(992)		
Women 39 years or older	67.2	<0.001	315	46.4	42.6 – 47.2
	(570)		(679)		

(1) in 2003, one question as in the table ; in 2010, question in two parts : screening of Down syndrome, and the reasons if no screening

Table 20. A(H1N1) influenza : prevention and medical care (*sample of women in metropolitan France*)

	2010		
	N	%	95% CI
A(H1N1) influenza vaccination			
yes	3 947	29.3	28.5 – 30.1
no	9 518	70.7	69.9 – 71.5
	(13 465)		
Reasons for no vaccination			
no, refused	7 978	90.8	90.2 – 91.3
no, not offered	432	4.9	4.4 – 5.3
other	372	4.2	3.8 – 4.5
	(8 782)		
Influenza symptoms⁽¹⁾			
yes	1 082	8.0	7.5 – 8.4
no	12 396	92.0	91.5 – 92.4
	(13 478)		
A(H1N1) influenza confirmation by nasal swab			
yes	163	15.6	13.4 – 16.2
no	883	84.4	82.2 – 85.0
	(1 046)		
Visit for symptoms of the woman or of her relatives			
yes	1 671	12.6	12.0 – 13.1
no	11 568	87.4	86.8 – 87.9
	(13 239)		
Professional seen at this visit			
general practitioner	1 244	76.1	74.0 – 76.8
private obstetrician	42	2.6	1.8 – 2.9
obstetrician at the maternity ward	151	9.3	7.9 – 9.8
other	198	12.1	10.5 – 12.6
	(1 635)		
Tamiflu[®] prescription			
yes	521	32.2	29.9 – 33.0
no	1 096	67.8	65.5 – 68.6
	(1 617)		
Hospitalisation for influenza symptoms⁽¹⁾			
yes	74	7.3	5.7 – 7.7
no	939	92.7	91.1 – 93.1
	(1 013)		

(1) sudden fever or aches, with cough or breathing difficulties

Table 21. Obstetric history (*sample of women in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Number of induced abortions⁽¹⁾					
0	87.9	<0.001	11 429	84.5	83.9 – 85.1
1	9.8		1693	12.5	11.9 – 13.0
2	1.7		310	2.3	2.0 – 2.5
≥3	0.6		100	0.7	0.6 – 0.8
	(13 809)		(13 532)		
At least one induced abortion using drugs only					
yes	-		835	40.4	38.3 – 41.2
no	-		1 230	59.6	57.5 – 60.4
			(2 065)		
Obstetric history⁽²⁾					
stillborn, neonatal death, preterm birth or small for gestational age newborn					
yes	11.2	NS	906	11.3	10.6 – 11.8
no	88.8		7 136	88.7	88.0 – 89.2
	(7 953)		(8 042)		
stillborn					
yes	3.3	NS	265	3.3	2.9 – 3.6
no	96.7		7 761	96.7	96.3 – 97.0
	(7 872)		(8 026)		
neonatal death					
yes	1.4	NS	100	1.3	1.1 – 1.5
no	98.6		7 918	98.8	98.6 – 99.0
	(7 805)		(8 018)		
preterm birth					
yes	5.3	0.005	500	6.2	5.7 – 6.6
no	94.7		7 507	93.8	93.3 – 94.2
	(7 893)		(8 007)		
small for gestational age					
yes	4.2	NS	405	5.1	4.6 – 5.5
no	95.8		7 594	94.9	94.4 – 95.3
	(7 859)		(7 999)		
caesarean section					
yes	16.4	<0.001	1 513	18.9	18.0 – 19.5
no	83.6		6 498	81.2	80.3 – 81.8
	(7 967)		(8 011)		

(1) Information from medical record in 2003 and from women's interview in 2010

(2) Multiparous women

Table 22. Prenatal admissions and medical complications – part 1 (sample of women in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
Hospitalisation⁽¹⁾					
yes	18.6	NS	2 680	18.8	18.2 – 19.4
no	81.4 (13 969)		11 602 (14 282)	81.2	80.6 – 81.8
Duration of hospitalisation (days)					
1	22.7	0.02	523	19.9	18.4 – 20.6
2	14.5		405	15.4	14.0 – 16.0
3-7	39.0		1 106	42.0	40.1 – 42.8
8-14	11.0		306	11.6	10.4 – 12.1
≥ 15	12.8		295	11.2	10.0 – 11.7
mean	7.1 ± 11.7 (2 538)		(2 635)	6.4 ± 9.3	
In utero transfer⁽²⁾					
transfer during pregnancy	1.3	<0.001	120	0.8	0.7 – 0.9
transfer just before delivery	0.8		111	0.8	0.7 – 0.9
transfer unknown	-		10	0.1	0.0 – 0.2
no transfer	98.0 (14 339)		14 027 (14 268)	98.3	98.2 – 98.6
Gestational age at transfer					
28 weeks or less	-		56	24.2	18.7 – 24.9
29 - 31	-		45	19.5	14.4 – 20.2
32 -36	-		85	36.8	30.6 – 37.6
37 weeks and more	-		45 (231)	19.5	14.4 – 20.2
High blood pressure before pregnancy					
no	-		14 190	97.9	97.7 – 98.1
chronic high blood pressure	-		149	1.0	0.8 – 1.2
high blood pressure during a previous pregnancy only	-		157 (14 496)	1.1	0.9 – 1.3
High blood pressure⁽³⁾ during pregnancy					
no	96.3	<0.001	13 816	95.2	94.8 – 95.6
yes with proteinuria	1.2		303	2.1	1.9 – 2.3
yes without proteinuria	2.5 (14 190)		401 (14 520)	2.8	2.5 – 3.1
Gestational age at diagnosis⁽⁴⁾					
28 weeks or less	-		53	17.5	13.2 – 18.1
29 - 31	-		419	6.3	3.6 – 6.7
32 - 36	-		102	33.7	28.4 – 34.5
37 weeks and more	-		129 (303)	42.6	37.0 – 43.4
Hospitalisation for high blood pressure⁽⁴⁾					
yes	-		209	71.8	66.6 – 72.5
no	-		82 (291)	28.2	27.5 – 28.9

(1) including day care hospitalisations

(2) transfer from another maternity unit for hospitalisation or delivery

(3) Systolic Blood Pressure ≥ 140 or Diastolic Blood Pressure ≥ 90

(4) if high blood pressure and proteinuria

Table 22bis. Prenatal admissions and medical complications – part 2 (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Diabetes before pregnancy					
no	-		14 287	98.5	98.3 – 98.7
insulin-dependent diabetes	-		45	0.3	0.2 – 0.4
no insulin-dependent diabetes	-		25	0.2	0.1 – 0.3
gestational diabetes in a previous pregnancy	-		143	1.0	0.8 – 1.2
			(14 500)		
Gestational diabetes					
no	-		13 293	92.8	92.3 – 93.1
yes, insulin treatment	-		237	1.7	1.5 – 1.9
yes, diet	-		735	5.1	4.8 – 5.5
yes, treatment unknown	-		53	0.4	0.3 – 0.5
			(14 318)		
Threatened Preterm Delivery (TPD)					
no	-		13 154	91.2	90.7 – 91.7
yes with hospitalisation	-		933	6.5	6.1 – 6.9
yes without hospitalisation	-		344	2.4	2.2 – 2.7
			(14 431)		
Gestational age at TPD hospitalisation					
20 - 23 weeks	-		29	3.4	2.2 – 3.7
24 - 27 weeks	-		150	17.7	15.1 – 18.3
28 - 31 weeks	-		225	26.6	23.6 – 27.3
32 - 36 weeks	-		442	52.3	48.9 – 53.1
			(846)		
Corticosteroid therapy for fetal lung maturation					
yes	3.8	<0.001	750	5.2	4.8 – 5.6
no	96.2		13 575	94.8	94.4 – 95.2
	(14 233)		(14 335)		
Gestational age at 1st course of corticosteroids					
25 weeks and more	11.6	<0.001	31	4.4	2.9 – 4.7
26 - 33	72.8		537	73.8	70.6 – 74.5
34 - 36	15.1		139	19.3	16.4 – 20.0
37 weeks and more	0.4		20	2.6	1.4 – 2.9
	(542)		(727)		
Number of courses of corticosteroids					
1	69.7	<0.001	590	80.9	78.1 – 81.5
2 and more	30.3		139	19.1	16.3 – 19.7
	(521)		(729)		

Table 22ter. Prenatal admissions and medical complications – part 3 (*sample of women in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Severe haemorrhage in 2-3rd trimester					
placenta praevia	0.5	<0.001	72	0.5	0.4 -0.6
abruptio placentae	0.2		29	0.2	0.1 – 0.3
other severe haemorrhage	0.2		134	1.0	0.8 – 1.2
no	99.0		13 918	98.3	98.1 – 98.5
	(14 296)		(14 153)		
Suspected Intra-Uterine Growth anomaly⁽¹⁾					
no	-		13 496	92.1	91.7 – 92.5
yes, IUGR	-		600	4.1	3.8 – 4.4
yes, macrosomia	-		553	3.8	3.5 – 4.1
			(14 649)		
Premature Rupture of Membranes (PROM)⁽²⁾					
yes	8.2	<0.001	1 525	10.5	10.0 – 11.0
no	91.8		13 013	89.5	89.0 – 90.0
	(14 319)		(14 538)		
Length of time between PROM and delivery					
1 day or less	-		1 086	75.3	73.1 – 76.0
2 – 4 days	-		291	20.2	18.1 – 20.9
more than 4 days	-		65	4.5	3.4 – 4.9
			(1 442)		

(1) estimated from all children

(2) at least 12 hours before labour

Table 23. Place of birth (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Maternity unit status⁽¹⁾					
public (regional hospital, university hospital)	14.6	<0.001	2 648	18.1	17.5 – 18.7
other public	46.6		6 805	46.4	45.6 – 47.2
PSPH ⁽²⁾	5.0		1 084	7.4	7.0 – 7.8
other private	33.8		4 135	28.2	27.5 – 28.9
	(14 471)		(14 672)		
Level⁽¹⁾					
I	36.3	<0.001	4 425	30.2	29.5 – 31.0
II A	25.9		3 872	26.4	25.7 – 27.1
II B	18.5		2 993	20.4	19.7 – 21.1
III	19.3		3 382	23.1	22.4 – 23.8
	(14 471)		(14 672)		
Maternity unit size⁽¹⁾					
< 300 annual deliveries	1.2	<0.001	41	0.3	0.2 – 0.4
300-499	3.4		320	2.2	2.0 – 2.4
500-999	20.7		2 186	14.9	14.4 – 15.6
1 000 - 1 499	22.7		3 023	20.6	19.9 – 21.3
1 500 - 1 999	16.3		2 049	14.0	13.4 – 14.6
2 000 – 2 999	27.8		4 285	29.2	28.5 – 30.0
≥ 3 000	8.0		2 767	18.8	18.2 – 19.4
	(14 471)		(14 671)		
Transport time to maternity unit					
≤ 30 mn	90.1	NS	12 257	89.2	88.7 – 89.7
31-60 mn	9.2		1 356	9.9	9.4 – 10.4
> 60 mn	0.7		130	1.0	0.8 – 1.2
	(13 641)		(13 743)		

(1) data from the questionnaire describing the maternity unit, or from the French Annual Statistics of Health Services if the questionnaire was missing – in 2010, 9 women were interviewed after transfer from maternity unit, so status and level of the maternity unit of delivery were unknown

(2) PSPH: private non-profit maternity units

Table 24. Labour and delivery – part 1 (*sample of women and births in metropolitan France*)

	2003		2010		
	%	p	n	%	95% CI
Presentation⁽¹⁾					
vertex	94.0	NS	14 031	94.7	94.3 – 95.1
breech	5.4		690	4.7	4.3 – 5.1
other	0.6		94	0.6	0.5 – 0.7
	(14 655)		(14 815)		
Onset of labour⁽²⁾					
spontaneous	67.8	<0.001	9 720	66.5	65.7 – 67.3
induced	19.7		3 312	22.7	22.0 – 23.4
caesarean	12.5		1 592	10.9	10.4 – 11.4
	(14 446)		(14 624)		
Artificial rupture of membranes^(2,3)					
yes	-		4 906	51.0	50.0 – 51.8
no	-		4 713	49.0	48.0 – 49.8
			(9 619)		
Augmentation during labour^(2,4)					
yes	-		8 192	63.9	63.1 – 64.7
no	-		4 633	36.1	35.3 – 36.9
			(12 825)		
Mode of delivery⁽¹⁾					
spontaneous vaginal delivery	68.7	<0.001	9 857	66.9	66.1 – 67.7
forceps	} 7.8		580	3.9	3.6 – 4.2
spatulas			421	2.9	2.6 – 3.2
ventouse			782	5.3	4.9 – 5.7
caesarean	20.2		3 089	21.0	20.3 – 21.7
	(14 696)		(14 729)		
Delivery by^(1,5)					
obstetrician	51.3	<0.001	6 003	42.2	41.4 – 43.0
midwife	47.5		7 732	55.8	55.0 – 56.6
other	1.2		288	2.1	1.9 – 2.3
	(14 598)		(14 023)		
If spontaneous vaginal delivery, delivery by^(1,5)					
obstetrician	29.7	<0.001	1 653	17.8	17.0 – 18.4
midwife	69.1		7 394	79.7	78.9 – 80.4
other	1.2		235	2.5	2.2 – 2.8
	(10 002)		(9 282)		

(1) among births

(2) among women

(3) if spontaneous onset of labour

(4) if spontaneous or induced onset of labour

(5) information from medical record in 2003 and from interview in 2010

Table 24bis. Labour and delivery – part 2 (sample of women and births in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
Preventive injection of oxytocics					
no	-		2 398	16.8	16.2 – 17.4
yes, before delivery	-		6 508	45.6	44.8 – 46.4
yes, after delivery	-		2 600	18.2	17.6 – 18.8
yes, before and after delivery	-		2 762	19.4	18.8 – 20.1
			(14 268)		
Episiotomy^(1,2)					
Nulliparas					
	Year 1998				
no	28.7	<0.001	2 681	55.5	54.1 – 56.3
mediolateral	66.4		1 751	36.3	34.9 – 37.1
median	4.9		46	1.0	0.7 – 1.2
yes, unknown	0.0		348	7.2	6.5 – 7.6
	(4 591)		(4 826)		
Multiparas					
no	63.8	<0.001	5 712	85.9	85.1 – 86.5
mediolateral	32.7		730	11.0	10.2 – 11.5
median	3.5		33	0.5	0.3 – 0.6
yes, unknown	0.0		176	2.7	2.3 – 3.0
	(6 393)		(6 651)		
Trauma of the perineum⁽¹⁾					
no	-		6 503	57.4	56.5 – 58.2
1st or 2nd degree tears	-		4 742	41.8	40.9 – 42.6
3rd or 4th degree tears	-		88	0.8	0.6 – 0.9
			(11 333)		

(1) among births by vaginal delivery

(2) available information in 2003

Table 25. Analgesia and anaesthesia (sample of women in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
Analgesia during labour⁽¹⁾					
none	-		2 439	18.9	18.2 – 19.5
epidural	-		10 050	77.8	77.1 – 78.5
spinal analgesia	-		193	1.5	1.3 – 1.7
parenteral analgesia	-		88	0.7	0.6 – 0.8
other	-		143	1.1	0.9 – 1.3
			(12 913)		
Patient Controlled Epidural Analgesia (PCEA) if epidural⁽²⁾					
yes	-		3 153	36.0	35.0 – 36.8
no	-		5 600	64.0	63.0 – 64.8
			(8 753)		
Anaesthesia for caesarean					
epidural	-		1 058	36.3	34.6 – 37.1
spinal anaesthesia	-		1 684	57.9	56.1 – 58.7
general anaesthesia	-		170	5.8	5.0 – 6.2
			(2 912)		
Anaesthesia for operative delivery					
none	-		15	1.2	0.6 – 1.4
epidural	-		1 248	95.6	94.5 – 95.9
spinal anaesthesia	-		9	0.7	0.2 – 0.8
general anaesthesia	-		8	0.6	0.2 – 0.7
other	-		25	1.9	1.2 – 2.1
			(1305)		
Anaesthesia or analgesia⁽³⁾					
none	22.5	<0.001	2 282	15.7	15.1 – 16.3
epidural	62.6		10 186	70.0	69.3 – 70.8
spinal anaesthesia	12.3		1 666	11.5	11.0 – 12.0
general anaesthesia	1.7		179	1.2	1.0 – 1.4
other analgesia	0.9		226	1.6	1.4 – 1.8
	(14 411)		(14 549)		
Effectiveness of epidural⁽⁴⁾					
very effective	-		6 563	69.5	68.6 – 70.3
fairly effective	-		1 890	20.0	19.2 – 20.7
not very effective	-		666	7.1	6.6 – 7.5
not effective	-		323	3.4	3.0 – 3.7
			(9 442)		

(1) no labour/elective caesarean sections were excluded

(2) 12.9% of missing data for women who had an epidural

(3) classification favouring the anaesthesia over the analgesia, if several methods

(4) question asked of women who had epidural or spinal anaesthesia

Table 26. Trends in CS rates according to parity and obstetric history (*sample of births in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Nulliparas	23.0 (6 264)	NS	1 472 (6 340)	23.2	21.4 – 23.2
Multiparas without previous caesarean section	8.8 (6 750)	NS	538 (6 515)	8.3	7.6 – 8.8
Multiparas with previous caesarean section	64.4 (1 333)	NS	976 (1 525)	64.0	61.6 – 64.8
All births⁽¹⁾	20.2 (14 347)	NS	2 986 (14 380)	20.8	20.1 – 21.5

(1) if parity and previous caesarean section known

Table 27. Onset of labour and mode of delivery by gestational age and birthweight in 2010
(sample of live births in metropolitan France)

	Onset of labour				n	Mode of delivery			
		Spon- taneous	Induced	Caesa- rean		Spont vaginal delivery	Oper- ative delivery	Caesa- rean	n
Gestational age									
≤ 34 weeks	%	50.6	9.1	40.3	(330)	39.9	4.9	55.2	(328)
35-36	%	52.7	22.2	25.2	(632)	55.6	8.2	36.1	(631)
37	%	58.8	22.4	18.9	(992)	61.1	9.9	29.0	(987)
38	%	58.6	21.8	19.6	(2 445)	62.7	9.8	27.5	(2 417)
39	%	71.2	16.6	12.2	(3 597)	69.6	11.0	19.4	(3 567)
40	%	81.2	15.5	3.3	(3 984)	73.1	14.0	12.9	(3 957)
41	%	54.1	41.0	4.9	(2 635)	64.9	16.1	18.9	(2 614)
≥ 42	%	14.3	85.7	0.0	(49)	59.2	14.3	26.5	(49)
N					(14 664)				(14 550)
Birthweight									
< 1 500 g	%	38.4	5.4	56.3	(112)	32.4	3.6	64.0	(111)
1 500 - 1999	%	38.3	19.2	42.6	(188)	34.2	3.7	62.0	(187)
2 000 - 2 499	%	51.1	25.7	23.2	(634)	51.7	8.6	39.8	(631)
2 500 - 2 999	%	67.6	20.3	12.1	(2 884)	67.6	11.2	21.2	(2 858)
3 000 - 3 499	%	69.8	20.9	9.4	(5 980)	69.5	13.3	17.2	(5 940)
3 500 - 3999	%	67.7	23.9	8.4	(3 843)	69.0	12.3	18.8	(3 804)
≥ 4 000	%	58.6	29.5	12.0	(1 038)	60.4	13.1	26.6	(1 034)
N					(14 679)				(14 565)

Table 28. Newborn characteristics (sample of live births in metropolitan France)

	2003		2010		
	%	p	n	%	95% CI
Vital status					
live born	98.9	NS	14 761	99.1	98.9 – 99.3
stillborn no labour	0.5		72	0.5	0.4 – 0.6
stillborn in labour	0.1		12	0.1	0.0 – 0.2
TOP ⁽¹⁾	0.4		53	0.4	0.3 – 0.5
	(14 729)		(14 898)		
Sex					
male	51.2	NS	7 771	52.3	51.5 – 53.1
female	48.8		7 098	47.7	46.9 – 48.5
	(14 647)		(14 869)		
Birth					
singleton	96.6	NS	14 460	97.0	96.7 – 97.3
twin	3.4		440	3.1	2.8 – 3.4
triplet	0.0		3	0.0	0.0 – 0.0
	(14 737)		(14 903)		
Child height					
≤ 47 cm	19.5	NS	2 708	19.3	18.6 – 20.0
48-49	30.1		4 213	30.0	29.2 – 30.8
50-51	35.6		5 046	35.9	35.1 – 36.7
≥ 52	14.9		2 072	14.8	14.2 – 15.4
	(13 930)		(14 039)		
mean	49.2 ± 2.6			49.2 ± 2.7	
Head circumference					
≤ 32 cm	11.4	NS	1 522	10.9	10.4 – 11.4
33	17.6		2 385	17.1	16.5 – 17.7
34	27.2		3 799	27.2	26.5 – 27.9
35	23.5		3 432	24.6	23.9 – 25.3
≥ 36 cm	20.3		2 840	20.3	19.6 – 21.0
	(13 746)		(13 978)		
mean	34.3 ± 1.9			34.3 ± 1.9	
Breastfeeding attempt in the first two hours⁽²⁾					
yes	-		8 531	60.7	59.9 – 61.5
no	-		5 509	39.3	38.5 – 40.1
			(14 040)		
Feeding during hospital stay⁽²⁾					
Breast	55.4	<0.001	8 535	60.2	59.4 – 61.0
Breast and bottle	6.9		1 198	8.5	8.0 – 9.0
Bottle	37.7		4 443	31.3	30.5 – 32.1
	(13 821)		(14 176)		

(1) termination of pregnancy

(2) for live born children

Table 29. Apgar scores and resuscitation (sample of live births in metropolitan France)

	2003		n	2010	
	%	p		%	95% CI
1-min Apgar score					
≤ 5	2.7	<0.001	543	3.7	3.4 – 4.0
6-7	3.3		499	3.4	3.1 – 3.7
8-9	18.7		3 028	20.7	20.0 – 21.4
10	75.4		10 541	72.2	71.5 – 72.9
5-min Apgar score	(14 477)		(14 611)		
≤ 5	0.4	<0.001	72	0.5	0.4 – 0.6
6-7	0.7		168	1.2	1.0 – 1.4
8-9	4.6		823	5.6	5.2 – 6.0
10	94.3		13 539	92.7	92.3 – 93.1
	(14 471)		(14 602)		
Neonatal intensive care performed					
Mechanical ventilation					
yes using a balloon	-		454	3.2	2.9 – 3.5
yes using Neopuff	-		325	2.3	2.1 – 2.5
no	-		13 511	94.6	94.2 – 95.0
			(14 290)		
Nasal CPAP (continuous positive airway pressure)					
yes	-		189	1.3	1.1 – 1.5
no	-		13 893	98.7	98.5 – 98.9
			(14 082)		
Intubation					
yes	-		155	1.1	0.9 – 1.3
no	-		13 937	98.9	98.7 – 99.1
			(14 092)		
Surfactant					
yes	-		28	0.2	0.1 – 0.3
no	-		14 055	99.8	99.7 – 99.9
			(14 083)		
Venous catheter					
yes	-		185	1.3	1.1 – 1.5
no	-		13 863	98.7	98.5 – 98.9
			(14 048)		
Professional who performed neonatal intensive care⁽¹⁾					
Paediatrician					
yes	-		578	68.3	65.2 – 69.1
no	-		268	31.7	28.6 – 32.5
Midwife			(846)		
yes	-		529	64.4	61.1 – 65.2
no	-		292	35.6	32.3 – 36.4
Anaesthetist			(821)		
yes	-		41	5.1	3.6 – 5.5
no	-		761	94.9	93.4 – 95.3
Other professional			(802)		
yes	-		63	7.9	6.0 – 8.3
no	-		731	92.1	90.2 – 92.5
			(794)		

(1) for live born children requiring neonatal intensive care

Table 30. Hospitalisation of newborns (*sample of births in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Neonatal transfer⁽¹⁾					
no	91.9	<0.001	13 239	93.4	93.0 – 93.8
yes same unit	1.1		387	2.7	2.4 – 3.0
yes same site	5.2		417	2.9	2.6 – 3.2
yes other site	1.9		138	1.0	0.8 – 1.2
	(14 353)		(14 181)		
Transfer reasons⁽²⁾					
preterm birth or SGA	-		456 (921)	49.5	46.3 – 50.3
respiratory distress	-		258 (921)	28.0	25.1 – 28.7
suspicion of infection	-		175 (921)	19.0	16.5 – 19.6
congenital anomaly	-		49 (921)	5.3	3.9 – 5.7
other	-		203 (921)	22.0	19.3 – 22.7
Deaths in maternity unit⁽³⁾					
yes	-		14	0.1	0.0 – 0.2
no	-		14 446 (14 460)	99.9	99.8 – 100.0
Shared medical record⁽⁴⁾					
no	-		7 871	70.6	69.8 – 71.4
shared paper medical record	-		2 924	26.2	25.4 – 26.9
shared electronic medical record	-		354 (11 149)	3.2	2.9 – 3.5

(1) live born children. Transfers for no medical reasons were excluded

(2) two reasons could be given for the same transfer

(3) live born children

(4) if prenatal care partially done out of the maternity unit

Table 31. Mother's hospitalisation (*sample of women in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Duration of mother's hospitalisation after birth					
< 3 days	-		597	4.2	3.9 – 4.5
3	-		2 901	20.3	19.6 – 21.0
4	-		5 890	41.2	40.4 – 42.0
5	-		2 788	19.5	18.9 – 20.2
≥ 6	-		2 128	14.9	14.3 – 15.5
			(14 304)		
mean				4.4 ± 2.1	
If vaginal delivery					
<3 days	-		537	4.8	4.4 – 5.2
3	-		2 782	24.7	23.9 – 25.4
4	-		5 472	48.5	47.6 – 49.3
5	-		1 700	15.1	14.4 – 15.7
≥ 6	-		793	7.0	6.5 – 7.4
			(11 284)		
mean				4.0 ± 2.0	
Mother's transfer or hospitalisation					
no	99.6	NS	14 097	99.4	99.3 – 99.5
in resuscitation or intensive care unit					
more than 24 h	0.4		66	0.5	0.4 – 0.6
in other department for medical					
reasons	0.1		21	0.2	0.1 – 0.3
	(14 069)		(14 184)		

Table 32. Gestational age and birthweight (*sample of births in metropolitan France*)

	2003		2010		
	%	p	n	%	95% CI
Gestational age					
≤ 21 weeks	0.0	<0.001	0	0.0	0.0 – 0.0
22-27	0.9		97	0.7	0.6 – 0.8
28-31	0.8		122	0.8	0.7 – 0.9
32	0.3		58	0.4	0.3 – 0.5
33	0.5		56	0.4	0.3 – 0.5
34	0.8		117	0.8	0.7 – 0.9
35	1.3		224	1.5	1.3 – 1.7
36	2.7		418	2.8	2.5 – 3.1
37	6.4		995	6.7	6.3 – 7.1
38	14.5		2 448	16.5	15.9 – 17.1
39	24.4		3 606	24.3	23.6 – 25.0
40	26.8		3 999	27.0	26.3 – 27.7
41	19.7		2 643	17.8	17.2 – 18.4
≥ 42	1.0		49	0.3	0.2 – 0.4
	(14 669)			(14 832)	
Preterm birth (GA < 37 weeks)					
yes	7.2	NS	1 092	7.4	7.0 – 7.8
no	92.8		13 740	92.6	92.2 – 93.0
	(14 669)		(14 832)		
Birthweight					
≤ 499 grams	0.1	0.006	21	0.1	0.0 – 0.2
500 - 999	0.8		83	0.6	0.5 – 0.7
1 000 - 1 499	0.6		102	0.7	0.6 – 0.8
1 500 - 1 999	1.5		200	1.4	1.2 – 1.6
2 000 - 2 499	5.0		648	4.4	4.1 – 4.7
2 500 - 2 999	20.4		2 897	19.5	18.9 – 20.2
3 000 - 3 499	39.6		5 999	40.4	39.6 – 41.2
3 500 - 3 999	25.4		3 856	26.0	25.3 – 26.7
4 000 - 4 499	5.7		932	6.3	5.9 – 6.7
≥ 4 500	0.9		109	0.7	0.6 – 0.8
	(14 683)			(14 844)	
mean	3 231.5 ± 584.3		3 254.0 ± 567.7		
Birthweight < 2 500 grams					
yes	8.0	0.004	1 052	7.1	6.7 – 7.5
no	92.0		13 790	92.9	92.5 – 93.3
	(14 683)		(14 844)		

Table 33. Birthweight according to gestational age (sample of live births in metropolitan France)

Gestational age (weeks)	Birthweight (grams)								Total	
	500 1 499	1 500 1 999	2 000 2 499	2 500 2 999	3 000 3 499	3 500 3 999	4 000 and more	n	% ⁽¹⁾	
unknown	% 0.0	0.0	5.9	17.7	49.0	23.5	3.9	51	0.4	
22-27	% 100.0	0.0	0.0	0.0	0.0	0.0	0.0	25	0.2	
28-31	% 63.1	35.7	1.2	0.0	0.0	0.0	0.0	84	0.6	
32-33	% 22.9	45.7	30.5	1.0	0.0	0.0	0.0	105	0.7	
34-35	% 2.5	17.7	42.7	32.5	3.1	1.2	0.3	323	2.2	
36	% 0.2	6.5	28.5	42.0	18.8	3.4	0.5	414	2.8	
37	% 0.0	1.4	13.7	44.4	31.3	7.8	1.3	990	6.7	
38	% 0.0	0.3	4.3	31.3	46.3	14.9	2.9	2 444	16.6	
39	% 0.1	0.1	1.7	19.6	49.0	25.0	4.5	3 601	24.5	
40	% 0.0	0.0	0.7	11.8	43.4	34.7	9.4	3 992	27.1	
41	% 0.0	0.0	0.5	8.2	35.1	41.0	15.2	2 638	17.9	
≥ 42	% 0.0	0.0	0.0	6.1	32.7	32.7	28.6	49	0.3	
Total	n	113	188	637	2 889	5 996	3 853	1040	14 716	
	%	0.8	1.3	4.3	19.6	40.7	26.2	7.1		100.0

(1) distribution of births by gestational age

Table 34. Preterm birth and low birthweight by vital status and number of newborns (*sample of births in metropolitan France*)

	2003		n	2010	
	%	p		%	95% CI
Preterm birth (< 37 weeks)					
All births					
All ⁽¹⁾	7.2 (14 669)	0.485	1 092 (14 832)	7.4	7.0 – 7.8
singletons	5.8 (14 160)	0.094	901 (14 389)	6.3	5.9 – 6.7
twins	44.9 (506)	0.429	188 (440)	42.7	38.0 – 43.4
Live births					
All ⁽¹⁾	6.3 (14508)	NS	965 (14 696)	6.6	6.2 – 7.0
singletons	5.0 (14 009)	0.051	782 (14 261)	5.5	5.1 – 5.9
twins	44.0 (496)	0.403	180 (432)	41.7	37.0 – 42.4
Birthweight < 2 500 grams					
All births					
All ⁽¹⁾	8.0 (14 683)	0.004	1054 (14 844)	7.1	6.7 – 7.5
singletons	6.2 (14 181)	0.094	834 (14 408)	5.8	5.4 – 6.2
twins	56.3 (499)	0.048	217 (433)	50.1	45.4 – 50.9
Live births					
All ⁽¹⁾	7.2 (14 534)	0.004	938 (14 716)	6.4	6.0 – 6.8
singletons	5.5 (14 039)	0.102	723 (14 285)	5.1	4.7 – 5.5
twins	55.9 (492)	0.044	212 (428)	49.5	44.8 – 50.3

(1) including triplets

Table 35. Medical care and pregnancy outcome for mothers of singletons and twins (sample of women in metropolitan France)

	Mothers of		p
	singletons %	twins %	
Prenatal visits			
< 7	8.5	8.3	< 0.001
7-8	29.3	17.7	
9-10	32.5	23.0	
≥ 11	29.6	51.0	
	(13 545)	(204)	
Number of visits with the maternity ward team⁽¹⁾			
0	5.2	3.9	< 0.001
1-3	26.0	16.2	
4-5	15.6	6.9	
≥ 6	53.2	73.0	
	(13 514)	(204)	
Hospitalisation during pregnancy			
yes	18.2	55.4	< 0.001
no	81.8	44.7	
	(14 066)	(215)	
Maternity unit status			
public (regional hospital, university hospital)	17.8	32.7	< 0.001
other public	46.5	39.6	
PSPH	7.5	5.0	
other private	28.3	22.7	
	(14 460)	(220)	
Maternity unit size			
< 500 annual deliveries	2.5	1.8	< 0.001
500-999	15.0	8.2	
1 000-1 499	20.7	15.9	
≥ 1 500	61.8	74.1	
	(14 459)	(220)	
Level			
I	30.4	16.4	< 0.001
II A	26.4	23.2	
II B	20.4	17.7	
III	22.7	42.7	
	(14 451)	(220)	
Onset of labour			
spontaneous	66.9	39.1	< 0.001
induced	22.6	26.8	
caesarean	10.5	34.1	
	(14 403)	(220)	
Mode of delivery⁽²⁾			
spont vaginal delivery	67.8	38.4	< 0.001
operative delivery	12.3	6.9	
caesarean	19.9	54.8	
	(14 288)	(438)	
Mother in resuscitation or intensive care > 24 h			
yes	0.5	1.0	NS
no	99.5	99.0	
	(13 974)	(209)	

(1) maternity ward delivery team

(2) sample of births

Table 36. Newborn characteristics of singletons and twins (sample of births in metropolitan France)

	Children		p
	singletons %	twins %	
Gestational age			
≤ 31 weeks	1.3	8.4	< 0.001
32-33	0.6	5.5	
34	0.7	4.1	
35	1.3	7.7	
36	2.4	17.1	
37	6.1	27.1	
38	16.3	25.0	
39	24.9	3.9	
≥ 40	46.5	1.4	
	(14 389)	(440)	
Birthweight			
< 1 000 grams	0.7	1.6	< 0.001
1 000-1 499	0.5	6.5	
1 500-1 999	1.0	12.7	
2 000-2 499	3.6	29.3	
2 500-2 999	18.9	39.5	
3 000-3 499	41.3	10.2	
3 500-3 999	26.8	0.2	
≥ 4 000	7.2	0.0	
	(14 408)	(433)	
Vital status			
live born	99.1	98.2	0.04
stillborn or TOP	0.9	1.8	
	(14 455)	(440)	
Twin pregnancy			
monochorionic	-	16.4	(440)
bichorial	-	77.2	
unknown	-	6.4	
1-min Apgar score⁽¹⁾			
≤ 5	3.6	8.6	< 0.001
6-7	3.4	4.3	
8-9	20.5	28.6	
10	72.6	58.6	
	(14 188)	(420)	
5-min Apgar score⁽¹⁾			
≤ 5	0.4	2.2	< 0.001
6-7	1.2	1.2	
8-9	5.5	11.7	
10	93.0	85.0	
	(14 180)	(419)	
Neonatal transfer⁽¹⁾			
yes same unit	2.5	11.2	< 0.001
yes same site	2.5	17.8	
yes other site	0.9	4.8	
no	94.2	66.2	
	(13 785)	(393)	

(1) live born children

Table 37. Medical care and pregnancy outcome by household income⁽¹⁾ (sample of women in metropolitan France)

	Income from work⁽²⁾	Other resources or none	
	%	%	p
Number of prenatal visits			
< 7	7.0	20.2	<0.001
7-8	29.2	29.7	
> 8	63.8	50.1	
	(12 318)	(1 241)	
Prenatal hospitalisation			
yes	18.0	24.0	<0.001
no	82.0	76.0	
	(12 435)	(1 283)	
Gestational age⁽³⁾			
< 37 weeks	6.3	8.5	0.003
≥ 37	93.7	91.5	
	(12 640)	(1 296)	
Birthweight⁽³⁾			
< 2 500 g	5.9	9.6	<0.001
≥ 2 500 g	94.1	90.4	
	(12 642)	(1 304)	
Neonatal transfer⁽⁴⁾			
yes	8.1	11.8	<0.001
no	91.9	88.2	
	(12 475)	(1 291)	

(1) household income or woman's income for single mother

(2) income from work; benefits related to unemployment were not included

(3) sample of births

(4) sample of live born children : transfer or special hospitalisation in the maternity unit

Table 38. Social characteristics and prenatal care by existence of financial hardship⁽¹⁾ (sample of women in metropolitan France)

	Financial hardship		p
	no %	yes %	
Live with partner			
yes	93.3	83.3	<0.001
no	6.7	16.7	
	(13 215)	(611)	
Nationality			
French	88.1	69.1	<0.001
other	11.9	30.1	
	(13 226)	(611)	
Educational level			
primary or none	1.9	6.3	<0.001
secondary: general	7.7	15.0	
secondary: technical	17.5	22.6	
high school: general	9.1	13.9	
high school: technical	10.6	9.9	
some college	21.9	12.9	
college	18.0	12.4	
post-graduate	13.3	6.9	
	(13 182)	(605)	
Household income			
income from work	91.5	73.3	<0.001
benefits, other financial support or none	8.5	26.7	
	(13 108)	(595)	
Social Security at the beginning of pregnancy			
yes	99.3	93.8	<0.001
no	0.7	6.3	
	(13 210)	(608)	
Number of prenatal visits			
< 7	7.7	19.0	<0.001
7-8	29.4	24.6	
> 8	62.9	56.4	
	(13 055)	(589)	
Number of ultrasound examinations			
≤ 3	31.9	37.6	0.004
> 3	68.1	62.4	
	(13 103)	(601)	

(1) women who have not had visits or examinations, including dental care, for financial reasons

**Publications from the national perinatal surveys
(1995, 1998, 2003 and 2010)**

(publications by INSERM or DREES, which used data from the surveys)

DUCLOY-BOUTHORS A-S, PRUNET C, TOURRES J, CHASSARD D, BENHAMOU D, BLONDEL B.

Organisation des soins en analgésie, anesthésie et réanimation en maternité en France métropolitaine : résultats comparés des enquêtes nationales périnatales 2003 et 2010. Ann Fr Anesth Reanim (in press)

COULM B, BLONDEL B

Durée de séjour en maternité après un accouchement par voie basse en France
J Gynecol Obstet Biol Reprod (in press)

PILKINGTON H, BLONDEL B, DREWNIAC N, ZEITLIN J

Choice in maternity care: associations with unit supply, geographic accessibility and user characteristics
Int J Health Geogr 2012;11:35.

BLONDEL B, MAHJOUB N, DREWNIAC N, LAUNAY O, GOFFINET F

Failure of the vaccination campaign against A(H1N1) influenza in pregnant women in France : results from a national survey.
Vaccine 2012;30:5661-5665.

COULM B, LE RAY C, LELONG N, DREWNIAC N, ZEITLIN J, BLONDEL B. Obstetric interventions for low-risk pregnant women in France: do maternity unit characteristics make a difference?
Birth 2012;39:183-191.

BLONDEL B, LELONG N, KERMARREC M, GOFFINET F.

La santé périnatale en France métropolitaine de 1995 à 2010. Résultats des enquêtes nationales périnatales.
J Obstet Gynecol Biol Reprod 2012;41:151-166.
Revue Sage-Femme 2012;11:128-143.

BLONDEL B, LELONG N, KERMARREC M, GOFFINET F.

Trends in perinatal health in France from 1995 to 2010. Results from the French National Perinatal Surveys.
J Gynecol Obstet Biol Reprod 2012;41:e1-e15.

SLAMA R, DUCOT B, KEIDING N, BLONDEL B, BOUYER J.

La fertilité des couples en France
BEH 2012;7-9:87-91.

SAUREL-CUBIZOLLES M-J, SAUCEDO M, DREWNIAC N, BLONDEL B, BOUVIER-COLLE M-H.

Santé périnatale des femmes étrangères en France
BEH 2012;2-4:36-40.

SAUCEDO M, DENEUX-THARAUX C, BOUVIER-COLLE MH. Understanding regional differences in maternal mortality : a national case-control study in France.
BJOG 2012;119:573-581.

DREES.

La situation périnatale en France en 2010, premiers résultats de l'Enquête nationale périnatale.
Etudes et Résultats 2011;775.

VILAIN A.

Les maternités en 2010, premiers résultats de l'enquête nationale périnatale 2010
Etudes et Résultats 2011, 776.

- DIOUF I, CHARLES M-A, BLONDEL B, HEUDE B, KAMINSKI M.
Discordant time trends in maternal body size and offspring birthweight of term deliveries in France between 1972 and 2003 : data from the French National Perinatal Surveys.
Paed Perinat Epidem 2011 ; 25 : 210-217.
- LELONG N, BLONDEL B, KAMINSKI M
Evolution de la consommation de tabac des femmes pendant la grossesse en France de 1972 à 2003
J Gynecol Obstet Biol Reprod 2011;40:42-49.
- BONET M, BLONDEL B, KHOSHNOOD B.
Evaluating regional differences in breastfeeding in French maternity units: a multilevel approach.
Publ Health Nutr 2010;13:1946-1954.
- BLONDEL B, LELONG N, SAUREL-CUBIZOLLES M-J
Les femmes en situation précaire en France, déroulement de la grossesse et santé périnatale
Journées de la Société Française de Médecine périnatale, Arnette, Rueil-Malmaison 2009, pp 3-17.
- SUBTIL D, DE VIGAN C, BLONDEL B, DELARUE E, DEDET B, KOSHNOOD B.
Risques obstétricaux liés à la précarité : l'exemple du dépistage de la trisomie 21.
Journées de la Société Française de Médecine périnatale, Arnette, Rueil-Malmaison 2009, pp 19-33.
- GRUPPOSO MC, KHOSHNOOD B, SUPERNANT K, BLONDEL B
Disparités socio-économiques dans le dépistage prénatal de la trisomie 21 par marqueurs sériques: évolution entre 1998 et 2003 en France
J Gyn Obstet Biol Reprod 2008;37:246-255.
- LE RAY C, GOFFINET F, PALOT M, GAREL M, BLONDEL B
Factors associated with the choice of delivery without epidural analgesia in women at low risk in France
Birth 2008;35:171-178.
- ROMAN H, BLONDEL B, BREART G, GOFFINET F
Do risk factors for elective cesarean section differ from those of cesarean section during labor in low risk pregnancies?
J Perinat Med 2008;36:297-305
- BONET M, FOIX-L'HELIAS L, BLONDEL B
Allaitement maternel exclusif et allaitement partiel en maternité: la situation en France en 2003
Arch Pédiat 2008;15:1407-1415.
- PILKINGTON H, BLONDEL B, CARAYOL M, BREART G, ZEITLIN J.
Impact of maternity unit closures on access to obstetrical care : the French experience between 1998 and 2003.
Soc Sci Med 2008;67:1521-9.
- PHILIBERT M, DENEUX-THARAUX C, BOUVIER-COLLE MH.
Can excess mortality among women of foreign nationality be explained by suboptimal care ?
Br J Obstet Gynaecol 2008;115:1411-1418.
- SCHEIDEGGER S, VILAIN A.
Disparités sociales et surveillance de grossesse
Etudes et Résultats 2007;552
- CARAYOL M, BLONDEL B, ZEITLIN J, BREART G, GOFFINET F
Changes in the rates of caesarean delivery before labour for breech presentation at term in France: 1972-2003.
Eur J Obstet Gynaec Biol Reprod 2007;132:20-26 .
- ZEITLIN J, BLONDEL B, ALEXANDER S, BREART G

Variations in rates of postterm birth in Europe: reality or artefact?
Br J Obstet Gynaec 2007;114:1097-1103

BONET M, KAMINSKI M, BLONDEL B
Differential trends in breastfeeding by maternal and hospital characteristics: results from the French National Surveys
Acta Ped Scand 2007;96:1290-1295.

BLONDEL B, SUPERNANT K, DU MAZAUBRUN C, BREART G pour la coordination nationale des Enquêtes nationales périnatales
La santé périnatale en France métropolitaine de 1995 à 2003. Résultats des Enquêtes nationales périnatales.
J Gyn Obstet Biol Reprod 2006;35:373-387.

BLONDEL B, MACFARLANE A, GISSLER M, BREART G, ZEITLIN J.
Preterm birth and multiple pregnancy in European countries participating in the PERISTAT project.
Br J Obstet Gynaec 2006;113:528-535.

DENEUX-THARAUX C, CARMONA E, BOUVIER-COLLE MH, BREART G.
Postpartum maternal mortality and cesarean delivery.
Obstet Gynecol 2006; 108: 541-548.

BLONDEL B, ZEIN A, GHOSN N, du MAZAUBRUN C, BREART G.
Collecting population-based perinatal data efficiently: the example of the Lebanese National Perinatal Survey.
Paed Perinat Epidem 2006;20:416-424.

KHOSHNOOD B, BLONDEL B, BREART G, KWANG-SUN L, PRYDE P, SCHOENDORF K.
Comparison of the use of amniocentesis in two countries with different policies for prenatal testing: the case of France and the United States.
Prenat Diag 2005;25:14-19.

BLONDEL B, SUPERNANT K, Du MAZAUBRUN C, BREART G.
Enquête nationale périnatale 2003. Situation en 2003 et évolution depuis 1998.
Paris: INSERM; 2005. HYPERLINK "<http://www.sante.gouv.fr/htm/dossiers/perinat03/enquete.pdf>"
<http://www.sante.gouv.fr/htm/dossiers/perinat03/enquete.pdf>

VILAIN A, de PERETTI C, HERBET J-B, BLONDEL B
La situation périnatale en France en 2003. Premiers résultats de l'enquête nationale périnatale.
Etudes et Resultats 2005, 383:1-7.

NABET C, ANCEL PY, BURGUET A, KAMINSKI M
Smoking during pregnancy and preterm birth according to the obstetric history : the French National Perinatal Survey.
Paed Perinat Epidem 2005,19:88-96.

BLONDEL B, SUPERNANT K, DU MAZAUBRUN C, BREART G
Situation périnatale en 2003 et évolution depuis 1998. In : d'Ercole C, Collet M, eds. 35 èmes Journées de la Société Française de Médecine Périnatale. Arnette, Paris 2005, pp209-213.

KHOSHNOOD B, BLONDEL B, DE VIGAN C, BREART G.
Socio-economic barriers to making informed decisions about maternal serum screening for Down syndrome: results of the National Perinatal Survey of 1998 in France
Am J Publ Health 2004;94:484-491.

KHOSHNOOD B, BLONDEL B, DE VIGAN C, BREART G.
Effects of maternal age and education on the pattern of prenatal testing: implications for the use of antenatal screening as a solution to the growing number of amniocenteses.
Am J Obstet Gynec 2003;189:1336-1342.

WILDMAN K, BLONDEL B

European indicators of health care during pregnancy, delivery and the post-partum period
Eur J Obstet Gynec Reprod Biol 2003;111:S53-65.

BREART G, BARROS H, WAGENER Y, PRATI S.

Characteristics of the childbearing population in Europe
Eur J Obstet Gynec Reprod Biol 2003;111:S45-52.

BUITENDIJKS, ZEITLIN J, CUTTINI M, LANGHOFF-ROOS J, BOTTU J

Indicators of fetal and infant health outcomes.
Eur J Obstet Gynec Reprod Biol 2003;111:S66-77.

BLONDEL B, KOGAN MD, ALEXANDER GR, DATTANI N, KRAMER MS, MACFARLANE A, WEN SW.

The impact of the increasing number of multiple births on the rates of preterm birth and low birthweight: an international study.
Am J Public Health 2002;92:1323-1330.

BLONDEL B, KAMINSKI M.

Trends in the occurrence, determinants and consequences of multiple births.
Sem Perinat 2002;26: 239-249.

ZEITLIN J, SAUREL-CUBIZOLLES M-J, DE MOUZON J, RIVERA L, ANCEL P-Y, BLONDEL B, KAMINSKI M.

Fetal sex and preterm birth: are males at greater risk ?
Hum Reprod 2002,17: 2762-2768.

BLONDEL B, KAMINSKI M

L'augmentation des naissances multiples et ses conséquences en santé périnatale.
J Gyn Obstet Biol Reprod 2002;31:725-740.

BLONDEL B, NORTON J, du MAZAUBRUN C, BREART G.

Evolution des principaux indicateurs de santé périnatale en France métropolitaine entre 1995 et 1998.
J Gyn Obstet Biol Reprod 2001; 30:552-564.

GUIHARD P, BLONDEL B.

Trends in risk factors for caesarean sections in France between 1981 and 1995 : lessons for reducing the rates in the future.
Br J Obstet Gynaecol, 2001, 108, 48-55.

GUIHARD P, BLONDEL B.

Les facteurs associés à la pratique d'une césarienne en France. Résultats de l'Enquête Nationale Périnatale de 1995.
J Gyn Obstet Biol Reprod 2001; 30:444-453.

HENRIET L, KAMINSKI M

Impact of induced abortions on subsequent pregnancy outcome: the 1995 French national perinatal survey.
Br J Obstet Gynec 2001;108:1036-1042.

KAMINSKI M, BLONDEL B, SAUREL-CUBIZOLLES MJ

La santé périnatale.
In: Les inégalités sociales de santé. Leclerc A, Fassin D, Grandjean H, Kaminski M, Lang T, eds. INSERM-La Découverte, Paris, 2000, pp 173-192.

FOIX-L'HELIAS L, ANCEL PY, BLONDEL B.

Facteurs de risque de prématurité en France et comparaisons entre prématurité spontanée et prématurité induite. Résultats de l'enquête nationale périnatale 1995.
J Gyn Obstet Biol Reprod, 2000, 29 : 55-65.

FOIX-L'HELIAS L, BLONDEL B.

Changes in risk factors of preterm delivery in France between 1981 and 1995.
Paediatr Perinat Epidemiol, 2000, 14: 314-323.

VAYSSIERE C, DU MAZAUBRUN C, BREART G

Human immunodeficiency virus screening among pregnant women in France: results from the 1995 national perinatal survey.
Am J Obstet Gynecol 1999;180:564-570.

DELVAUX T, BUEKENS P et le Study Group on Barriers and Incentives to Prenatal Care in Europe (dont BLONDEL B).

Disparity in prenatal care in Europe.
Eur J Obstet Gynecol Reprod Biol, 1999, 83: 185-190.

GUENDELMAN S, BUEKENS P, BLONDEL B, KAMINSKI M, NOTZON FC, MASUY-STROOBANT G.

Birth outcomes of immigrant women in the United States, France and Belgium.
Matern Child Health, 1999, 3 : 177-187.

CROST M, KAMINSKI M

L'allaitement maternel à la maternité en France en 1995. Enquête nationale périnatale.
Arch Ped 1998;5:1316-1326.

SAUREL-CUBIZOLLES MJ, LELONG N.

Emploi des femmes, condition de travail et retard de croissance intra-utérin. In : 28 èmes Journées Nationales de la Société de Médecine Périnatale. Paris : Arnette, 1998, pp 35-44.

BLONDEL B, BRÉART G, Du MAZAUBRUN C, BADEYAN G, WCISLO M, LORDIER M, MATET N.

La situation périnatale en France en 1995. Evolution entre 1981 et 1995.
J Gynecol Obstet Biol Reprod, 1997, 26 : 770-780.

WCISLO M, BLONDEL B. La naissance en France en 1995. Enquête nationale périnatale.

Info Rapides 1996 ; 80.