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Staffing Needs for Unscheduled Activity in Obstetrics and Gynecology

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Shortened running title: Staffing needs for unscheduled activity

Word count: Abstract: 243words Text: 2903 words

Abstract

Introduction: To determine a minimum threshold of medical staffing needs (obstetricians-gynecologists, anesthesiologists-resuscitation specialists, nurse-anesthetists, pediatricians, and midwives) to ensure the safety and quality of care for unscheduled obstetrics-gynecology activity.

Materials and Methods: Face to face meetings of French healthcare professionals involved in perinatal care in different types of practices (academic hospital, community hospital or private practice) who belong to French perinatal societies: French National College of Gynecologists-Obstetricians (CNGOF), the French Society of Anesthesia and Resuscitation Specialists (SFAR), the French Society of Neonatology (SFN), the French Society of Perinatal Medicine (SFMP), the National College of French Midwives (CNSF), and the French Federation of Perinatal Care Networks (FFRSP)

Results: Different minimum thresholds for each category of care provider were proposed according to the number of births/year in the facility. These minimum thresholds can be modulated upwards as a function of the level of care (Level 1, 2 or 3 for perinatal centers), existence of an emergency department, and responsibilities as a referral center for maternal-fetal and/or surgical care. For example, an obstetrics-gynecology department handling 3000 to 4500 births per year without serving as a referral center must have an obstetrician-gynecologist, an anesthesiologist-resuscitation specialist, a nurse-anesthetist, and a pediatrician onsite specifically to provide care for unscheduled obstetrics-gynecology needs and a second obstetrician-gynecologist available within a time compatible with security requirements 24/7; the number of midwives always present (24/7) onsite and dedicated to unscheduled care is 5.1 for 3000 births and 7.2 for 4500 births. A maternity unit's occupancy rate must not exceed 85%.

Conclusion: The minimum thresholds proposed here are intended to improve the safety and quality of care of women who require unscheduled care in obstetrics-gynecology or during the perinatal period.

Key words: Thresholds, quality and safety of care, neonatal and maternal mortality and morbidity, obstetrics-gynecology, anesthesiology-resuscitation, neonatology, midwives.

Main body of text

Introduction

In 1998, to improve the quality of care and in response to the publication of two decrees dated October 9, 1998 [1], the organization of perinatal care in France underwent an unprecedented restructuring with the creation of 4 different levels of care, categorized according to the specific facilities and equipment available for neonatal care (Levels 1, 2, and 3), without considering or defining maternal care [2]. In France, level 1 units have no neonatal unit; level 2 units have neonatal nurseries, but do not provide care for very preterm infants; level 3 are maternity units with neonatal intensive care [2]. This organization promoted the development of perinatal networks, favoring care in networks and antepartum transfers or referrals (that is, maternal transfer before birth for high-risk fetuses) to ensure in advance that the level of neonatal care anticipated to be necessary will be available [1-5].

At the same time, the landscape of the supply of perinatal care was profoundly modified, as national perinatal surveys have shown [6-9]. Some small, low-volume maternity units, essentially level 1, closed progressively, causing the activity of those that remained to increase [6-9]. Moreover, the proportion of deliveries in private sector maternity units fell progressively through 2010 [6-9].

These points were clearly underlined in the Senate information report issued January 21, 2015 [10]:

> "It is the most thorough-going reorganization our hospital sector has known in recent years. Between 1972 and 2012, two thirds of the country's maternity units closed. The consequence was a strong reduction in the number of obstetrics beds accompanied by a notable increase in the mean size of hospitals. The decade from 2002 through 2012 was marked by a prominent increase in the number of very large maternity units. The number of facilities with more than 2000 deliveries doubled in this decade, while the number of those with fewer than 500 was halved."

The allocation of human resources to support these major modifications are still regulated in France by the regulations enacted in 1998 and unrevised since. Staffing levels still depend only on the volume of activity, based on the thresholds observed during that period, without taking into account the maternity unit level, or the nature of its activity (i.e., responsibilities as a referral hospital) (Table S1). The highest threshold considered in the relevant regulations is 1500 or 2000 births, according to the occupation of the staff members in question. Above this threshold, no supplementary staffing has been foreseen [1] (Table S1).

These decrees [1] did not anticipate the important rise in the mean size of maternity units and especially the large number of units well above this threshold of 1500 births/year that occurred from 1998 through 2018. Units with more than 3000 and 4000 births/year were exceptional in the 1990s and present specific organizational problems. Moreover, the number of individuals required for and the conditions of 24/7 availability of care described in the perinatal care decrees concern only the obstetric activity of hospitals providing delivery and emergency obstetric services [1]. In particular, they do not include for the anesthesiology-resuscitation specialists, neither gynecologic emergencies nor any other emergencies (unless the on-call coverage is limited strictly to obstetrics); and for the gynecology staff, gynecologic emergencies.

The staffing resources allocated to perinatal teams today to cope with the progressive and regular increases in their activity, often more than 3000 deliveries/year, depend on these outdated regulations and on local funding. The major budgetary restrictions imposed several years ago by the Ministry of Health placed pressures on the managers and administrators of healthcare facilities that have led to significant variations in these resources for providing care for unscheduled activity in obstetrics-gynecology.

These variations are substantial both from one facility to another (with equal levels of activity) and within the same districts or regions. This disparity between establishments is likely to create inequality

in the quality and safety of perinatal care throughout France [9], for the organization of care is one of the principal elements on which its quality and safety depend [11-14]. In fact, it has been demonstrated that high staffing levels for obstetricians and midwives are associated, for example, with lower cesarean rates [15].

Consequently, the French National College of Gynecologists-Obstetricians (CNGOF), the French Society of Anesthesia and Resuscitation Specialists (SFAR), the French Society of Neonatology (SFN), the French Society of Perinatal Medicine (SFMP), the National College of French Midwives (CNSF), and the French Federation of Perinatal Care Networks (FFRSP) decided to form a working party to discuss the situation together and jointly decide what staffing levels are necessary to for the safe provision of care for unscheduled obstetrics-gynecology activity.

The objective of this working party was to determine, based on the volume and types of activity of establishments, the minimum level of medical staffing required to ensure:

- The safety of patients receiving care to avoid, in particular, serious complications and "near-misses" associated with organizational constraints [16-20];
- The quality of care expected by the population, highlighting the time necessary to establish a relationship of trust and a dialogue to allow support of physiological or "natural" births and careful explanation of the medical actions implemented when needed [20];
- The quality of the traceability of the care provided, which reflects the medical management and the dialogue built;
- Acceptable working conditions as well as an acceptable professional quality of life for the medical staff working in the unscheduled activity sector. Beyond the impact on the quality and safety of care, this quality of life is essential to ensure that these professions continue to attract the human resources essential for the health of women and babies [21].

By definition, the number of individuals necessary to provide services for scheduled activities must be added to those necessary to ensure the unscheduled activities to determine total staffing levels.

This text retraces the steps and results of this discussion. This is a shortened version of the original French text [22], which contains the complete rationale of our analysis; this version is intended to summarize it and note its highlights.

Material and Methods

The president of each of the professional societies involved in perinatal care (CNGOF, SFAR, SFN, and CNSF) were asked each to name independently, for each professional body (anesthesiologists-resuscitation specialists, pediatricians, midwives) an academic expert (practicing at a university hospital), an expert working in a hospital, and an expert in private practice, to ensure representation of each of these modes of practice. The President of the SFMP did not name experts, because some of the experts named by the other presidents were members not only of CNGOF or the SFN but also the SFMP. The president of the French Federation of Perinatal Care Networks was also asked to nominate an expert independently. Finally, the working party decided to invite a public health physician with professional experience in the Ministry of Health and in regional health agencies to join.

Seven meetings took place during the year 2017-2018 to determine the scope of the committee's work, analyze the literature and relevant legal texts, draft a consensus document, send it for comments and review to a large number of experts in both the private and public sector, including all of the members of the boards of directors of the professional societies involved (CNGOF, SFAR, SFMP, CNSF, SFN, and FFRSP) as well as the board of directors of the Club for Anesthesia/Resuscitation in Obstetrics (CARO), and finally, revise the initial text in view of the readers' comments.

Unscheduled obstetrics-gynecology activity was defined as all unscheduled activities associated with obstetrics and gynecology practiced in either emergency departments or in obstetrics-gynecology departments (with or without their own emergency rooms), comprising, among other specific premises, the delivery room and including pre-labor rooms, the rooms described as physiological/natural birthing rooms, the operating rooms, continuous care and related rooms (post-intervention monitoring/recovery rooms, continuous monitoring units or transitional care units), any of the rooms devoted to neonatal intensive care, neonatal care observation, and immediate newborn care.

In accordance with French law and regulations, ethics approval was not necessary for this study.

Results

The organization of the sector of unscheduled obstetrics-gynecology activity [23-24] must take into account:

- the number of deliveries,
- the number of emergency consultations and procedures performed in obstetrics and gynecology, even in the absence of an identified emergency room,
- the severity and the number of patients seen for emergency management, in particular in obstetrics, and the level of maternal referrals and back-up care provided (high-risk/pathological pregnancy units, for example, generate activity both during normal working hours and after hours, that is, nights, weekends, and holidays); this is generally correlated with the level of neonatal care (1, 2, 3) and the number of antepartum transfers or referrals [23, 25].
- the existence of surgical activity (especially for oncology and profound endometriosis) likely to generate complex, time-consuming gynecologic surgical emergencies.

- the unpredictability of activity peaks that do not correspond to particular periods, either day- or night-times, weekdays or weekends, or seasons [23,25].

It is essential to have a distribution of beds for women before and after delivery appropriate to the number of deliveries performed, to minimize transfers before birth or postpartum for lack of beds. The consequences of an occupancy rate that is too high include problems related to safety, quality of care, relationships of trust with mothers and fathers, and the professional quality of life of the entire staff — physicians and others.

Because of the unpredictability of activity peaks and occupancy rates, it is inappropriate for an obstetrics-gynecology department to target a 90% occupancy rate for obstetrics beds, because this subjects it too frequently to the issues described above [26]. The occupancy rate targeted must be the same as that for intensive care units, that is, 85% [27], for unscheduled obstetrics activity is closely related to emergency activity. This occupancy rate target is consistent with that recommended by the Directorate-General for the Provision of Health Care (DGOS) (www.social-sante.gouv.fr/efficience-hospitaliere) [28].

It is important to remember that the working party's objective was to determine the minimum threshold of medical staffing levels according to the hospital's activity and also that these thresholds can be modulated according to the elements listed above.

Tables 1 and 2 summarize the experts' proposals for staffing levels for unscheduled obstetrics-gynecology activity. For example, an obstetrics-gynecology department handling 3000 to 4500 births per year without serving as a referral center must have an obstetrician-gynecologist, an anesthesiologist-resuscitation specialist, a nurse-anesthetist, and a pediatrician onsite dedicated exclusively to the provision of care for unscheduled obstetrics-gynecology needs as well as second obstetrician-gynecologist available within a time compatible with security requirements 24/7 (defined as after-hours offsite on-call coverage exclusively for the activity, every day of the year); the number

of midwives always present (24/7) onsite, exclusively for unscheduled care is 5.1 for 3000 births and 7.2 for 4500 births.

Discussion

This is the first report of face-to-face consensus meetings of healthcare professionals involved in perinatal care in different types of practices (academic or community hospital, or private practice) related to staffing needs for unscheduled activity in obstetrics and gynecology.

The main limitation of our work is that this report might have limited generalizability to other countries or healthcare settings. Another limitation is that patient and public were not involved in the elaboration of this report.

To our knowledge and despite exhaustive research, there is almost no literature comparing maternal and neonatal morbidity as a function of the number of professionals available for facilities with activity levels that could be considered equivalent [15]. Moreover, we did not succeed in identifying texts from any other European country equivalent to ours (guidelines or recommendations) in the literature in English about the number of professionals available as a function of activity levels.

Recently, the Royal College of Physicians in the United Kingdom issued proposals for the number of physicians required according to the level and type of activity of healthcare facilities [29-30], but these did not concern unscheduled activity in obstetrics-gynecology.

It is nonetheless important to underline that the quality of care dispensed depends at least in part on these staffing levels. A retrospective study of 24 members of the European Union, including France, over a 30-year period (1981-2010) studied the association between the reduction in government healthcare costs and maternal mortality in a population of 419 million women [13]. The authors reported that an annual diminution of 1% in these costs was associated with a significant increase in the maternal mortality rate (regression coefficient = 0.0177; *P*=0.0021; 95% confidence interval:

0.0065-0.0289). The authors estimated that each annual decrease of 1% in government healthcare costs was associated with an excess of 89 maternal deaths in the European Union, for an annual increase in maternal mortality of 10.6%. The associations remained significant after controlling for country-specific differences in economic resources, infrastructure, out-of-pocket expenditure, private health spending, and total fertility rate. The authors concluded that their "results suggest that reductions in government healthcare spending are associated with increased maternal mortality rates in the EU" [13].

Several studies have examined the quality of care associated with the number of midwives. A meta-analysis of 22 randomized controlled trials including 15,288 women demonstrated that continuous support for women during labor increases the rate of spontaneous vaginal deliveries (relative risk (RR)=1.08; 95% CI 1.04-1.12) and therefore reduces the rates of cesarean (RR=0.78; 95% CI: 0.67-0.91) and operative vaginal deliveries (RR=0.90; 95% CI: 0.85-0.96), as well as the rates of low 5-min Apgar scores among the newborns (RR=0.69; 95% CI: 0.50-0.95). Moreover, continuous support reduces the duration of labor (median duration -0.58 hour; 95% CI: -0.85 to -0.31), use of analgesia (of any type) during labor (RR=0.90; 95% CI: 0.84-0.96), and the rate of women dissatisfied with their delivery (RR=0.69; 95% CI: 0.59-0.79) [31]. The subgroup analyses suggest that the effect of continuous support was greatest when the person providing it was neither a hospital healthcare staff member nor a member of the women's social network. Accordingly, the French national authority for health (HAS) recently issued guidelines concerning the management of normal delivery and support for physiological delivery; CNGOF, CNSF, SFAR, and SFN all participated in drafting them [20]. These guidelines underline that "all women should be able to receive continuous individual and personalized support, adapted as they request, during labor and delivery (grade A)." In the light of the literature described above, and starting from the principle that management during delivery requires the presence of a midwife for around 12h, our working group considered that it is necessary to have 2 midwives for 2 deliveries per 24 hours [32]. It is moreover necessary to have a

supplementary midwife at all times (24/7) to handle consultations for obstetric and gynecologic emergencies. Again, starting from this organizational principle, our group considered that every day of the year and 24 hours a day, [(X/2)/365 +1] midwives (with X the number of births yearly in the hospital) must be physically onsite for the sector of unscheduled activities in obstetrics-gynecology.

For pediatricians' activity, the working group took into account the fact that approximately 10% of newborns require assistance in their adaptation to extrauterine life [33]; the probability of a pediatric intervention, most often urgent and unpredictable, is therefore close to one a day for hospitals with 3000 deliveries or more per year. We therefore set 3000 deliveries yearly as the limit above which a pediatrician must be present onsite 24/7, but not exclusively for unscheduled obstetrics-gynecology activity but with no intensive care activity (NICU, pediatric resuscitation, or emergency physician-headed medical ambulance service).

Moreover, to find an organizational method able to cope with unpredictable peaks of activity, our group proposed the possibility of calling upon a resource person, whose professional status could differ according to the needs of the moment. These resource staff members can come to support the front-line team in cases of activity peaks or particular complexity in management. They may come from other departments or adjacent emergency facilities.

Finally, to enable or maintain the feasibility of these recommendations and ensure that these professions continue to attract practitioners, it is necessary that:

1) that the number of individuals be sufficient for the geographic area and the number of professionals in training be consistent with these needs,
2) that most professionals are able over time to maintain polyvalence in their skills and to participate in the 24/7 provision of care,
3) that the number of individuals necessary for these unscheduled obstetrics-gynecology activities does not lead to competition with those necessary to ensure scheduled activities.

Conclusion

The working party's recommendations concern the staffing levels for obstetricians-gynecologists, anesthesiologists-resuscitation specialists, nurse-anesthetists, pediatricians, and midwives to meet the needs for providing unscheduled obstetrics-gynecology care. They have been developed for all types of healthcare facilities providing this type of activity — public or private. The experts determined he minimum number necessary of each category of participant in perinatal care to ensure the safety and provide the quality of care expected by users and professionals. These numbers can be modulated according to the levels of activity in healthcare facilities. We propose that establishments in France have a reasonable period to implement these recommendations. The working group also proposes that these recommendations be reassessed in 5 years and then regularly at 5-year intervals. This continuous evaluation is necessitated by potential changes in practices, analyses of sentinel events collected by the successive national perinatal surveys, and possible trends in scientific data and in the organization of care across France; these changes may be as extensive as those observed over the past 20 years.

Disclosure of interest:

Loïc Sentilhes and Dan Benhamou are consultants for Ferring Pharmaceuticals. The other authors report no conflicts of interest in relation to this article.

Funding

None

Acknowledgement

The authors thank Ms. Joann Cahn for editorial assistance.

Contribution to Authorship:

This consensus statement was produced on behalf of the French National College of Gynecologists-Obstetricians (CNGOF), French Society of Anesthesia and Resuscitation (SFAR), the French Society of Neonatology (SFN), the French Society of Perinatal Medicine (SFMP), the National College of French Midwives (CNSF), and the French Federation of Perinatal Care Networks (FFRSP). The working party developed a text that was subsequently reviewed by exterior experts, in particular by members of the Boards of Directors of each of these professional societies and of the Club of Obstetric Anesthesia/Resuscitation (CARO) by:

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List of tables:

Supporting information:

Table 1. Expert synthesis and proposals concerning staffing levels of anesthesiologist-resuscitation specialists, nurse-anesthetists, obstetrician- gynecologists, and midwives for unscheduled obstetrics-gynecology activity

Volume of activity (Births/ year)	ARS/NA		MW §	OG	
	ARS	Additional Resource Person £	MW	OG	Additional Resource Person#
100-1000	1 ARS offsite on call coverage or onsite for the establishment *		From 1.1 to 2.4	1 OG onsite or on exclusive offsite call coverage, 24/7	
1000-1500	1 ARS offsite on call coverage or onsite for the establishment *		De 2.4 to 3	1 OG onsite or on exclusive offsite call coverage l, 24/7	
1500-2000	1 ARS onsite for the establishment *		From 3 to 3.7	1 OG onsite.	
2000-3000	1 ARS onsite exclusively for unscheduled obstetrics-gynecology activity		From 3.7 to 5.1	1 OG onsite	
3000-4500	1 ARS onsite exclusively for unscheduled obstetrics-gynecology activity	1 ARS available† **or** 1 NA onsite exclusively for unscheduled OG activity	From 5.1 to 7.2	1 OG onsite, exclusively for unscheduled obstetrics-gynecology activity	1 OG available†
4500-5500 ‡	1 ARS onsite exclusively for unscheduled obstetrics-gynecology activity + 1 ARS or NA onsite exclusively for unscheduled obstetrics-gynecology activity	1 ARS available † if option for NA onsite selected	From 7.2 to 8.5	2 OG onsite, exclusively for unscheduled obstetrics-gynecology activity	
5500-6500	2 ARS + 1 NA onsite exclusively for unscheduled obstetrics-gynecology activity **or** 1 ARS +2 NA onsite exclusively for unscheduled obstetrics-gynecology activity	1 ARS available† if option for 1 ARS + 2 NA onsite selected	From 8.5 to 9.9	2 OG onsite, exclusively for unscheduled obstetrics-gynecology activity	1 OG available†
6500-7500	2 ARS + 2 NA onsite exclusively for unscheduled obstetrics-gynecology activity **or** 2 ARS + 1 NA onsite exclusively for unscheduled obstetrics-gynecology activity	1 ARS available† if option for 2 ARS + 1 NA onsite selected	From 9.9 to 11.2	2 OG onsite, exclusively for unscheduled obstetrics-gynecology activity	2 OG available†

ARS, anesthesiologist-resuscitation specialist; NA, nurse anesthetist; MW, midwife; OG, obstetrician-gynecologist

*** Onsite for the establishment:** physically onsite 24/7 for all activities of the healthcare facility, therefore not devoted exclusively to perinatal care (shared with all emergency sectors)

† **Available:** available within a time compatible with security requirements 24/7 (defined as after-hours offsite on-call coverage exclusively for the activity, every day of the year)

‡ For Level I or IIa obstetrics-gynecology departments without back-up or referral activity for mothers or fetuses and in particular without any emergency facilities onsite [45], it is possible to have a single ARS or NA, associated with nursing staff, onsite 24/7 dedicated exclusively to unscheduled obstetrics-gynecology care, on condition that an additional ARS or NA is available within a time compatible with security requirements 24/7 (defined as after-hours offsite on-call coverage

exclusively for the activity, every day of the year). Similarly, the presence of a single obstetrician-gynecologist onsite 24/7 dedicated to unscheduled care activity is possible and acceptable on condition that an additional supplementary obstetrician-gynecologist is available within a time compatible with security requirements 24/7 (defined as after-hours offsite on-call coverage exclusively for the activity, every day of the year).

§ The number of midwives should ideally be a whole number. Moreover, these numbers must be interpreted and adapted in particular downwards in accordance with activity, taking into account the number of obstetric and gynecologic emergencies in the department concerned and indicators of back-up or referral responsibilities. This organization can be modulated according to the day-time or after-hours nature of the unscheduled activity in previous months or years. Moreover, the number of midwives can also be modulated according to the number of other paramedical staff in the delivery room and emergency department.

For the number of additional staff (in addition to the number of obstetrician-gynecologists described in Table 1), for the management of emergency obstetrics-gynecology consultations, it is recommended that obstetrics-gynecology departments with:

- between 1500 and 4500 births per year, have 1 additional medical resource staff member (physician, intern, resident, midwife) 24/7 every day of the year;
- between 4500 and 5500 births per year, have 2 supplementary medical resource staff members (physician, intern, resident, midwife) 24/7 every day of the year;
- between 5500 and 6500 births per year, have 3 supplementary medical resource staff members (physician, intern, resident, midwife) 24/7 every day of the year;
- more than 6,500 births per year, have 4 supplementary medical resource staff members (physician, intern, resident, midwife) 24/7 every day of the year.

£ Regardless of the size of the facility, anesthesiology-resuscitation care in obstetrics-gynecology requires the definition of a resource person, who can be another ARS, an NA, an intern or resident, a registered nurse or MW, who is immediately available to respond and cope with anesthesia-resuscitation care activities for obstetrics-gynecology and one resource person for the other sites (surgical emergency and ICU exclusive of obstetrics-gynecology) likely to generate several emergencies simultaneously.

Table 2. Synthesis and expert propositions concerning staffing level for pediatricians for Unscheduled Pediatric Activity in Obstetrics-Gynecology

<table>
<tr><th>Volume of activity (Births/year)</th><th>Type I</th><th>Type IIa</th><th>Type IIb</th><th>Type III</th></tr>
<tr><td>< 1000</td><td rowspan="3">Pediatrician available*reachable by telephone 24/7 and able to be onsite within a time compatible with security requirements. Possibility of sharing† night-time availability for unscheduled obstetrics-gynecology activity with pediatric onsite on-call duty for the establishment</td><td rowspan="4">Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with pediatric onsite on-call duty for the establishment</td><td rowspan="2">Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with a different pediatric onsite on-call duty for the establishment and/or NICU, if the facilities are near each other</td><td>Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with a different pediatric onsite on-call duty for the establishment and/or NICU if the facilities are near each other</td></tr>
<tr><td>1000 to 1500</td></tr>
<tr><td>1500 to 2000</td><td rowspan="2">Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with a different pediatric onsite on-call duty for the hospital and/or NICU, if the facilities are near each other, and if the NICU has < 6 beds. If the NICU has ≥ 9 beds, possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with onsite on-call duty <u>only if</u> there is a another medical staff person|| onsite or available* for the ICU</td><td rowspan="2">Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with onsite on-call duty for NICU <u>only if</u> another medical staff person is present exclusively¶ for the NICU</td></tr>
<tr><td>2000 to 3000</td><td>Pediatrician accessible‡ Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with pediatric onsite on-call duty for the establishment</td></tr>
<tr><td>3000 to 4500</td><td rowspan="3">Pediatrician present onsite 24/7 not exclusively for unscheduled obstetrics-gynecology activity, but with no other intensive care#</td><td rowspan="3">Pediatrician present onsite 24/7 not exclusively for unscheduled obstetrics-gynecology activity but with no other intensive care#</td><td rowspan="2">Pediatrician present onsite 24/7 not exclusively for unscheduled obstetrics-gynecology activity but with no other intensive care# Possibility of sharing† night-time onsite presence for unscheduled obstetrics-gynecology activity with onsite on-call duty for ICU <u>only if</u> another medical staff member is onsite or available*for the ICU. This sharing is a degraded mode of the ideal solution.</td><td>Pediatrician present onsite 24/7 not exclusively for unscheduled obstetrics-gynecology activity but with no other intensive care# Possibility of sharing† night-time accessibility for unscheduled obstetrics-gynecology activity with onsite on-call duty for NICU only if another dedicated medical staff member|| is present in the NICU and a physician is available* for the NICU. This sharing is a degraded mode of the ideal solution</td></tr>
<tr><td>4500 to 5500</td><td>Pediatrician present onsite 24/7 not exclusively for unscheduled obstetrics-gynecology activity but with no other intensive care#</td></tr>
<tr><td>5500 to 6500</td><td>Pediatrician present on-site 24/7, dedicated ¶ to pediatrics activity in the maternity department**</td><td>Pediatrician present¶ on-site 24/7, exclusively¶ for pediatrics activity in the maternity department**</td></tr>
<tr><td>6500 to 7500</td><td>Pediatrician present onsite 24/7, exclusively¶ for pediatrics activity in the maternity department** + medical staff|| available*</td><td>Pediatrician present onsite 24/7, exclusively¶ for pediatrics activity in the maternity department** + medical staff|| available*</td><td>Pediatrician present onsite 24/7, exclusively¶ for pediatrics activity in the maternity department ** + medical staff|| available*</td><td>Pediatrician present onsite 24/7, exclusively for¶ to pediatrics activity in the maternity department** + medical staff|| available*</td></tr>
</table>

* **Available:** available within a time compatible with security requirements 24/7 (defined as after-hours offsite on-call coverage for the establishment (not exclusively for non-scheduled obstetrics-gynecology activity), every day of the year)

† **sharing:** sharing is most often a degraded version of the ideal solution proposed. No sharing can take place without the agreement of the teams involved. It must be included in writing in the operating charter.

‡ **accessible:** available within the time compatible with the security requirements 24/7, onsite during the day every day of the year (including the after-hours portions of the day), and nonexclusive offsite on-call coverage at night

§ **sharing with onsite on-call duty 24/7 in NICU** is possible at night if the size of the medical staff does not allow a senior physician to be on-call off-site, after the agreement of the team, because the limited number of beds and/or of

deliveries minimize the risk of several concomitant life-threatening emergencies. This organization must be included in writing in the operating charter

[||]**medical staff:** physicians or interns or residents. An intern or resident can be envisioned if the size of the medical staff does not allow a senior physician and after the team's agreement. This organization must be included in writing in the operating charter.

[¶]**medical staff exclusively for a particular activity:** physicians, interns, or residents, responsible exclusively for specific care, and no other type of care. In an NICU, the medical personnel present is by definition exclusively dedicated to the NICU.

[#]**intensive care**: NICU, pediatric intensive care, or emergency physician-headed medical ambulance service (SMUR)

[**]**pediatric activity in the maternity department**: unscheduled obstetrics-gynecology activity, management of newborns at delivery and/or hospitalized in a neonatology unit in the maternity department (e.g., mother-child or kangaroo care units).