International comparisons of selected service lines in seven health systems

ANNEX 13 – CASE STUDIES: MATERNITY SERVICES IN FRANCE

Evidence Report

October 27th, 2014

Maternity care in France – why this case study?

Why this case study?

- This case study was created to respond to interest into how the French health system could sustain maternity services at a smaller scale than in the UK

Potential impact on costs

- Lower costs in the French system appear to be driven by lower obstetrician salaries and longer working hours particularly in smaller units and private units
- Midwife productivity is high (in terms of births per midwife) in the French system but this may be because a proportion of ante-natal care is provided by out-of-hospital self-employed obstetricians and gynaecologists. This model would not necessarily create cost savings at system level

Issues of comparability

- In France, there are two models of intrapartum maternity care:
  - 64% of births take place in the public sector where the care delivery model is broadly similar to the NHS
  - 36% of births take place in the private sector where a self-employed obstetrician is responsible for the delivery episode
- Ante and postnatal care is typically provided by self-employed (non-hospital based) obstetricians and gynaecologists. Midwives are more focused on intrapartum care

Potential impact on quality

- Although it is difficult to make direct comparisons, the French maternity system appears to achieve similar outcomes to the NHS in England

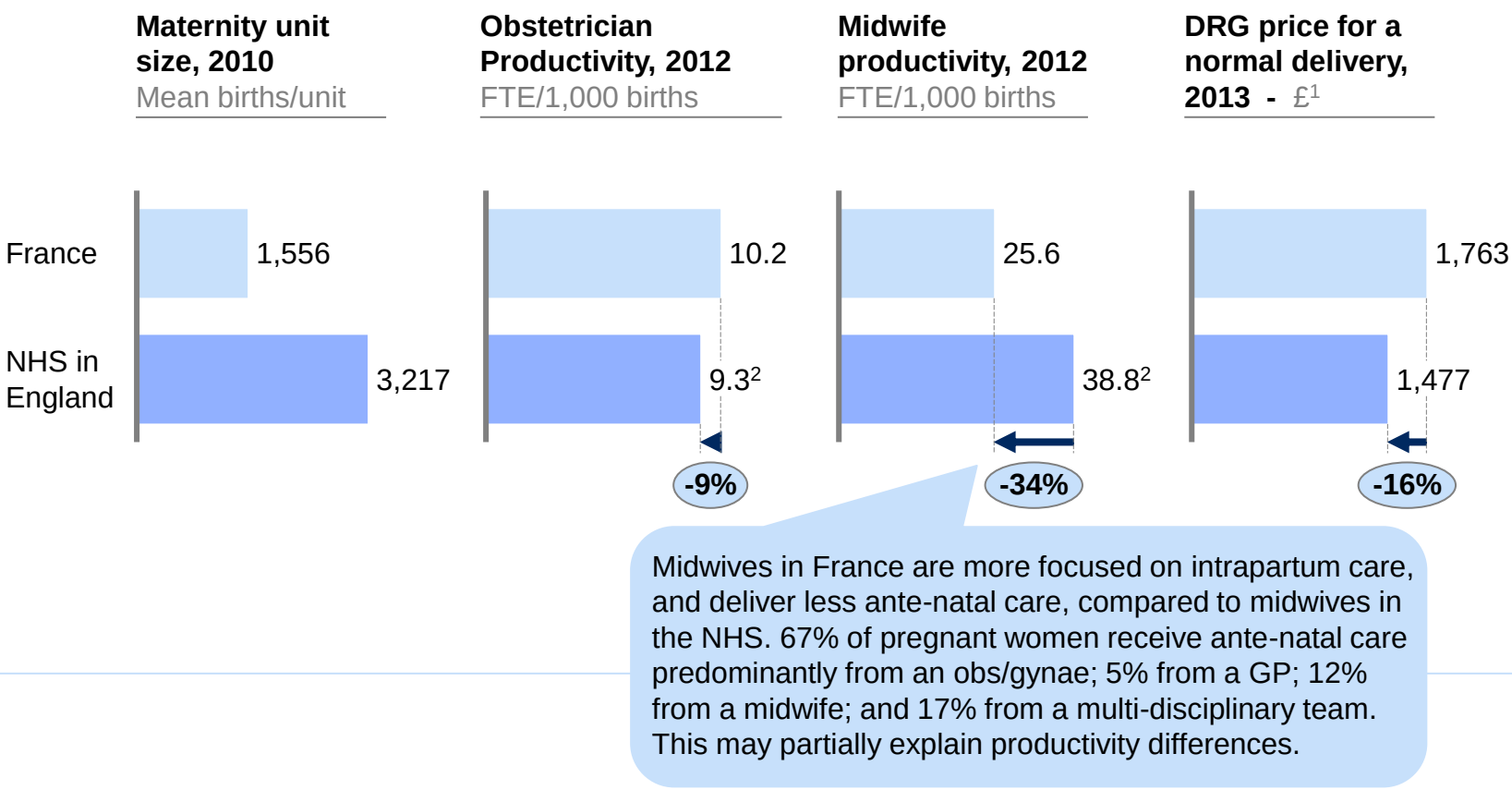
Executive summary

- In France there is a mixed system of maternity provision, with 64% of births taking place in public sector hospitals and 36% of births taking place in the private sector
- The models of care are different in each sector:
  - In the public sector, care is delivered by midwife and obstetrician teams employed by the hospitals in which they work. Much like the NHS in England, midwives provide all care for low risk, uncomplicated deliveries. Consultant obstetricians manage higher-risk deliveries and are available when required for all deliveries
  - In the private sector, the patient's obstetrician is not employed directly by the hospital, and is called by the midwife during the later stages of labour
  - All hospitals with maternity units are required to have a consultant-level obstetrician available 24/7 on site (for units with >1,500 births) or on call, available within 20 minutes (for units with <1,500 births)
  - All maternity units are required to have 24/7 midwife presence. In almost all cases, midwives are directly employed by the hospital in which they work
- On average maternity units in France are around half the size of NHS units – approximately 1,500 births/year on average, compared to >3,000 births/year in the NHS. All units are risk-tiered into four levels of service, which is defined by the level of neonatal provision and determines the gestational age and risk profile that the unit is authorised to admit.
- All units are organised in networks centred on the 60 level 3 (highest risk) units (approximately one per million population) with clear transfer protocols and network arrangements. In the level 3 units, approximately 10% of births may be transfers from other units.
- The French system appears to be able to offer maternity care in smaller units on a sustainable basis, as compared to the NHS for three main reasons:
  - Physician salary levels are lower but the DRG price for a birth is slightly higher – meaning that the economics of the unit are less stressed even with high rates of obstetrician presence/coverage
  - In smaller units and in the private sector, physicians work longer hours with more night and on call duties
  - The system is more differentiated/tiered with more complex larger units support smaller units by providing on call services and network support

Contents

- **Impact – why this case study?**
- Description – what did they do?
- Enablers – how were they able to do this?

French maternity units are half the size of NHS maternity units on average



1 DRG value for France converted from € at €1 = £0.796. The French figure is the weighted average DRG value for vaginal delivery without complications (nulliparous and multiparous deliveries) for 2013. The NHS in England value is the maternity pathway tariff (delivery phase) for an uncomplicated risk profile for 2013/14.

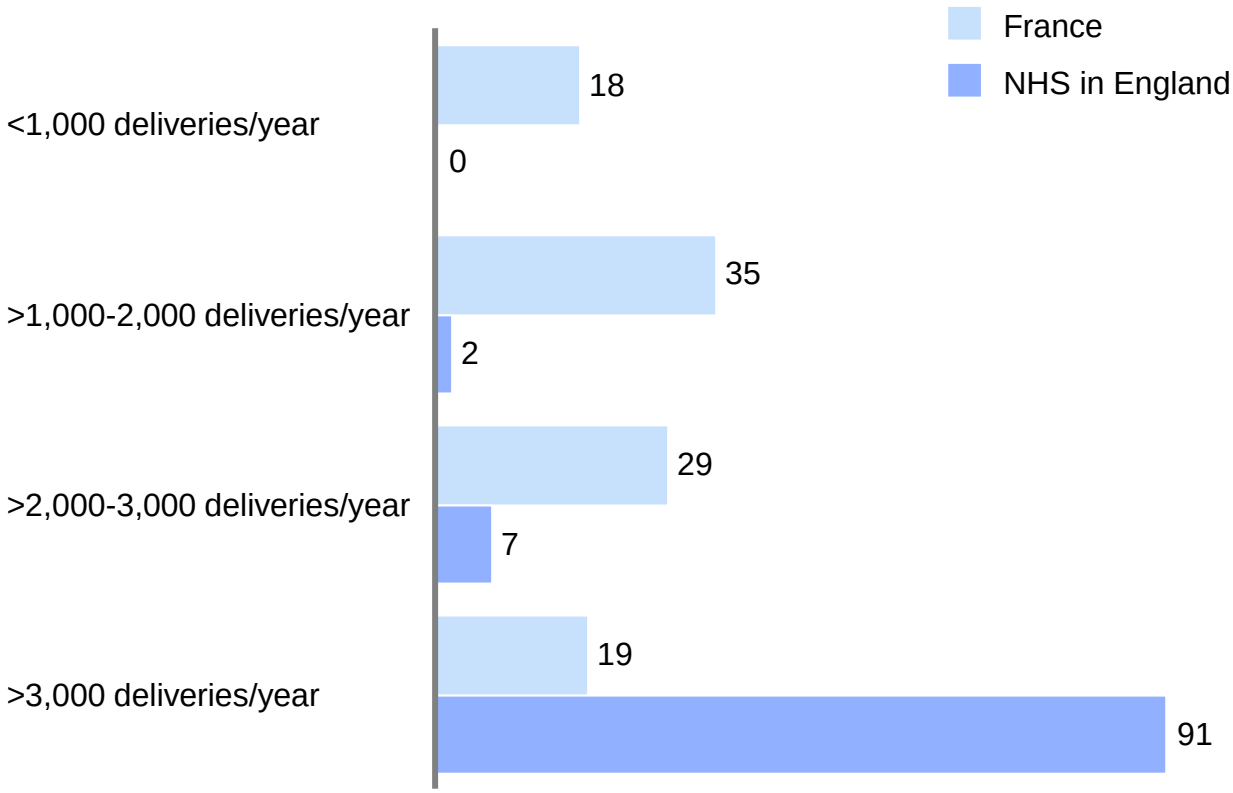
2 OECD estimates for UK (rather than England) as unresolved comparability issues using national datasets

SOURCES: Enquête Nationale Perinatale, 2010; Birthplace Study: Final Report Part 3, NIHR, 2011; OECD Health, 2014; ATIH, 2014: Payment by Results 2013/14, Department of Health

Maternity units in France are generally smaller than in the UK

Share of births by size of maternity unit[1]

% of all deliveries



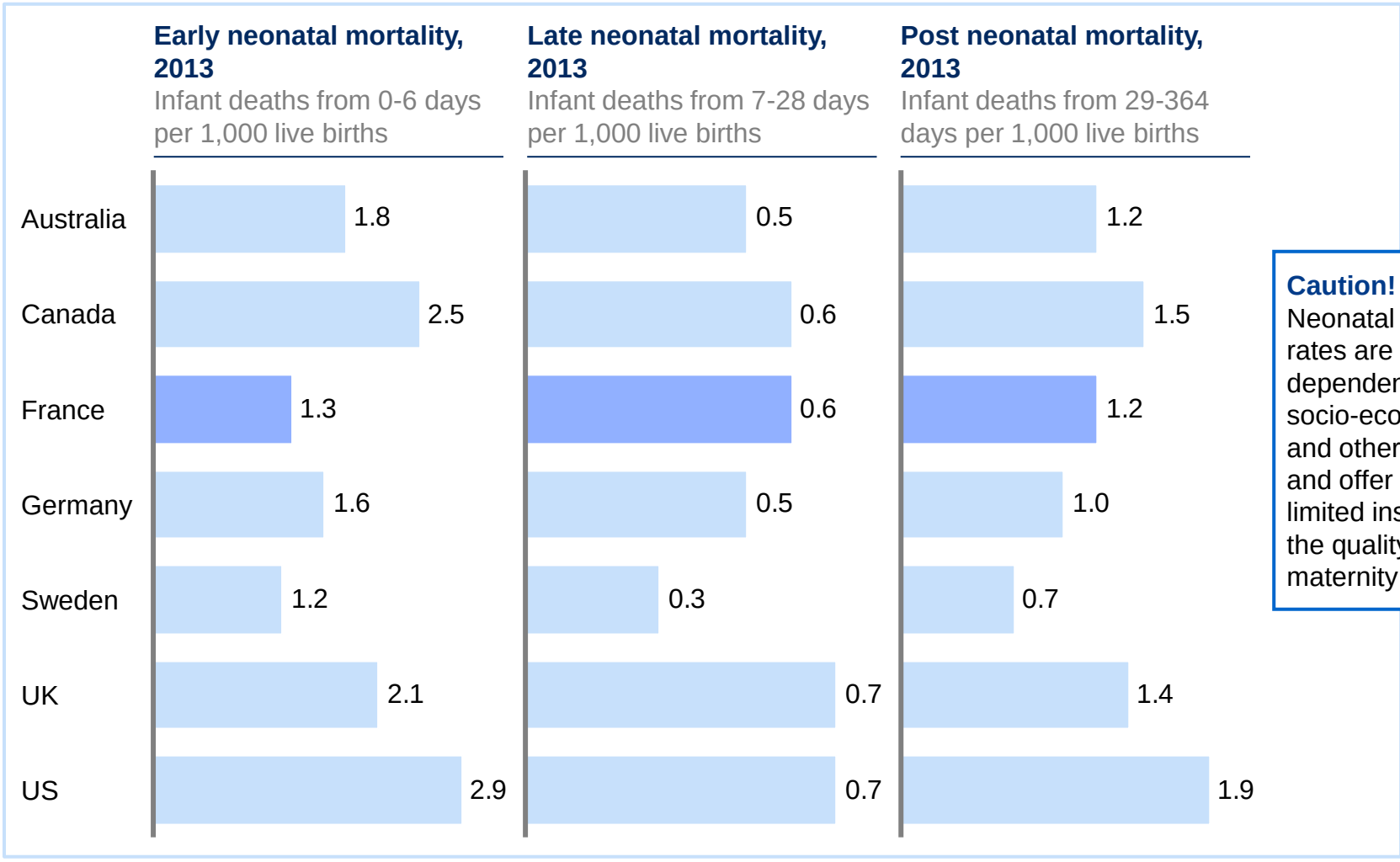
Caveat!

Analysis of NHS data at site-level (rather than Trust-level) would allow for a better comparison of maternity unit size

1 Data for NHS is based on NHS Trusts which may include more than one maternity unit

SOURCES: Enquête Ntaionale Perinatale, 2010; HES Maternity Provider-level statistics, 2012/13, HSCIC

The French system delivers broadly similar outcomes to the UK across a range of maternal and neonatal indicators (1/3)



Caution!
Neonatal mortality rates are dependent on socio-economic and other factors and offer only a limited insight into the quality of maternity care

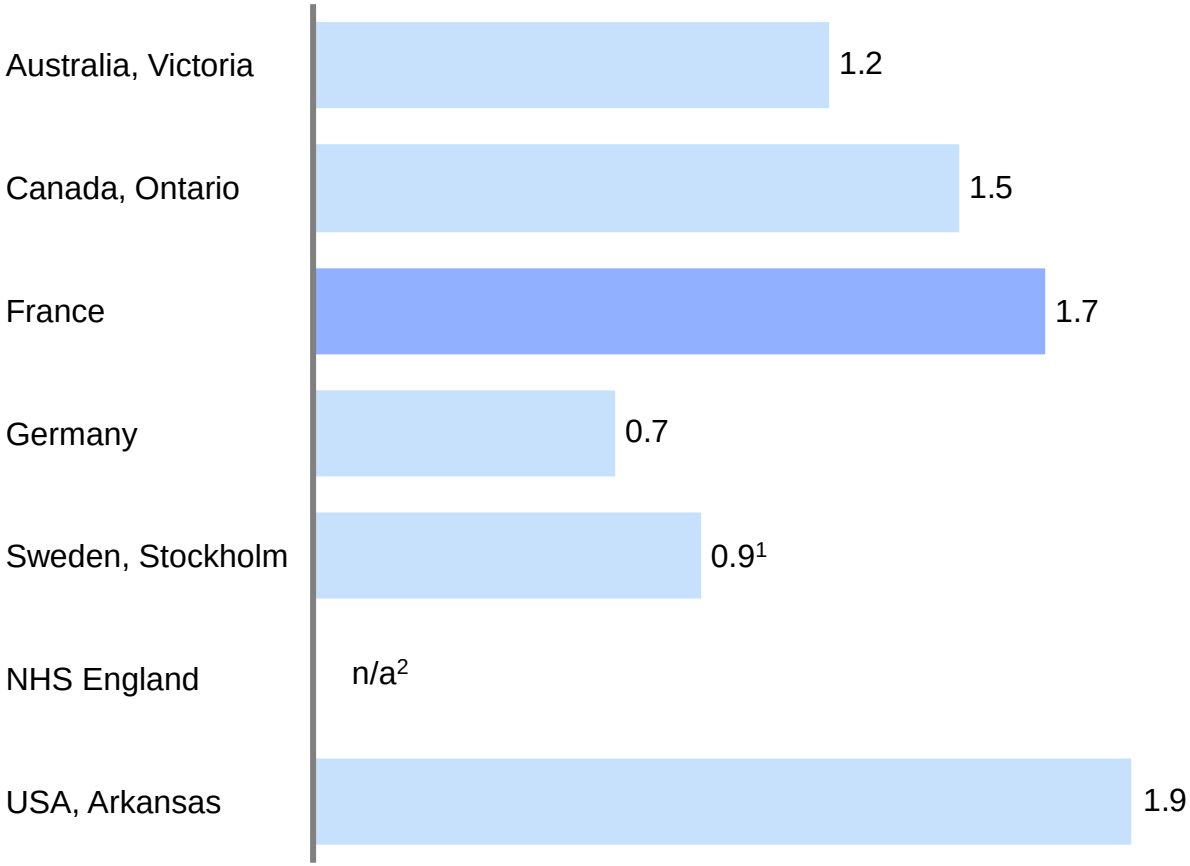
Note: Regional (i.e. state/province-level) data is available for some neonatal mortality indicators but this study provides the most recent, systematic review from a single source, thus avoiding interpretation errors due to methodological differences in data analysis and collection.

SOURCE: Wang et al, 2013, Global, regional, and national levels of neonatal, infant and under-5 mortality during 1990-2013: a systematic analysis for the Global Burden of Disease Study 2013, The Lancet

The French system delivers broadly similar outcomes to the other health systems reviewed across a range of maternal and neonatal indicators (2/3)

APGAR score <7 at 5 minutes post birth

% of live births

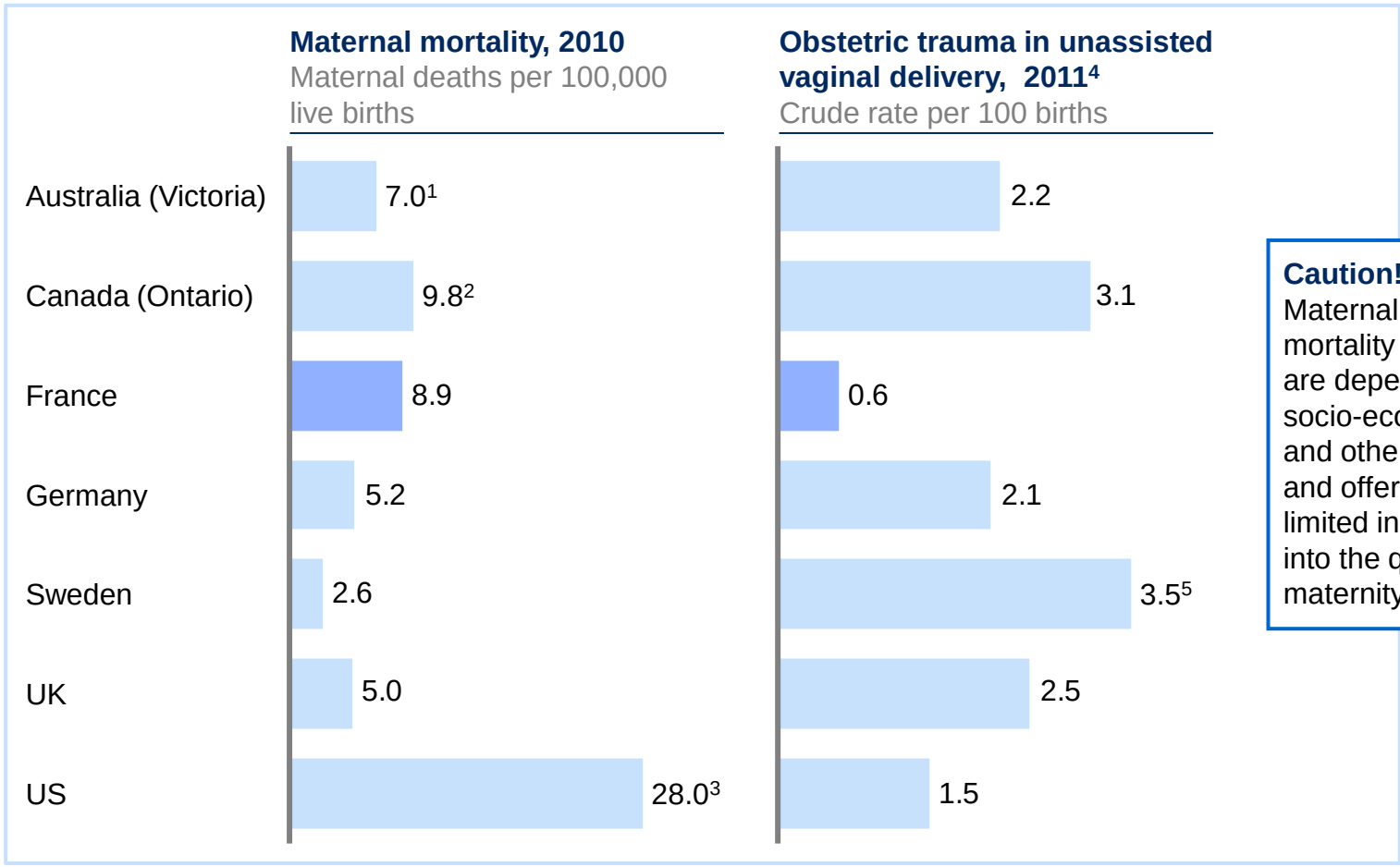


- The Apgar score is a standardised assessment of the vitality of neonates. The risks of mortality and serious neurological damage are greater in neonates with low Apgar scores at five minutes.
- Low scores may be due to complications in pregnancy and/or childbirth but may also relate to broader factors such as maternal health and socio-economic status.

Note: Data is for most recent year available.
1 1.2 for Sweden as a whole.
2 APGAR scores not published for the NHS in England or for the UK as a whole

SOURCES: National Core Maternity Indicators, AIHW, 2009 (Victoria); Provincial Overview of Perinatal Health in 2011-12 (Ontario); Enquête Nationale Périnatale, 2010 (France); Quality and Efficiency in Swedish Healthcare 2012; Maternal and Child Health Statistics, Department of Health, Arkansas, 2003; Straube et al, Arch Gynecol Obstet. Aug 2010; 282(2): 135–141 (Germany)

The French system delivers broadly similar outcomes to the UK across a range of maternal and neonatal indicators (3/3)



1 Data for 2009
2 Pooled estimate for 1996/7 to 2009/10 per 100,000 deliveries. Note the national rate for most recent year (2009) is 7.8 compared to 9.0 over the pooled period 1996/7 – 2009/10
3 Pooled modeled estimate for 2009-2013. Note: all World Bank estimates are higher than OECD equivalents but US is still an outlier (e.g. Germany 7, UK 8, France 12 using World Bank source).
4 Data is for 2011 or latest available year (from OECD Health Data); data is national only (not regional)
5 Higher rates may be linked to relatively low rate of cesarean-section of 16%, as compared to 26% in the NHS in England

SOURCE: OECD Health Data, 2013; Statistics Canada, Births, 2009; CCOPMM Annual Report 2009 (for Victoria, Australia); World Bank (for US maternal mortality); Quality and Efficiency in Swedish Healthcare 2012

Contents

- Impact – why this case study?
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Maternity units in France are risk-tiered on the basis of the level of neonatal care available

Maternity units by type, 2010

Number and per cent

Type of unit	# of units	% of units	% of births (100% = 832,799 (2010))	Risk profile	Summarised service requirements
Level 1 *Ave: ~900 births/ unit*	263	49	28	▪ No premature deliveries or multiple births ▪ Low maternal/fetal risk profile	▪ Delivery room(s) and facilities for neonatal resuscitation
Level 2 (2a + 2b) *Ave: ~2,000 births/ unit*	212	40	48	▪ From 30+ to 33+ weeks depending on level of NICU ▪ Moderate maternal/fetal risk profile	▪ Delivery room(s) ▪ Neonatal ICU - level determines gestational age limits
Level 3 *Ave: ~3,300 births/ unit*	60	11	24	▪ All risk profiles and gestational ages	▪ Delivery room(s) ▪ Neonatal ICU ▪ Dedicated neonatal resuscitation room

Equivalent to ~1 per 1.1 million population

- All maternity units are organised into regional networks centred on level 3 units
- **Epidural and emergency/ elective c-section are available (on site or on call) in all unit sizes and levels**
- Service levels are defined by neonatal resources (not obstetric resources)[1]

1 A Committee is currently looking at the evidence around maternity mortality and morbidity and may, in due course, recommend a further stratification of units based on obstetric risk profile.

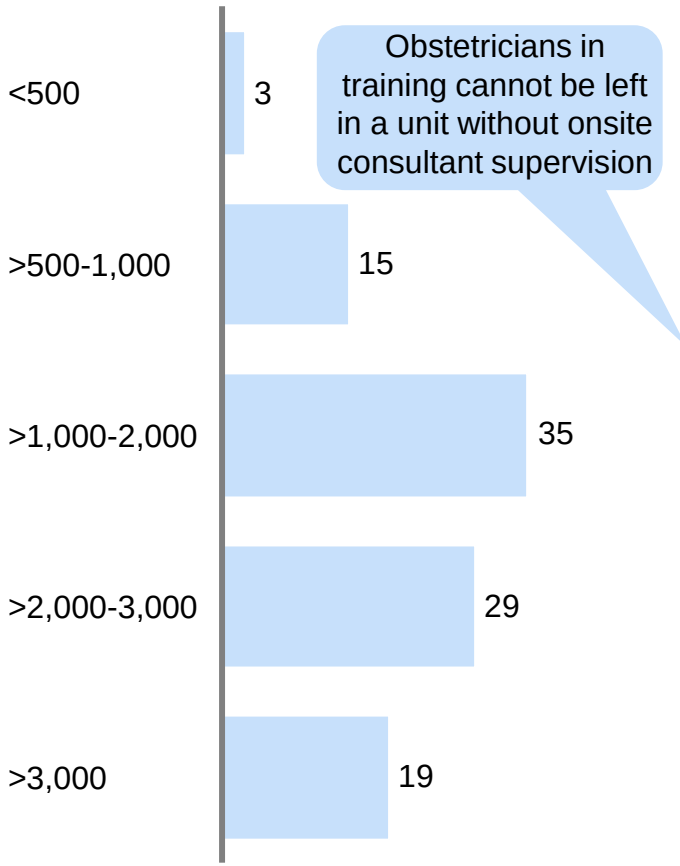
SOURCE: Haute Autorité de Santé, Qualité et sécurité des soins dans le secteur de naissance: Guide méthodologique, 014 (in French): Enquête National Perinatale, 2010 (DREES); Sante-medicine.net (accessed May 2014)

Workforce and other standards are determined by the size of the unit

Maternity units by type, 2010

Size of unit
Deliveries/year

Share of deliveries
% (100% = 832,799 in 2010)



Standards and requirements

Births/year	Workforce requirements
<500	24/7 presence of midwife who may have other (non-delivery suite) assigned duties if no delivery is in progress
<500	Paramedic assigned to the area of birth who may have other assigned duties if no delivery is in progress
>500	24/7 presence of midwife (with no concurrent duties outside of the delivery unit) plus 1 additional midwife FTE for each additional 200 births above 1,000
>500	Paramedic assigned to the area of birth (with no concurrent duties)
>2,500	1 additional midwife in supervisory role
<1,500	24/7 obstetrician (surgically qualified) and anaesthetist on site or on call and available in 20 minutes
1,500-2,000	24/7 obstetrician (surgically qualified) presence (in unit) and 24/7 anaesthetist on site (not necessarily in unit)
>2,000	24/7 obstetrician (surgically qualified) and anaesthetist presence in unit
All sizes	Paediatrician available on site 24/7
Births/year	**Dependent services requirements**
All units	Obstetric surgery including emergency surgery and abdomino-pelvic surgery relating to pregnancy and childbirth requiring general or regional/local anaesthesia
All units	Room equipped for care of the newborn including capability to resuscitate two children at a time (devices required is set by the Ministry of Health)
<1,200	Operating theatre may not be located in the area of birth provided it is in the same health facility
>1,200	Operating theatre and post-surgical observation room must be within or adjacent to the delivery area

SOURCE: Haute Autorité de Santé, Qualité et sécurité des soins dans le secteur de naissance: Guide méthodologique, 2014 (http://www.has-sante.fr/portail/upload/docs/application/pdf/2014-03/guide_qualite_securite_secteur_naissance.pdf)
Enquête National Perinatale, 2010

There are two main types of maternity care available, and women are free to choose the model they prefer

Public hospitals

Workforce contractual model

- Hospital employment

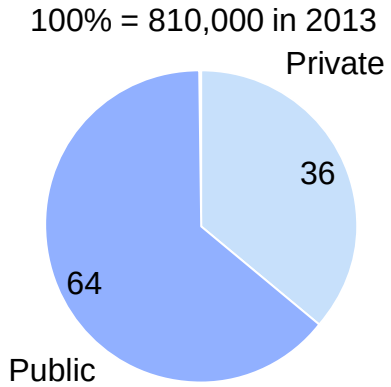
Approach to care

- In pregnancy, women are risk-stratified to:
  - Midwife-led care (low risk)
  - Obstetrician-led care (high risk)
- Risk-level also determines the choice of maternity unit for delivery (registration to a unit must happen by 22 weeks)
- Antenatal care >22 weeks (and postnatal care) is usually led by the hospital-based midwife team (this may be shared with the patient's outpatient obs/gynae doctor)
- Intrapartum care is provided by midwives in all levels of unit unless/until obstetrician and/or anaesthetist care is required:
  - Epidural rates: ~80% in larger units, ~50% in smaller units (63% in the NHS)
  - C-section rate: 21% (26% in NHS)

Payment model

- £1763[1] (compared to £1477 in the NHS)[2]

Share of deliveries by sector



Private hospitals

Workforce contractual model

- Self-employed
- Group practice (physician chambers)
- Hospital employed (not subject to national pay scales used in the public sector)

Approach to care

- Only women risk-stratified as appropriate for level 1 or level 2 care can register for a delivery in a private hospital (there are no private sector level 3 hospitals)
- Antenatal and postnatal care is provided by the outpatient obs/gynae
- Intrapartum care is provided by midwives employed by the private hospital who will call the obstetrician when delivery commences (and anaesthetist)

Payment model

- From £1087[1] payment to the hospital
- £255 (€320) fee to the obstetrician (some obstetricians may also claim "reasonable" additional costs[3]) plus anaesthetist's fee

1 Weighted average DRG value (converted from €) for vaginal delivery without complications (nulliparous and multiparous deliveries)
2 Maternity pathway tariff (delivery phase) for an uncomplicated risk profile
3 Academic obstetricians (meeting qualification criteria) have a "Sector 2" designation which allows them to make additional claims on the patient's supplementary ("mutuelle") insurance. Sector 1 physicians cannot make additional claims.

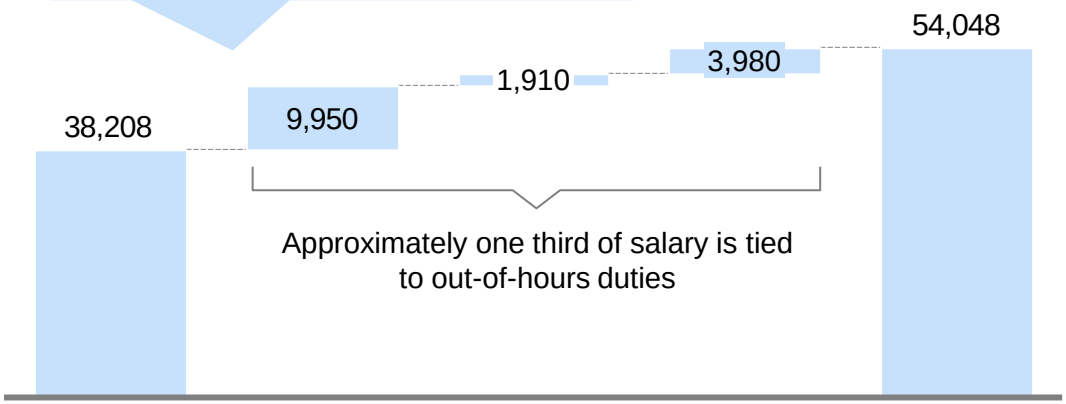
Consultant obstetrician salaries in France are 38% lower than in the NHS, and closer to 50% lower if adjusted for purchasing power parity

Typical gross salary for mid-tenure hospital-employed consultant Obstetrician in a mid-sized[1] public sector hospital in France

£ (converted from € at €1 = £0.796)

This model allows a maternity unit to provide 24/7 obstetrician coverage with 5-6 obstetricians on the staff at considerably lower cost than in the NHS [2]

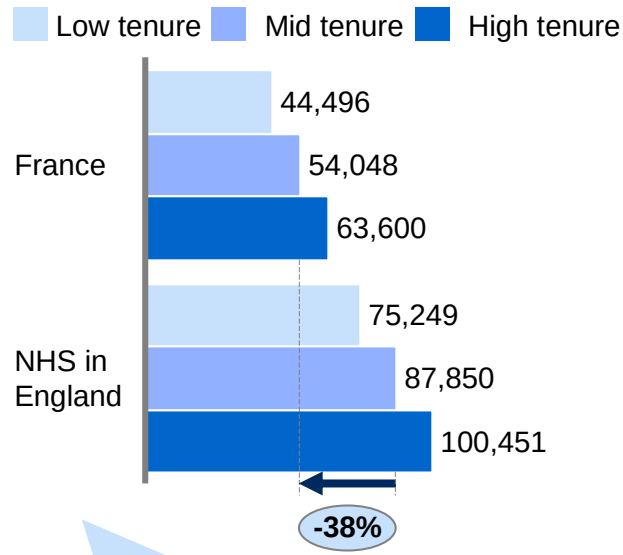
NB: Larger units are more likely to follow EWTD[2]



Base salary	Night shifts	On call fee	On call pay	Total
5 day week Hours vary (9-11 hr day on average)	~50/year Hours vary (usually 12-14 hr shift) €250/shift	~80/year €30/shift	50% conversion assumption €125 per call out	~70 hours/ week

Salary comparison to the NHS

£ (France converted from € at €1 = £0.796)



NHS consultants receive additional payments for overtime (>40 hours/week) and shifts outside of 7am-7pm which could increase base salary by 20-50%

Adjustment for Purchasing Power Parity:[3]

- £48,258 in France (PPP 1.12) and £94,666 in England (PPP 0.93) … equivalent to 49% difference in salary

1 Approximately 2,000 births year
2 Units with >4,000 births/year typically have ~10 consultants on the staff and would be more likely to follow EWTD standard (48 hr/week) and have fewer nights/on call duties per person
3 Indexed to 1 = average purchasing power in the European Union

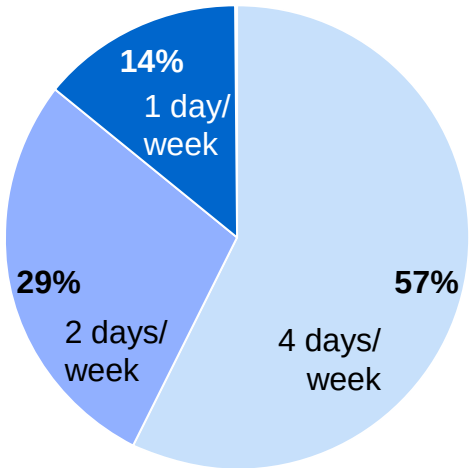
SOURCES: Expert interviews conducted by the research team; http://www.nhscareers.nhs.uk/explore-by-career/doctors/pay-for-doctors/ (for NHS salaries); OECD (PPP indices)

Obstetricians working in the private sector are not subject to regulated working hours or pay constraints

TYPICAL OBSTETRICIAN PROFILE (INDIVIDUAL PRACTICES VARY)[1]

Breakdown of time

- Scheduled work time
- On call duties
- Free time



- **Working hours are unregulated**
- Typically longer hours than public sector employed obstetricians
- Call outs during 'on call' time may be higher than in the public sector

Activity profile

- **200 deliveries/year**
- Antenatal care for 200 pregnancies/year
- Some postnatal care
- May also do ad hoc shifts and night duties (to fill gaps in the rota) at hospitals
- Obstetricians may be employed part-time in the public sector and also do private work either in public or private hospitals
- **Professors** (of obstetrics/ gynaecology) **may do private work (up to 25% of activity) but may not work outside of the AMC[2]** in which they are employed. This regulation is to ensure senior presence in level 3 maternity units

Earnings

- **Contractual models:**
  - Self-employed
  - Group practice
  - Private hospital employment
- Overall **earnings are not regulated** but the standard obstetrician fee per delivery is set nationally at £255 (€320)
- Obstetricians with higher levels of academic qualifications (academic research and fellowships) and a formal designation as a **"Sector 2" physician are eligible to claim additional "reasonable" expenses** from the patient's supplementary insurance ("mutuelle")

1 Individual practices will also vary in the relative proportions of obstetric and gynaecology work undertaken
2 Academic medical centre

SOURCES: Expert interviews conducted by the research team

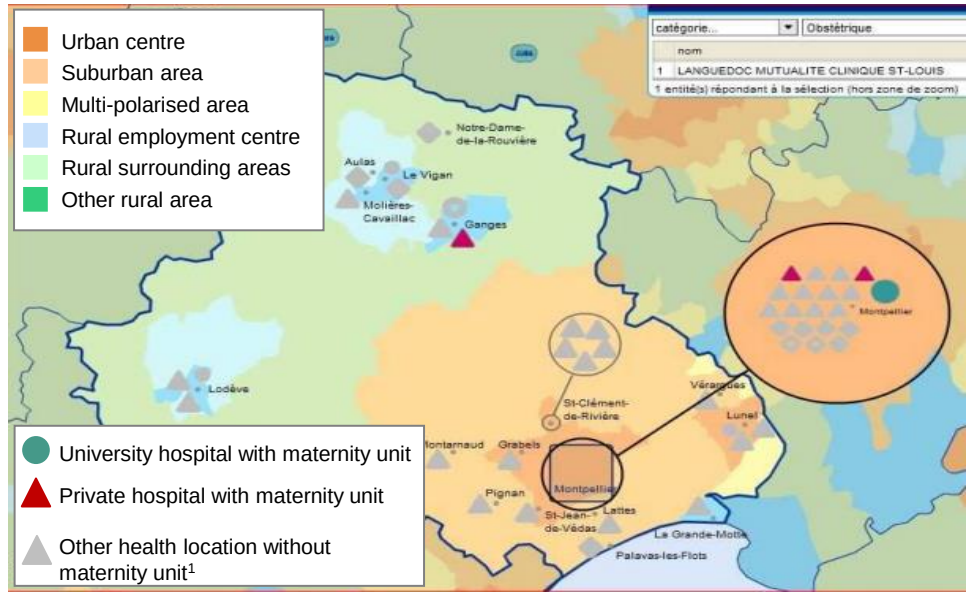
Maternity networks: Overview of Hérault region (Languedoc Roussillon)

Overview of maternity provision in the region

- Hérault has a population of 1 million
- C-section rate in the territory is 21.2%
- Regional maternity network created in 2004
- There are 4 maternity units in the region:
  - One level 3 unit with 3,200 births/year
  - Two level 2a units with 3,100 and 2,300 births/year
  - One level 1 unit with 315 births/year
- Following the closure of the Lunel maternity ward, a CPP (Perinatal Centre at Close Proximity) was created. CPPs provide antenatal and postnatal care (including postnatal beds) but no intrapartum care

Maternity network and transfer arrangements

- The Regional Perinatal Orientation Unit organises orientations and transfers to ensure level 3 units do not become overcrowded
- Its role is to advise professionals on whether to transfer and to which level. Once the decision is made to transfer, the Regional Perinatal Orientation unit locates an available place.
- Its role also includes data collection and analysis to monitor performance and provide tailored training and advice to each institutions
- Practical aspects of the transfer are managed by 5 SAMUs (ambulance services) in the region
- The absence of level 2b units in the region tends to focus transfers to level 3 (80% of transfers)
- 2008-2009 the Perinatal Transfer Unit dealt with 1,600 transfer requests of which 46% were in utero



Map of maternity services in the region (6,101 km²)

Networks and information sharing - NLR (Naître en Languedoc Roussillon)

- NLR (Naître en Languedoc Roussillon) network publishes and disseminates maternity protocols
- NLR provides tailored posters for each institution with the names and telephone numbers of contact persons at each stage.
- The Common Computerized Perinatal File (developed by the NLR network) is available to all perinatal professionals in the region
- The NLR service is attempting to implement a paperless certificate to allow for more complete, "real time" data collection (as part of a national pilot)

1 Shapes denote different organisational forms (private/public, hospital/clinic/other)

SOURCE: Évaluation du plan périnatalité 2005 - 2007, Etudes de territoires, Ministére des Affaires Sociales et de la Santé, 2011; INSEE, 2011

Maternity networks: Overview of Perpignan (Pyrénées Orientale)

Overview

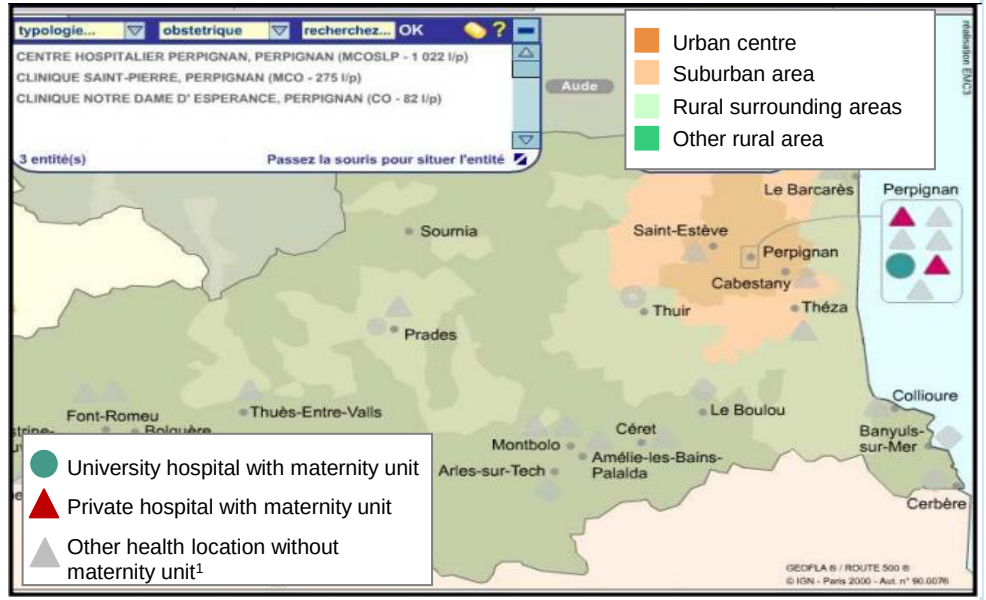
- Pyrénées Orientale has a population of 450,000 of which ~300,000 live in the greater Perpignan area
- There are 3 maternity units in the region:
  - One level 3 unit with 3,200 births/year
  - Two level 1 units each with ~300 births/year
- There are 109 obstetric beds and 20 NICU beds
- All 3 maternity units in the Pyrenees-Orientales region are located in Perpignan. Despite this, only 17% of women (aged 15-49 years) in the region are more than 20 minutes travel time from a maternity unit

Workforce

- The density of specialists in obstetrics/gynaecology is 46.4 per 100,000 women (aged 15 to 49 years)
- The density of midwives is 129.4 per 100,000 women (aged 15 to 49).

Access to Maternity Services

- Closure of the Prades and Ceret maternity units was not followed by the opening of a CPP (Perinatal Centre at Close Proximity) which has provoked public criticism
- This has led to an increase in home births in areas further from the remaining maternity units
- A trans-border agreement with the Spanish hospital Puigcerda allows French citizens to use their maternity services (~50 births/year to French residents) provided the 3rd trimester consultation is done on site



Map of maternity services in the region (4,1161 km²)

Transfer agreements and network arrangements

- In 2010, agreements were made between level 1 and 3 maternity units to specify the events or conditions that would trigger the transfer of the mother and/or child to the level 3 centre
- The paediatric and obstetric teams of both units hold a weekly videoconference to help discuss current cases in order to anticipate the decision to transfer – increase elective, planned transfers and reduce emergency transfers during labour

1 Shapes denote different organisational forms (private/public, hospital/clinic/other)

SOURCE: Évaluation du plan périnatalité 2005 - 2007, Etudes de territoires, Ministére des Affaires Sociales et de la Santé, 2011; INSEE, 2011

Challenges in the French maternity system

Changing workforce expectations relating to working hours

- There are increasing numbers of women in the obstetric workforce (~70% of retiring obstetricians are men; ~90% of those entering the profession are women) and this has had an influence on working hours – which are gradually reducing
- Larger units are likely to follow EWTD[1] guidance (understood as a 48 working week in France) but this is less common in smaller units (≤2,000 births)
- Maternity units with gaps in rotas or vacant posts, fill these in various ways:
  - Physicians` work in >1 hospital (doing ad hoc shifts outside of their core job and during holiday periods)
  - Physicians on the staff have to cover additional shifts
  - Occasionally, locum agencies are used (but this is rare)
  - Physicians are recruited from ex-EU but note that this cannot be in consultant roles and the bar to gain entry is rising each year (annual, national exam regulates entry in the public sector) trained physicians.

Maintaining workforce quality

- Perceptions of the quality of physicians trained in France is high because:
  - Trainees cannot be left without consultant supervision so have very high exposure to senior staff (and log books are almost unnecessary)
  - Trainees work the same shift patterns as consultants
- Obstetricians trained outside of the EU are usually only employed in Assistant (non-consultant roles). There is a nationally-organised annual exam that all potential non-EU recruits have to sit. The standard required has been increasing year-on-year in response to quality fears for non-EU trained physicians.

Challenges in smaller units

- Smaller units (<2,000 births/year) struggle the most to maintain adequate rotas to provide 24/7 coverage (on site or on call for very small units):
  - Some small units link with a nearby large unit and on call requirements are met by physicians working in the larger unit
  - Although smaller units are required to provide an anaesthetist on call available within 20 minutes, epidural rates are lower in small units suggesting access is inconsistent
  - Regional health authorities (ARS) play a role in planning/authorising bed volumes in their regions, and through this process act as the main drivers of closures and mergers of smaller units (~50% of units have closed in the last 30 years)

1 European Working Time Directive
SOURCES: Expert interviews conducted by the research team

Contents

- Impact – why this case study?
- Description – what did they do?
- **Enablers – how were they able to do this?**

The French maternity system is dependent on a substantial amount of workforce flexibility combined with purposeful system design

Workforce flexibility	▪ France has a broad mix broad of contractual models – with around a third of obstetricians working in self-employed practice or physician chambers – which supports a broader range of provider sizes and delivery models ▪ On call duties and night shifts are a standard part of the working life of an obstetrician from training and throughout their careers
Role of the ARS in capacity planning	▪ Regional health authorities (ARS) are responsible for planning and authorising bed numbers in their region, and have the power to close smaller units (or to force mergers or networked relationships) where they see that this is necessary, though this is a highly political process
Tiered providers and network arrangements	▪ Providers have been organised into standardised tiers and regional networks to ensure that transfer processes and protocols are in place ▪ This process is considered to work well and may be extended to include greater stratification for obstetric risk (current focus is on neonatal care)
Willingness to pay	▪ Despite lower salary levels in the French public system, the basic DRG payment for a normal, uncomplicated delivery is almost 20% higher than in the NHS ▪ Overall health expenditure is 11.8 of GDP (compared to 9.4% in the UK). This equates to £2,767 (US$4,690) per person in France, compared to £2,159 (US$3,659) in the UK.

Note: Currency conversion rate used US$1 = £0.59.
SOURCE: Expert interviews conducted by the research team; WHO World Health Statistics, 2014