



Health Information System in perinatal health decision making for Parisian region (IDF) Health Authority

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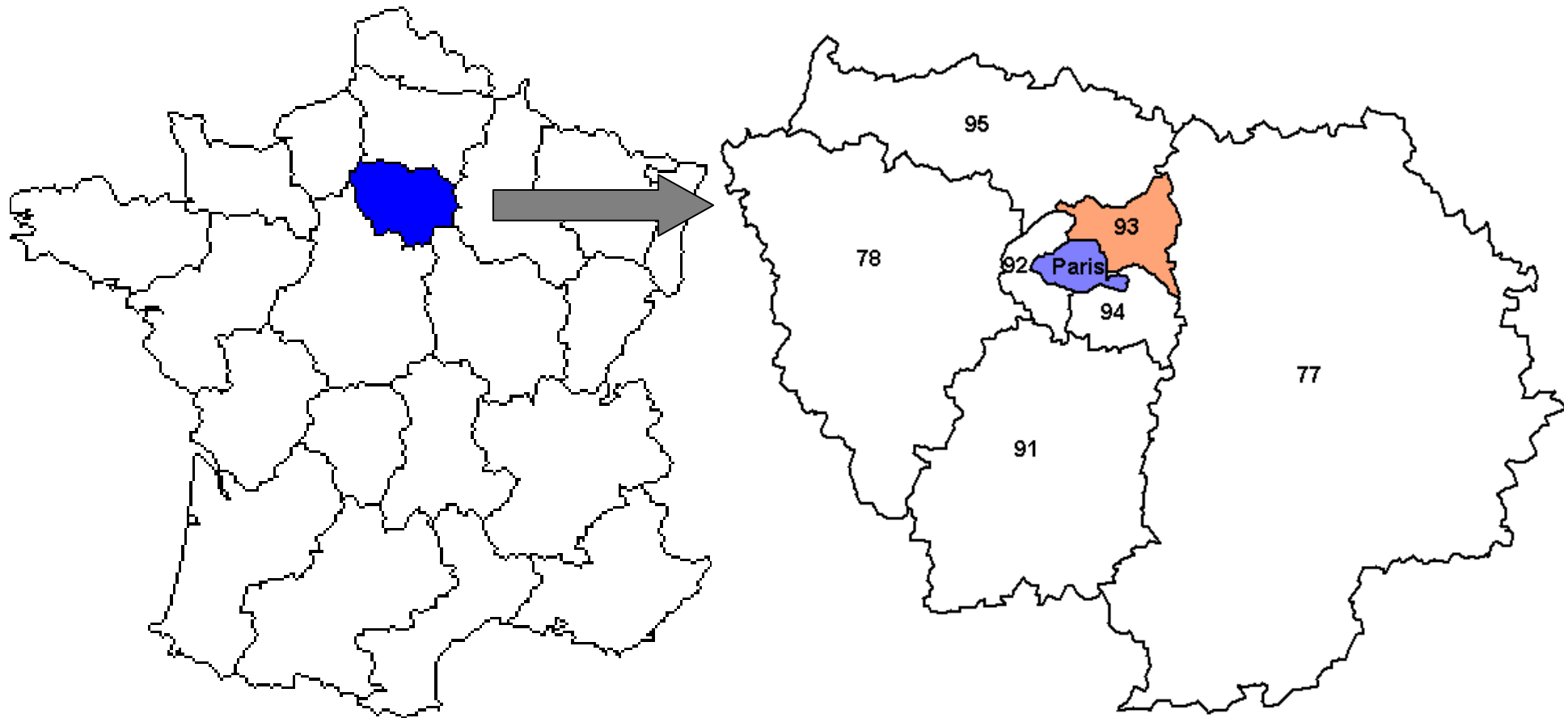
ORAHS 2011



Outline

- **Background** : Ile de France region and perinatal health policies
 - **Objectives**
 - **Methods**
 - **Results**
 - **Socio-economic characteristics**
 - **Perinatal indicators**
 - **Perinatal structures**
 - **New allocation of resources proposal**
 - **Spatial heterogeneity: Focus on Hauts de Seine district**
 - **Discussion**
 - **Conclusion**
- 

Background(1): Parisian region (IDF) more than 1/5 of french births

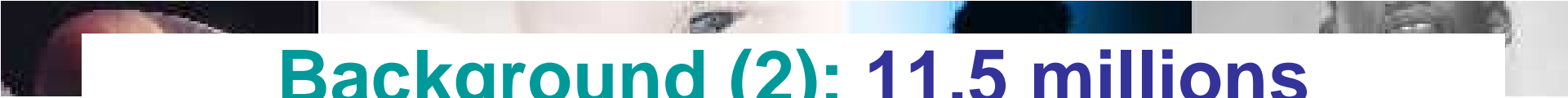


Regions of France

800 000 births

Parisian region (IDF)

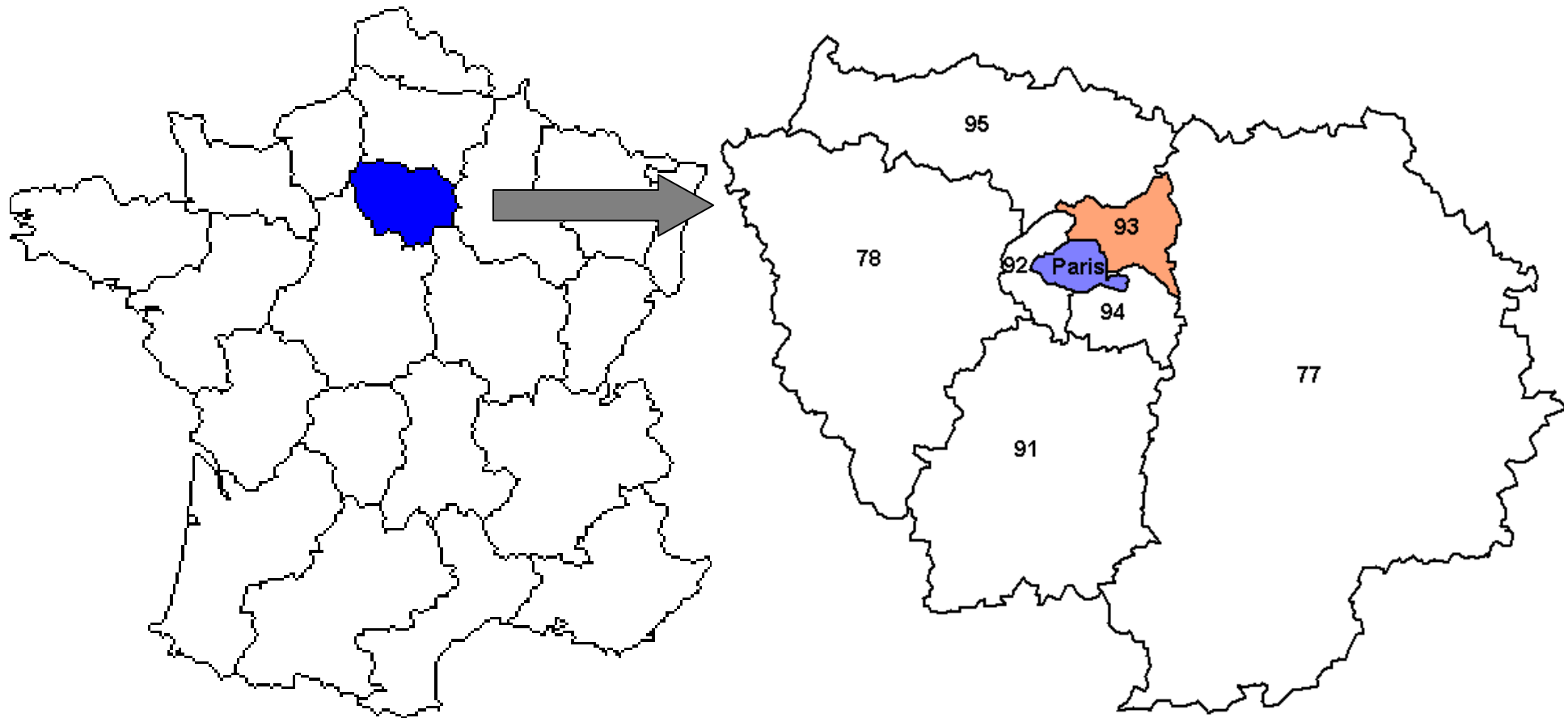
180 000 births



Background (2): 11,5 millions inhabitants and marked contrasts

- High level of birth rate
(fertility index 14 to 19)
- The youngest region
- First economical region
- Longer expected life time
but health level better in
west and centre
- Variable Demographic
expansion
- Aging Population
- High Income level but
unequally distributed and
Variable Inemployment rate
- Rather high Infant mortality
rate in north and east

Background(3): Parisian region (IDF) more than 1/5 of french births



Regions of France

800 000 births

Parisian region (IDF)

180 000 births




Background (4)

Inequalities in perinatal healthcare (2008):

- **Neonatal mortality rate**
 - 2.7/1000 IDF > 2.3/1000 France
- **Stillbirth rate**
 - 12/1000 (from 9.5 to 14.7 /districts) IDF > 9.6/1000 France


Are they due to inequities?

A Regional health authority concern in planning process:

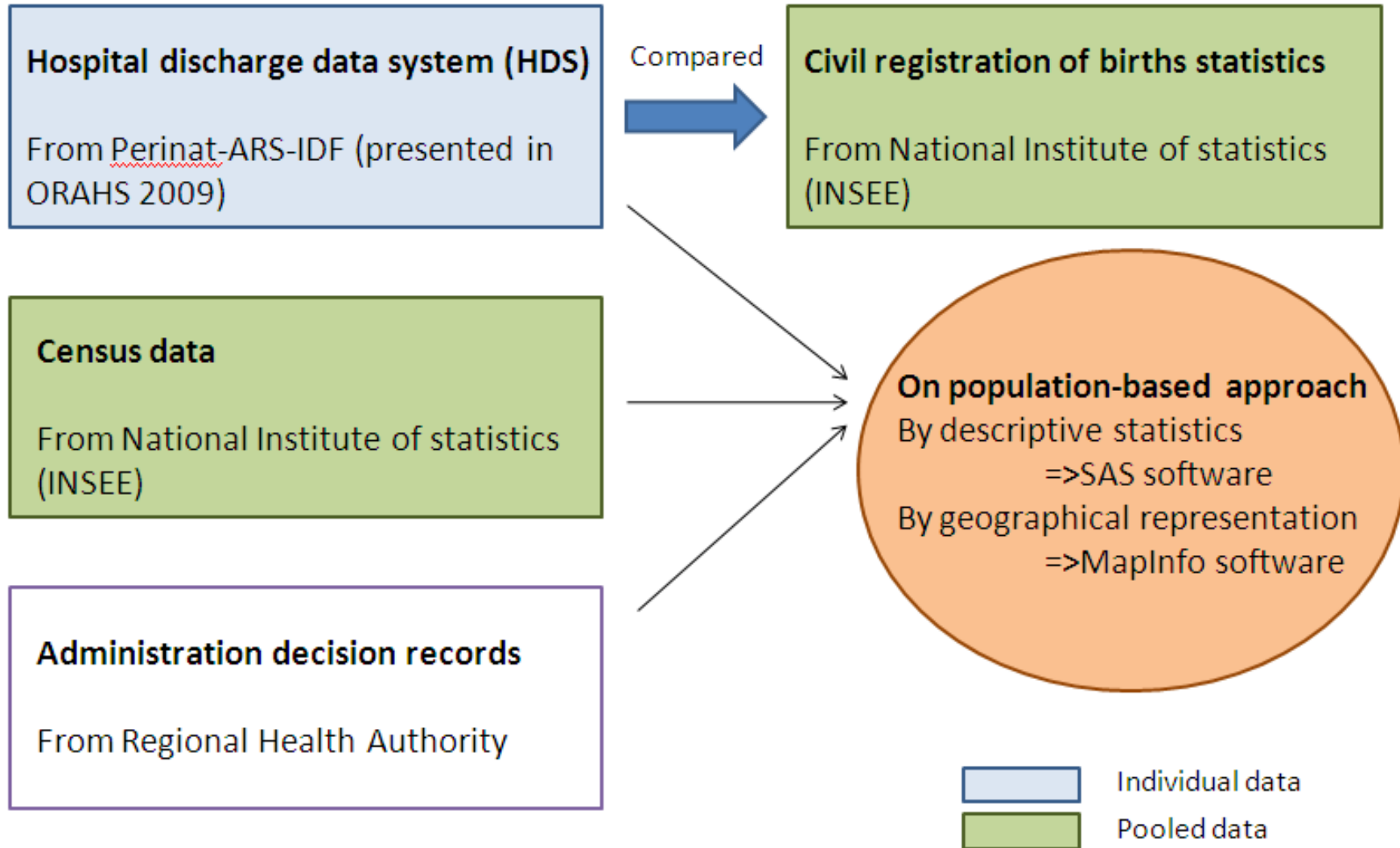
- **Regional Strategic public health Plan (submitted to consultation in 2011)**
 - **Regional health Organization scheme (2012-2016):**
 - **Closure of some central structures:**
 - **an opportunity for a new allocation of resources**
 - **toward a balanced distribution?**
- 



Objectives


- 1- Check the ability of our information system to produce suitable data**
 - 2- Answer quickly to Regional Agency planning service demand**
 - 3- Establish grounds for further reflection about perinatal issues and accessibility to maternity care from a social and geographical point of view**
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Methods





Results outline

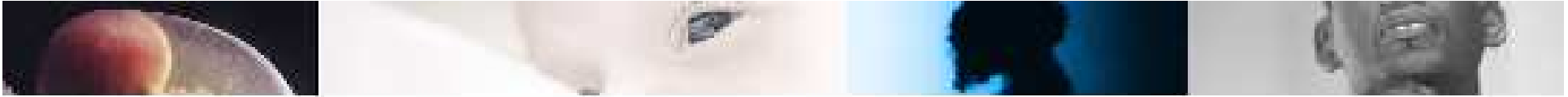
- Socio-economic characteristics
 - Perinatal indicators:
 - living births, still birth rates, hospital neonatal mortality, low birth weight births, care access
 - Perinatal structures: distribution of NICU
 - New allocation of resources proposal
 - Spatial heterogeneity: focus on Hauts de Seine district
- 

Socio-economic characteristics (1)

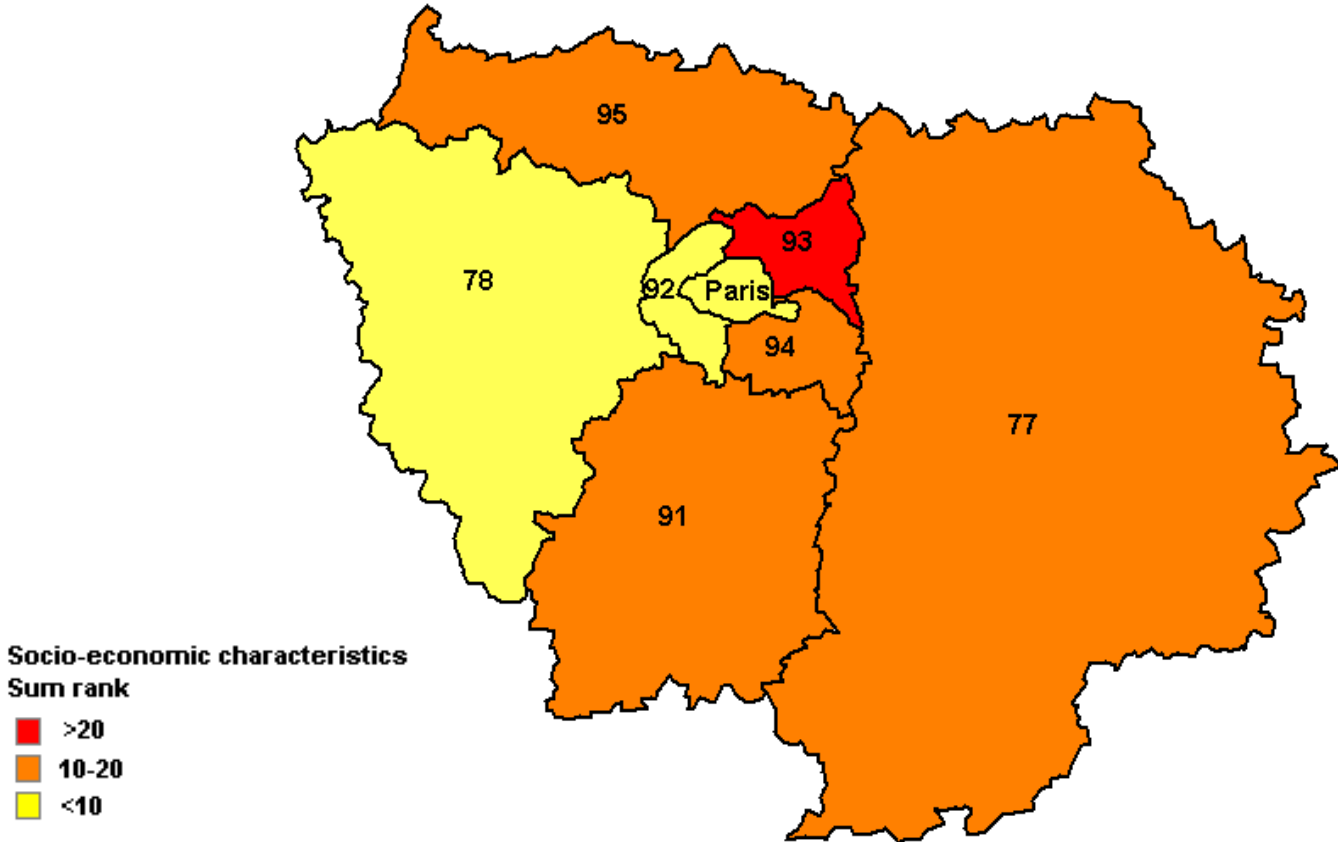
District	Unemployment rate		Manual workers rate		Education attainment*		Sum Rank
75 Paris	4	11,0%	1	7,4%	1	32,9%	7
77 Seine-et-Marne	3	9,1%	7	19,7%	7	59,7%	17
78 Yvelines	1	8,3%	3	13,2%	3	47,2%	7
91 Essonne	2	8,7%	5	16,1%	5	54,0%	12
92 Hauts-de-Seine	5	9,7%	2	9,6%	2	40,7%	8
93 Seine-Saint-Denis	8	16,2%	8	23,0%	8	64,6%	24
94 Val-de-Marne	6	11,0%	4	14,8%	4	52,1%	13
95 Val d'Oise	7	11,2%	6	18,1%	6	58,4%	19
Ile-de-France		10,7%		14,4%		49,4%	

*Education attainment: % population without baccalaureat

Source : INSEE 2009

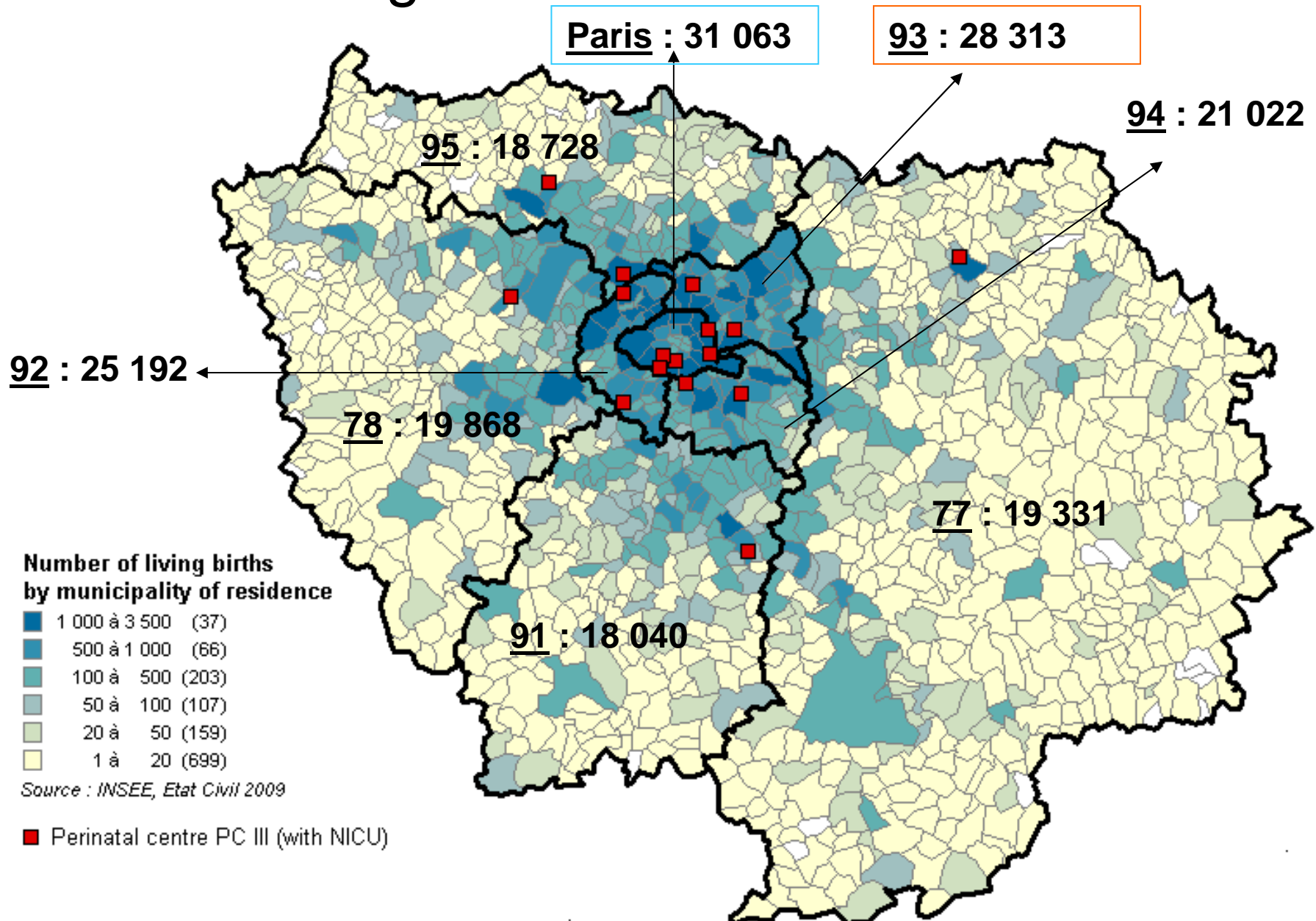


Socio-economic characteristics (2)



Perinatal indicators :

living births in IDF = 181 557

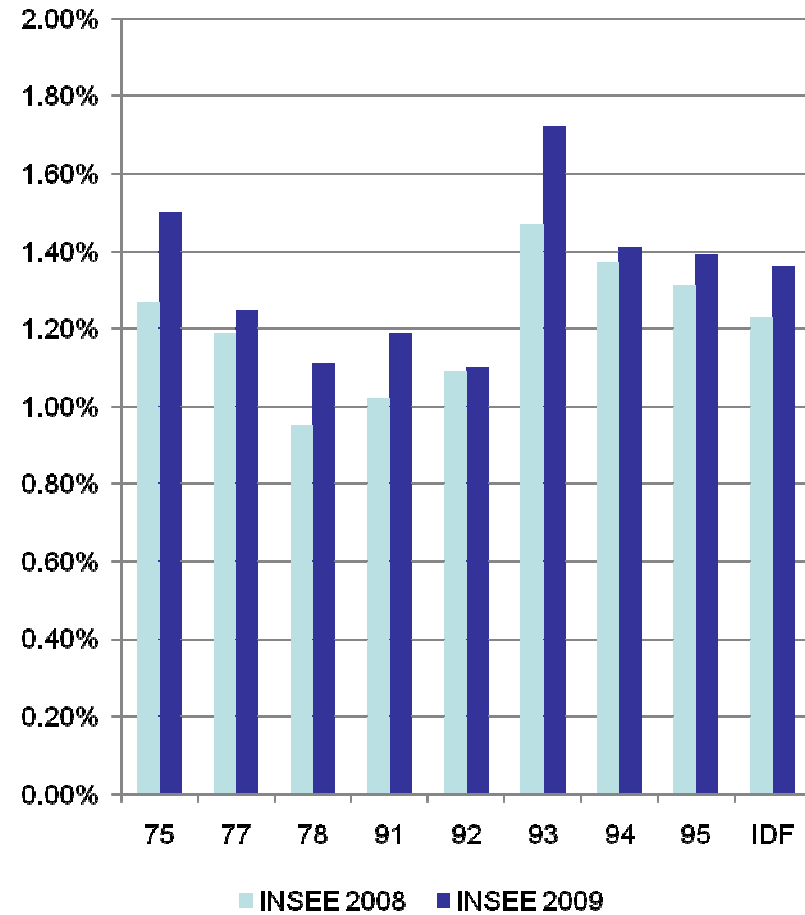
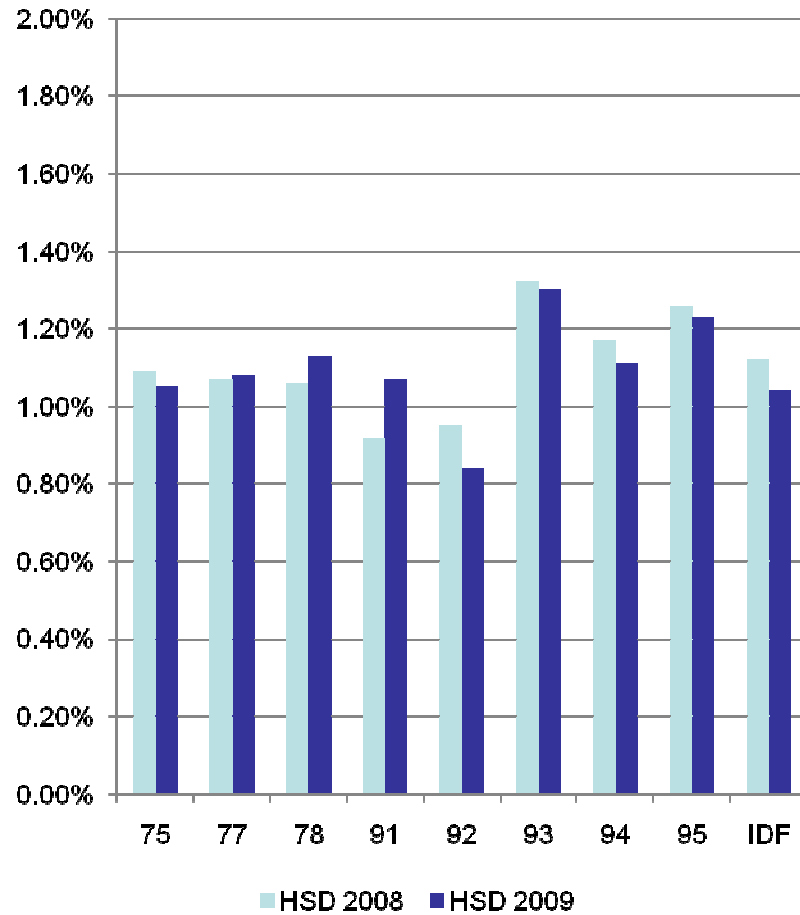


Perinatal indicators :

stillbirth rate

District	2008 SB (HSD)	Still birth rate (HSD)	2008 SB (INSEE)	Still birth rate (INSEE)	District	2009 SB (HSD)	Still birth rate (HSD)	2009 SB (INSEE)	Still birth rate (INSEE)
75	335	1,09%	395	1,27%	75	328	1,05%	463	1,50%
77	188	1,07%	232	1,19%	77	204	1,08%	245	1,25%
78	204	1,06%	191	0,95%	78	220	1,13%	224	1,11%
91	165	0,92%	187	1,02%	91	188	1,07%	217	1,19%
92	232	0,95%	280	1,09%	92	207	0,84%	282	1,10%
93	362	1,32%	419	1,47%	93	363	1,30%	497	1,72%
94	237	1,17%	289	1,37%	94	230	1,11%	301	1,41%
95	229	1,26%	262	1,31%	95	225	1,23%	278	1,39%
	1 952	1,12%	2 255	1,23%		1 965	1,04%	2 507	1,36%

Perinatal indicators : stillbirth rate



Perinatal indicators :

hospital neonatal mortality

Hospital neonatal mortality in 2009

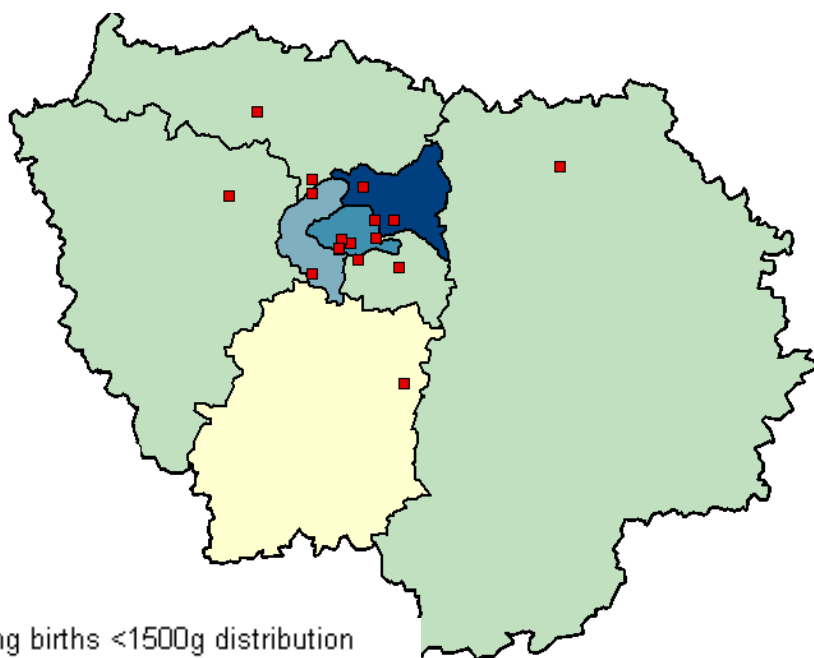
District	Number	%o
75 Paris	59	1,9
77 Seine-et-Marne	36	1,9
78 Yvelines	33	1,7
91 Essonne	33	1,9
92 Hauts-de-Seine	43	1,8
93 Seine-Saint-Denis	74	2,7
94 Val-de-Marne	43	2,1
95 Val d'Oise	33	1,8
Ile-de-France	354	2,0

Source : HDS 2009

Perinatal indicators : very low birth weight (<1500g) NN

Distribution

Rate



Living births <1500g distribution
by district

- 17,5 à 20%
- 15 à 17,5%
- 12,5 à 15%
- 10 à 12,5%
- 7,5 à 10%

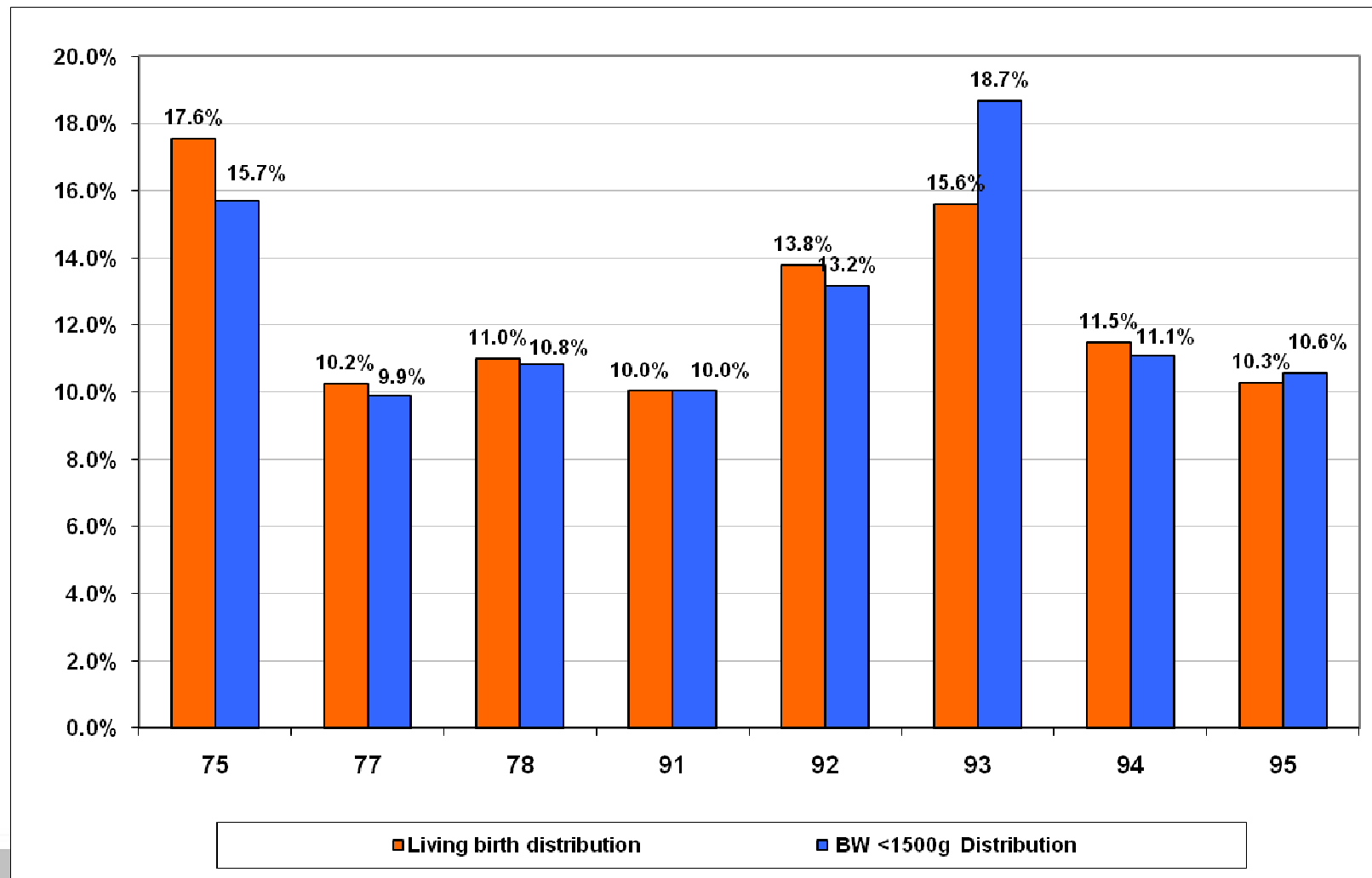
Source : Périnat-ARS-IDF, HDS 2009

■ Perinatal centre PC III (with NICU)

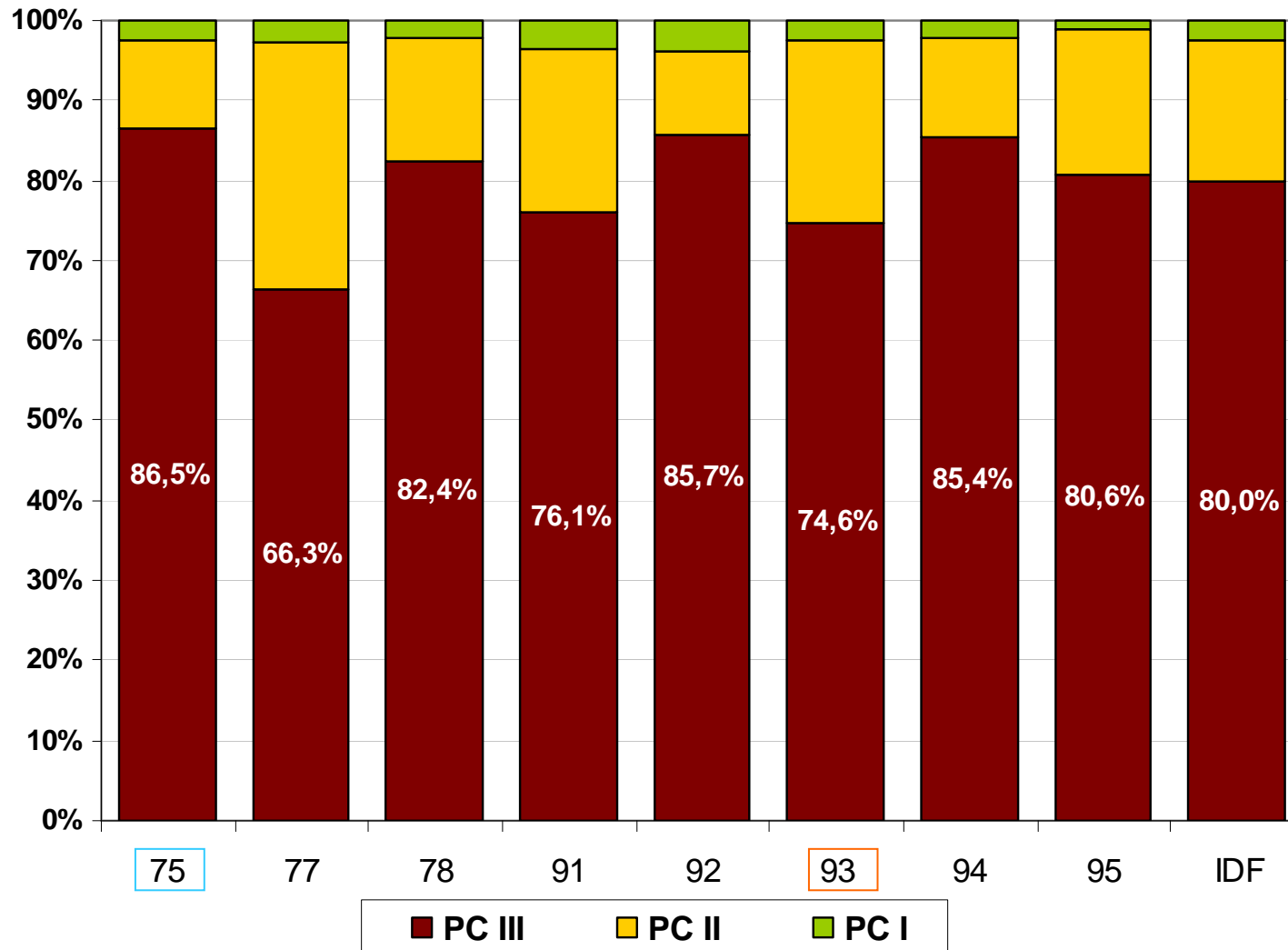
District	Number	%
75 Paris	273	0,89%
77 Seine-et-Marne	178	0,95%
78 Yvelines	176	0,92%
91 Essonne	163	0,93%
92 Hauts-de-Seine	238	0,97%
93 Seine-Saint-Denis	303	1,10%
94 Val-de-Marne	192	0,94%
95 Val d'Oise	180	0,99%
Ile-de-France	1 703	0,96%

Source : Périnat-ARS-IDF, HDS 2009, living births

Perinatal indicators : distribution of very low birth weight NN



Perinatal indicators: care access place of birth of VLBW NN - % in PC III



Source : Perinat-ARS-IDF, HDS 2009, living births

Perinatal structures :

distribution of NICU beds per 10 000 births

District	Number of NICU beds	Number of NICU beds per 10 000 living births
75 Paris	65	20,9
77 Seine-et-Marne	6	3,1
78 Yvelines	12	6,0
91 Essonne	6	3,3
92 Hauts-de-Seine	26	10,3
93 Seine-Saint-Denis	25	8,8
94 Val-de-Marne	18	8,6
95 Val d'Oise	13	6,9
Ile-de-France	171	9,4

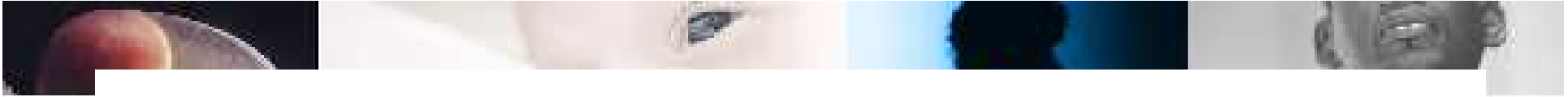
Source : ARS IDF, decision records and INSEE 2009



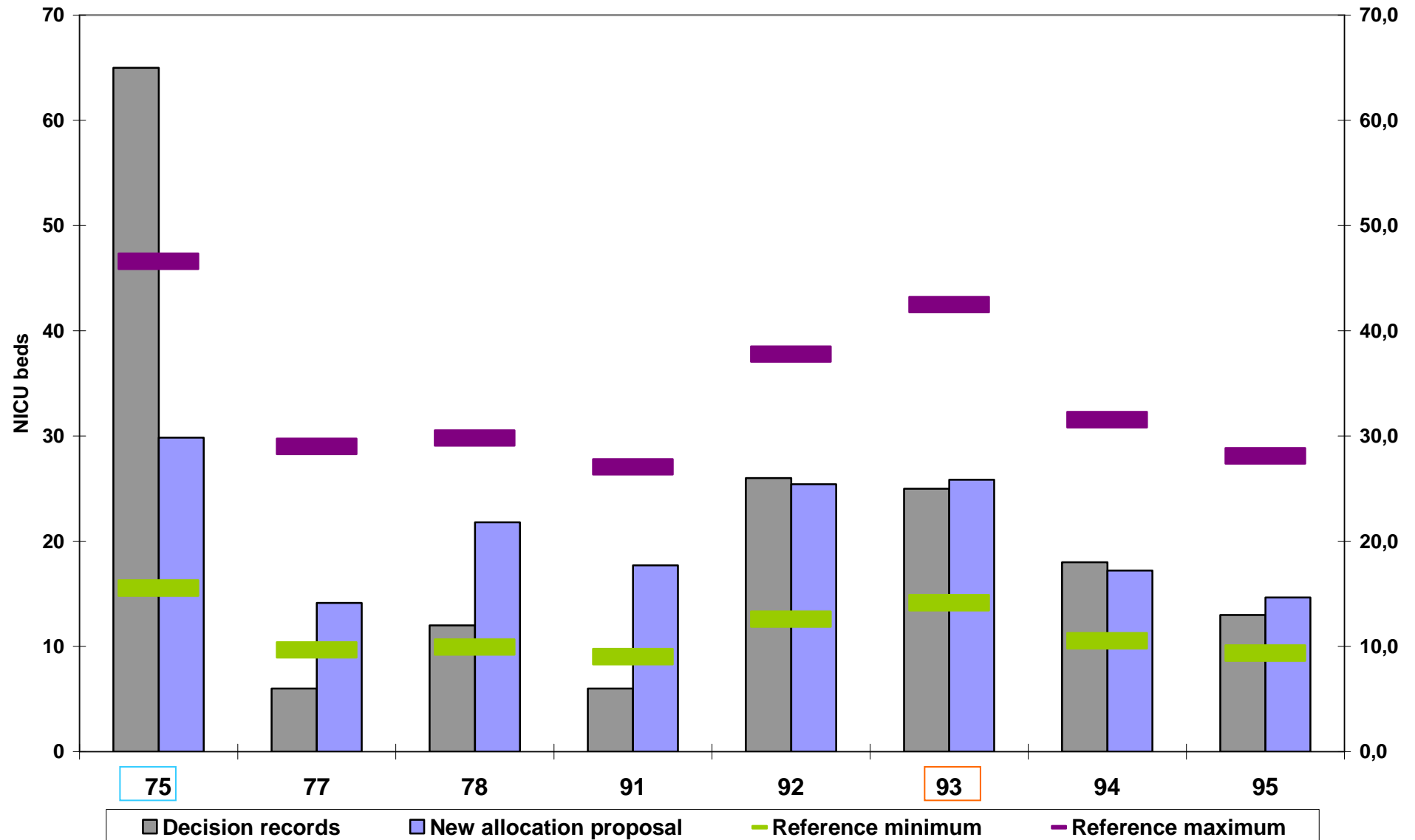
New allocation of NICU beds

- Assumption: Neonatal intensive care **needs** assessed from NICU **observed stays**
 - *Source : Perinat-ARS-IDF, HDS 2009*
- According to an occupancy rate of 80%

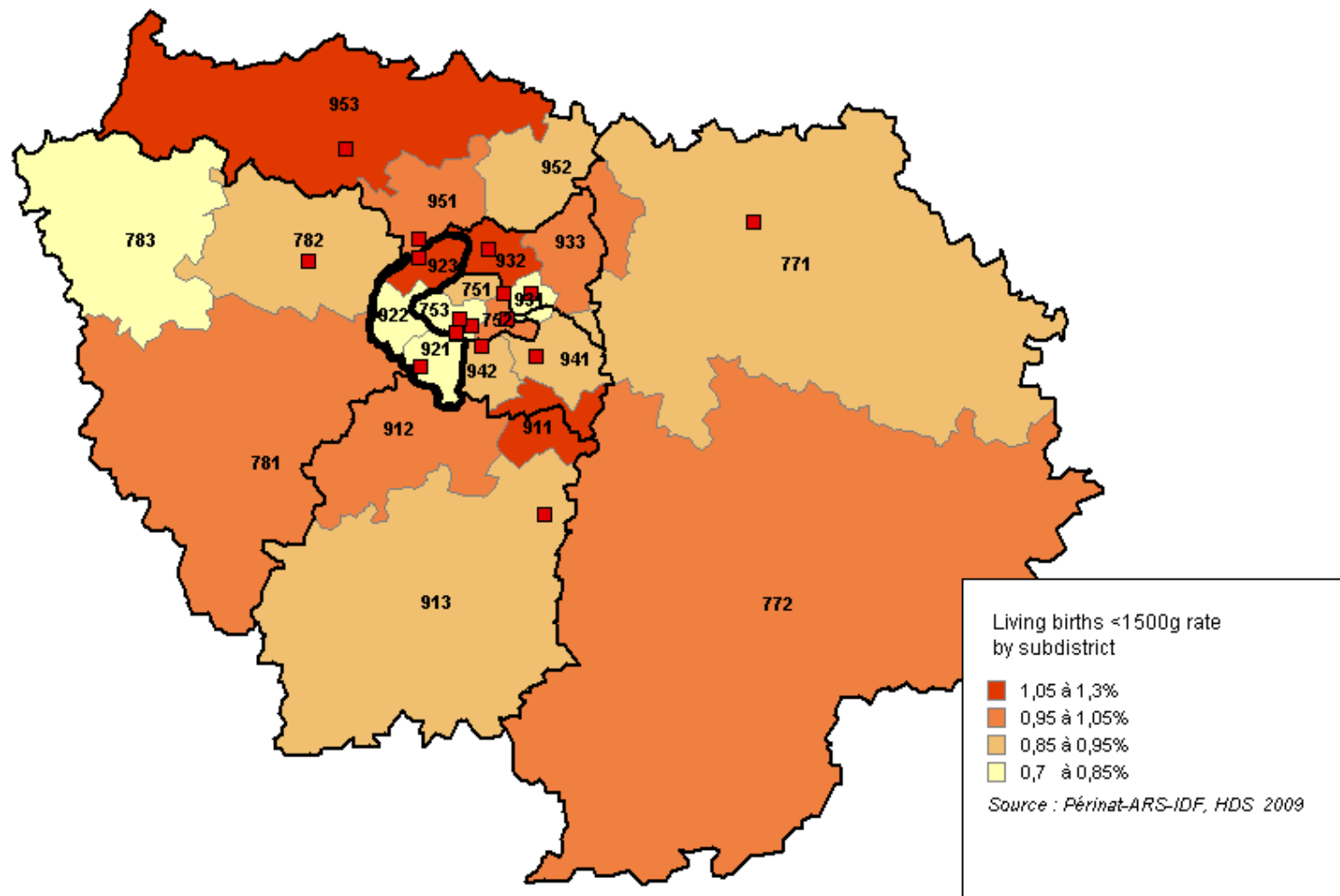
$$\frac{0,8 \times \sum \text{full NICU length stay}}{365}$$

New allocation of NICU beds proposal



Focus on Hauts-de-Seine (92)



Very low birth weight rate by subdistrict

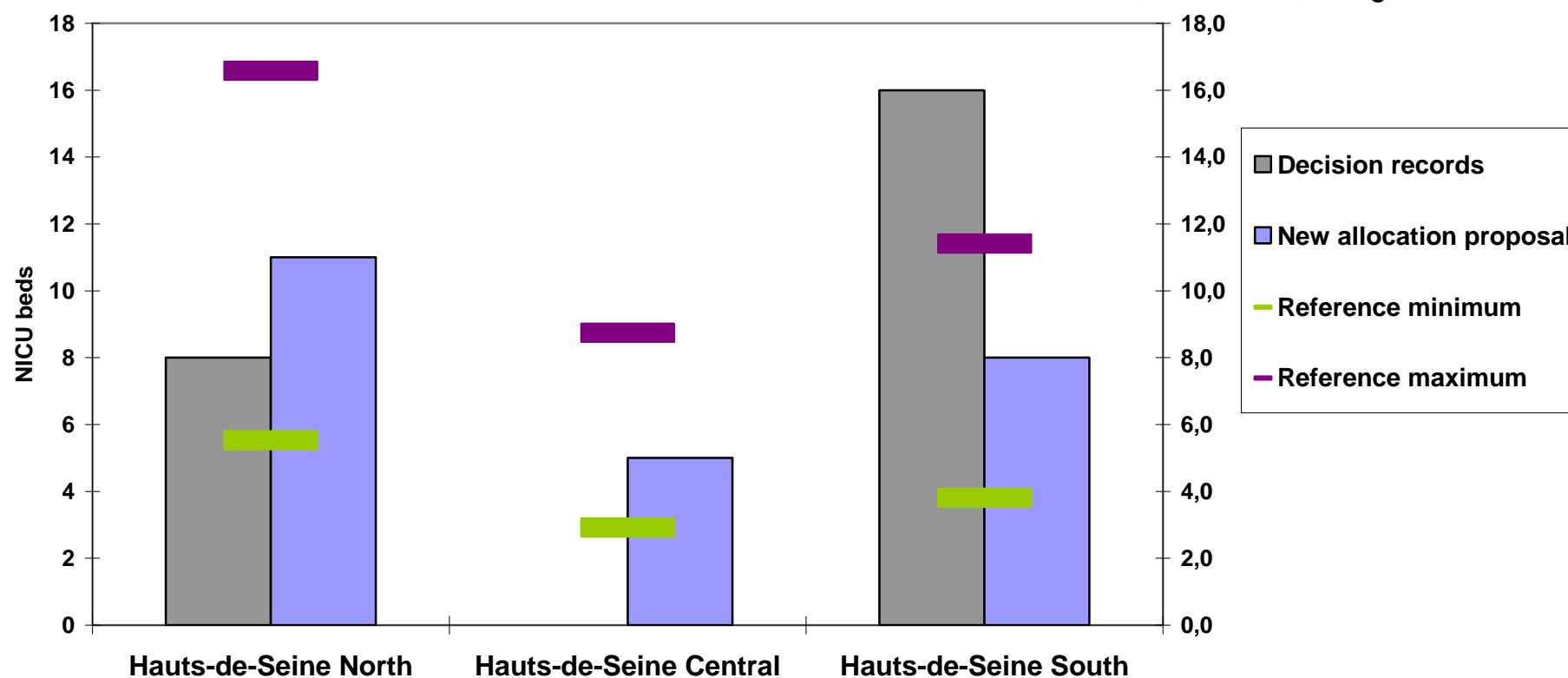
New allocation proposal for Hauts-de-Seine

Subdistrict	Living births	Number of <1500g	<1500g rate	<1500g rate in PCIII
Hauts-de-Seine North	11 050	127	1,15%	84,3%
Hauts-de-Seine Central	5 827	47	0,81%	80,9%
Hauts-de-Seine South	7 604	64	0,84%	92,2%
Hauts-de-Seine	24 481	238	0,97%	85,7%

khi² p=0,037

khi² p=0,19

Source : Perinat-ARS-IDF, HDS 2009, living births





Discussion (1)

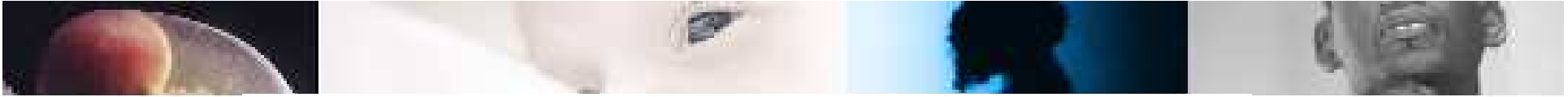
➤ **Completeness and Quality of the data :**

- **Hospital Discharge Summary (HDS) birth data compared to births by IDF residents in vital statistics « INSEE »:** problems with change in the registering law for stillbirth neonates in 2008.

2008->2009
Living births
96.7% -> 97.3%

2008 ->2009
Still births
87% -> 78.4%

- **Administrative Decision records compared with a professional enquiry:** problems to know the actual availability of neonatal beds along the years and seasons (variations mainly due to skilled staff availability)



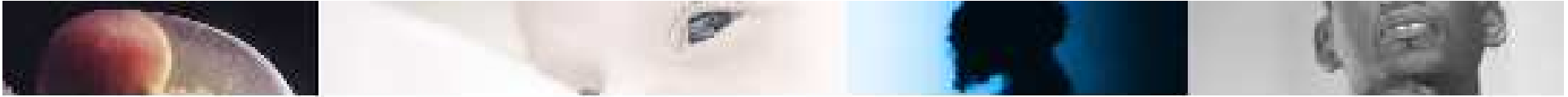
Discussion (2)

- **Choice of indicators and Ecological approach:**
 - How to explain mortality / very low birth weight rate differences?
 - Part of socio-economics characteristics?
 - Part of care access and resources?

- **Distribution of resources:**
 - Distribution of resources: better allocation according to needs?
 - Bias in measuring « use » instead of « needs »?
 - No measure of professional availability in our proposal

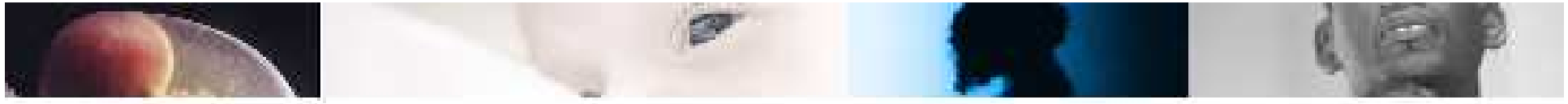
 - District scale may be too large because of heterogeneous population as it is shown in 92 district

 - There is no actual district « barriers » for patients, « artificial limit »



Conclusion and future work

- Combining **analysis** from routine information system and other statistics should help to provide « **validated** » **data** for a **regional vision** of restructuring
- Analysis on a territorial basis is important to evaluate health care **needs** and the adequacy, **accessibility** to health care
 - *Is it enough to reverse the « inverse care law »?*
- Future work is thought in collaboration with conducted OR by Ecole des Mines in our **perinatal networks in Hauts de Seine 92**
 - *Thanks to ORAHS conference in 2009 for allowing this collaboration project!*



Thank you for your attention

Any Questions?

www.perinat-ars-idf.org

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Journée des réseaux 2009
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Un système d'information en périnatalité dans la région Ile-de-France

Un projet de l'ARS Ile-de-France développé en partenariat avec les professionnels de la périnatalité et du PMSI à partir des données de 2006.

En 2006, 23% des naissances vivantes en France étaient enregistrées dans les établissements d'Ile-de-France (183 794 nouveau-nés nés en IDF). 182 758 nouveau-nés sont domiciliés en IDF (*source INSEE*).

En 2009, 181 565 nouveau-nés vivants sont domiciliés en Ile-de-France.

C. Crenn-Hebert, C. Menguy, E. Lebreton

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