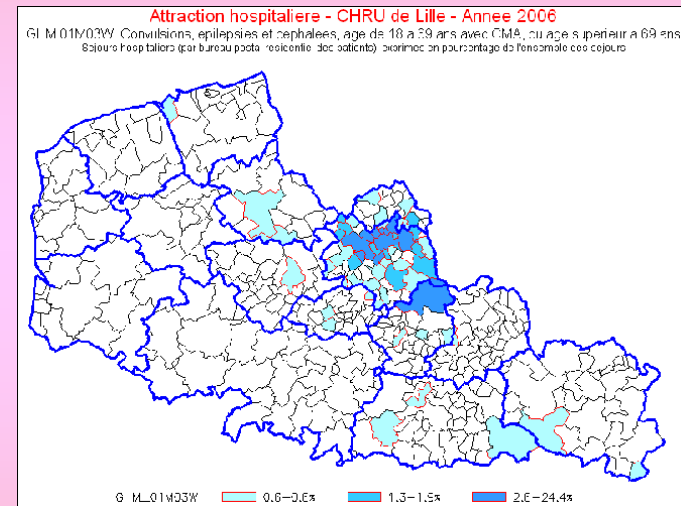


POLESAT : e-Atlas of Health, Planning & Sustainable Development for Information Society Development

ENRGHI_2009

*14th Emerging & New Research of
Geographies of Health and
Impairment Conference*



What's the question or problem you will focus on?

- How and where is healthcare used?
- Does information exist about health care utilization?
- Can we get some help to choose and consume health care ?



Background

→ Health geography

- New discipline in France
- Often goes unrecognized by health professionals, decision-makers & general public

→ The general public

Takes cognizance of health care supply with:

- the help of general practitioners,
- healthcare report in newspaper.

→ Health Professionals

- have no recent information on geolocalisation of supply & demand (S&D).
- Partial knowledge of S&D through their own professional healthcare network

Challenge

Answers to our specific questioning & for others, thanks to:

→ Design & development of decision-making tools in our geomatics platform

Internet, Intranet, Extranet

→ Improving communication & diffusion of geographical health information to professionals & the public

→ Providing the most basic information needed to make an informed choice of future hospitalization.

→ Improving geographical knowledge:

- health care S&D, with help of a geomarketing new approach.

→ Check out potential territory of health care consumption depending on real life spaces.

Aims

➔ To start our research project called 'POLESAT'

with specific tools:

- e-Atlas of Health,
- A mathematical modelling.

➔ To demonstrate a potential interest of the e-Atlas:

- A marketing campaign,
- Different ways of use.

➔ Improvement of e-Atlas depends on feedbacks to maximize the chances of use by professionals, public & patients.

➔ Remember in our region

- 12,880 medical doctors,
- 4 Million of inhabitants.

Materials & Methods

Automation of data processing

Descriptive statistics & mapping (output)

→ Databases

- French Medical Information System (PMSI),
- GéoFla: French administrative divisions .

→ Software

SAS, SAS/Graph

Secured Web Server

→ Web Server Access

- Strong & simple authentications (certificate & .htaccess)
- Protected firewall, GNU/Linux secured web server, HTTPS

→ Software, tools & language

Jalbum, DRG analysis tool (OAP V 5.2), html language, Javascript function

→ Sending remarks

- HTML form & PHP process

→ Downloading maps & files

* doc, jpg, pdf & Html

→ Incident notification

- NAGIOS a monitoring tool

Look at e-Atlas in order to choose the appropriate health center

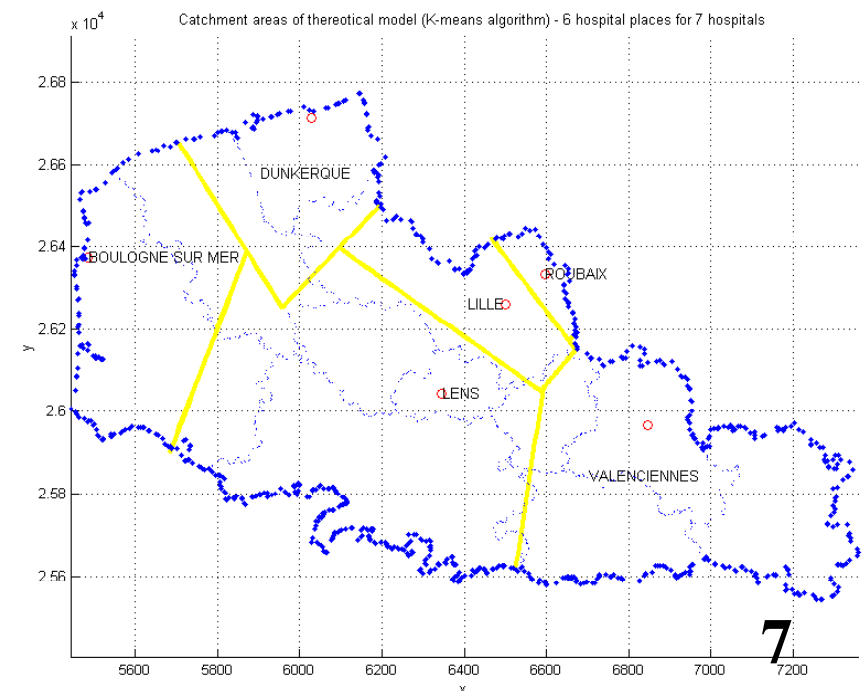
<https://194.254.117.103/e-atlas-MCCSIS/>

Physician and patients' problematic of health-care choice.

A lady living in Maubeuge, which is located around 88 km East of Lille needs a surgical operation. In view of this upcoming intervention. she wishes to be placed close to her sister's home (Lille). This would make, hospital visits easier for her sister and she will not feel isolated during her hospitalization & convalescence.

The choice is achieved with the help of the qualitative and quantitative assessment maps.

Furthermore, the physician updates his professional knowledge network.



ATTRACTION HOSPITALIERE DU CHRU DE LILLE - ANNEE 2006 - Netscape

File Edit View Go Bookmarks Tools Window Help

file:///C:/ANNE%20CERIM/FORMATIONS%20UNIVERSITAIRES/HDR/COURRIERS/2008%20RECRUTEMENT/POST%20DOC/POST%20DOC%20PORTUGAL%2010%20SEPT08%20ENVOYE/

Netscape Enter Search Terms Search Highlight Pop-Ups Blocked: 1337 Form Fill Clear Browser History News Email Weather AIM

LILLE UNIVERSITY HOSPITAL'S ATTRACTION - YEAR 2006



Click on this figure to visualize demonstration : 3mn

- 1-ANDROLOGY - CHRU OF LILLE - POLE 1700
- 2-ANESTHESIOLOGY, INTENSIVE CARE - CHRU OF LILLE - POLE 2450
- 3-GASTROENTEROLOGY, NUTRITION - CHRU OF LILLE - POLE 1440
- 4-CARDIOLOGY, VASCULAR DISEASES - CHRU OF LILLE - POLE 7720
- 5-CARDIOLOGY AND VASCULAR SURGERY - CHRU OF LILLE - POLE 7590
- 6-AMBULATORY CENTER OF HURIEZ - CHRU OF LILLE - POLE 1020
- 7-BURNS CENTER - CHRU OF LILLE - POLE 3400
- 8-MAXILLARY FACIAL SURGERY STOMATOLOGY - CHRU OF LILLE - POLE 3740
- 9-THORACIC SURGERY - CHRU OF LILLE - POLE 5520
- 10-PEDIATRIC ORTHOPEDICS - CHRU OF LILLE - POLE 4210
- 11-PLASTIC SURGERY - CHRU OF LILLE - POLE 3420
- 12-GENERAL SURGERY - CHRU OF LILLE - POLE 1060
- 13-DERMATOLOGY - CHRU OF LILLE - POLE 1280
- 14-ENDOCRINOLOGY METABOLISM - CHRU OF LILLE - POLE 7040
- 15-GERIATRIC MEDICINE - CHRU OF LILLE - POLE 8700
- 16-GYNECOLOGY - CHRU OF LILLE - POLE 4115
- 17-HEMATOLOGY - ONCOLOGY - CHRU OF LILLE - POLE 1400
- 18-RESPIRATORY DISEASES DR RAMON - CHRU OF LILLE - POLE 5330
- 19-INTERNAL MEDICINE - CHRU OF LILLE - POLE 2220
- 20-NEONATAL - PERINATAL MEDICINE - CHRU OF LILLE - POLE 4170
- 21-NEPHROLOGY - CHRU OF LILLE - POLE 5060
- 22-NEUROLOGY SURGERY - CHRU OF LILLE - POLE 3800
- 23-NEUROLOGY - CHRU OF LILLE - POLE 3240
- 24-NEUROPHYSIOLOGY CLINIC - CHRU OF LILLE - POLE 3350
- 25-OBSTETRICS - CHRU OF LILLE - POLE 4105
- 26-OPHTHALMOLOGY - CHRU OF LILLE - POLE 1770
- 27-OTOLARYNGOLOGY SURGERY - CHRU OF LILLE - POLE 1830
- 28-ORTHOPEDICS-TRAUMATOLOGY - CHRU OF LILLE - POLE 3970
- 29-OTOLARYNGOLOGY-NEUROLOGY - CHRU OF LILLE - POLE 3830
- 30-PEDIATRIC - CHRU OF LILLE - POLE 4240
- 31- INTENSIVE CARE IN MEDICINE AND SURGERY - CHRU OF LILLE - POLE 3330
- 32-RHEUMATOLOGY - CHRU OF LILLE - POLE 3260
- 33-NUCLEAR MEDICINE - CHRU OF LILLE - POLE 3370
- 34-EMERGENCY - CHRU OF LILLE - POLE 3080
- 35-HAND EMERGENCY - CHRU OF LILLE - POLE 3971
- 36-RESPIRATORY EMERGENCY - CHRU OF LILLE - POLE 5340

8

Highest activity for 21 GHM

(Total of hospital stays for 111 GHM = 5479; Average of hospital stays = 49; selection of 21 GHM >49)

Nord - Pas-de-Calais Region : three territorial health districts



[Zoom]

387 PMSI 2000 Postal Codes (purple limit)

15 Proximity zones (blue limit)

4 Life zones (black limit)

Mapping of hospital stay activity by GHM

Those 21 GHM are ranked by OAP V5.2 classification (analysis Pmsi tool) below.

Remark :

1) Here "hospital stay" is counted each time when patient comes in a "new unit" of Hospital Poles during its hospitalization duration, which generates accounting (A Summary Medical Unit : RUM) . Mapping of hospital stay shows us variable "RUM" in pourcentage of numbers.

2) Exemples of hospital stay production:

- One patient (x) going through one unit in hospital pole A, products 1 map of Rum for Hospital Pole A.
- One patient (x) going through two units in hospital pole A, products 1 map of Rums for Hospital Pole A.
- One patient (x) going through three units in hospital poles A and B (2 units for hospital pole A and 1 unit for hospital pole B) products 3 maps of Rums : respectively 2 Rums are displayed inside the map of hospital pole A and 1 Rum is displayed inside the map of hospital pole B.

Maps for each GHM are accessible by clic on the white GHM code on the board below and from this directory below in .pdf , .doc output formats



MAP- PDF, DOC FORMATS

If you desire, after consulting with the e-Atlas, you can send us your comment by click on this link send your remark

GHM Board (classification OAP V5.2.)

("Nr" or Non informed" is used at the end of this board for GHM which haven't code in this classification.)

AC - Urology-nephrology

AC98 - Endoscopies (stay < 2 nights)

24K30Z - Urinary endoscopy, therapy and anesthesia : hospital stay < 2 days (Number of hospital stays=64 or 1.17%)

24K32Z - Urinary endoscopy, diagnoses and anesthesia : hospital stay < 2 days (Number of hospital stays=132 or 2.41%)

AJ - Gynecology

AJ02 - Other female genital apparatus' affections

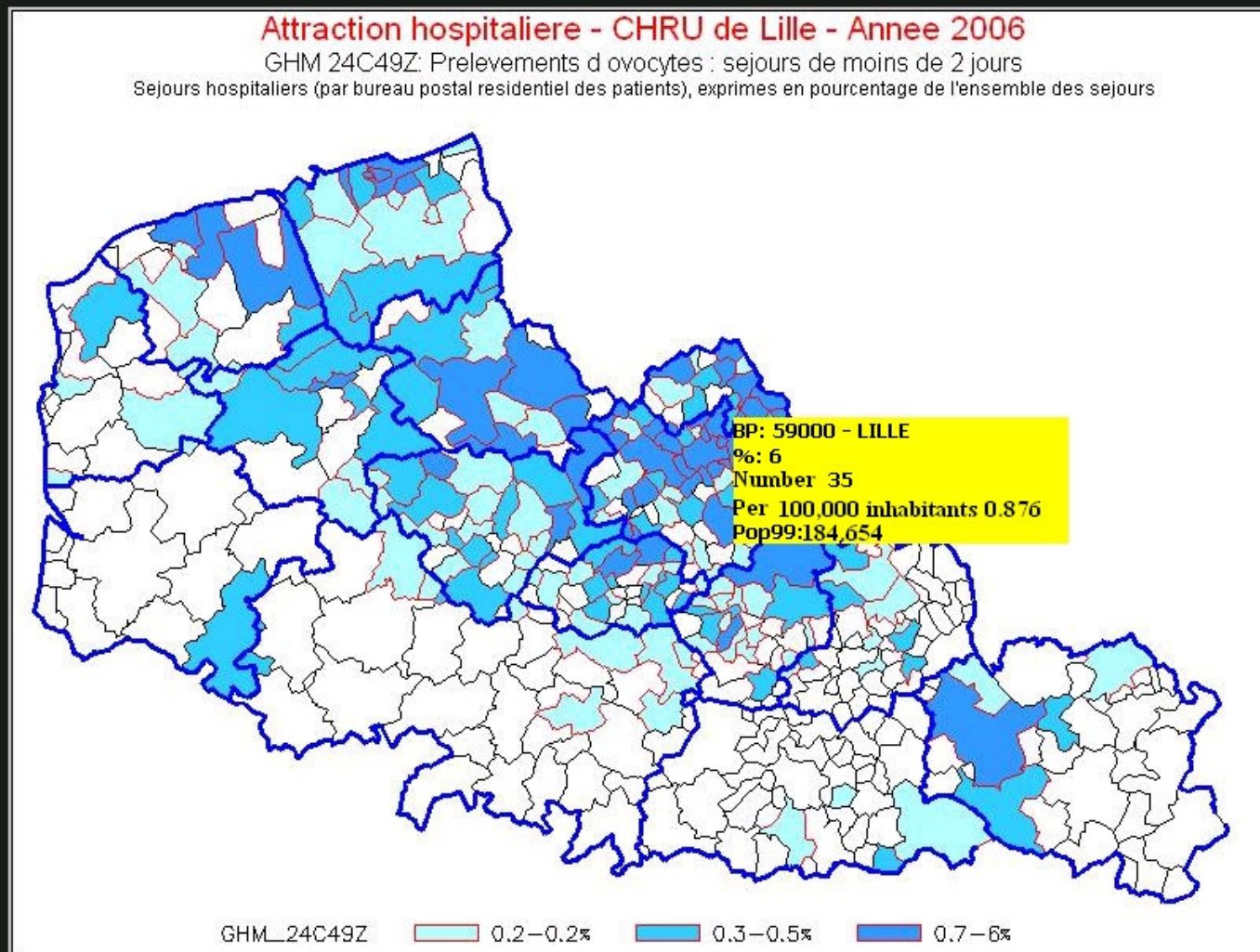
13M04V - Other affections of female genital apparatus, age < 70 years without Associated Comorbidity (Number of hospital stays=82 or 1.50%)

AJ03 - Other gynecological surgeries, except breast

13C04V - Repair surgeries on female genital apparatus, age < 70 years without Associated Comorbidity (Number of hospital stays=152 or 2.77%)

13C04W - Repair surgeries on female genital apparatus, age over 69 years and/or Associated Comorbidity (Number of hospital stays=66 or 1.20%)

24C49Z



Source: PMSI 2006 - "POLESAT: e-Atlas Sante" - Ph.D. Quesnel Anne - neoranthie de la sante

Image 16 of 21

2008, Map_24C49Z: Oocyte Samples, hospital stay < 2 days, represent 585 RUMs or 10.68% of the global activity in pole 16. RUM activity is realized at the Lille University Hospital and is related to patients, who come from 47.29% of the regional territory (in accordance with postal division zones).

Copyright: Source: PMSI 2006 CHRU of Lille; "POLESAT: e-Atlas of Health, Planning and Sustainable Development"; Ph.D. Quesnel Anne: Geography of health

10

254.117.103/e-atlas-MCCSIS/TELECHARGER/V2_PROTOTYPE SASGRAPH/CHRU DE LILLE - POLE 16/ACTIVITE 2006 PAR GHM/slides/24C49Z.html#59000.HTM

er | 2 nouveaux messages - ... | 24C49Z - Mozilla Firefox

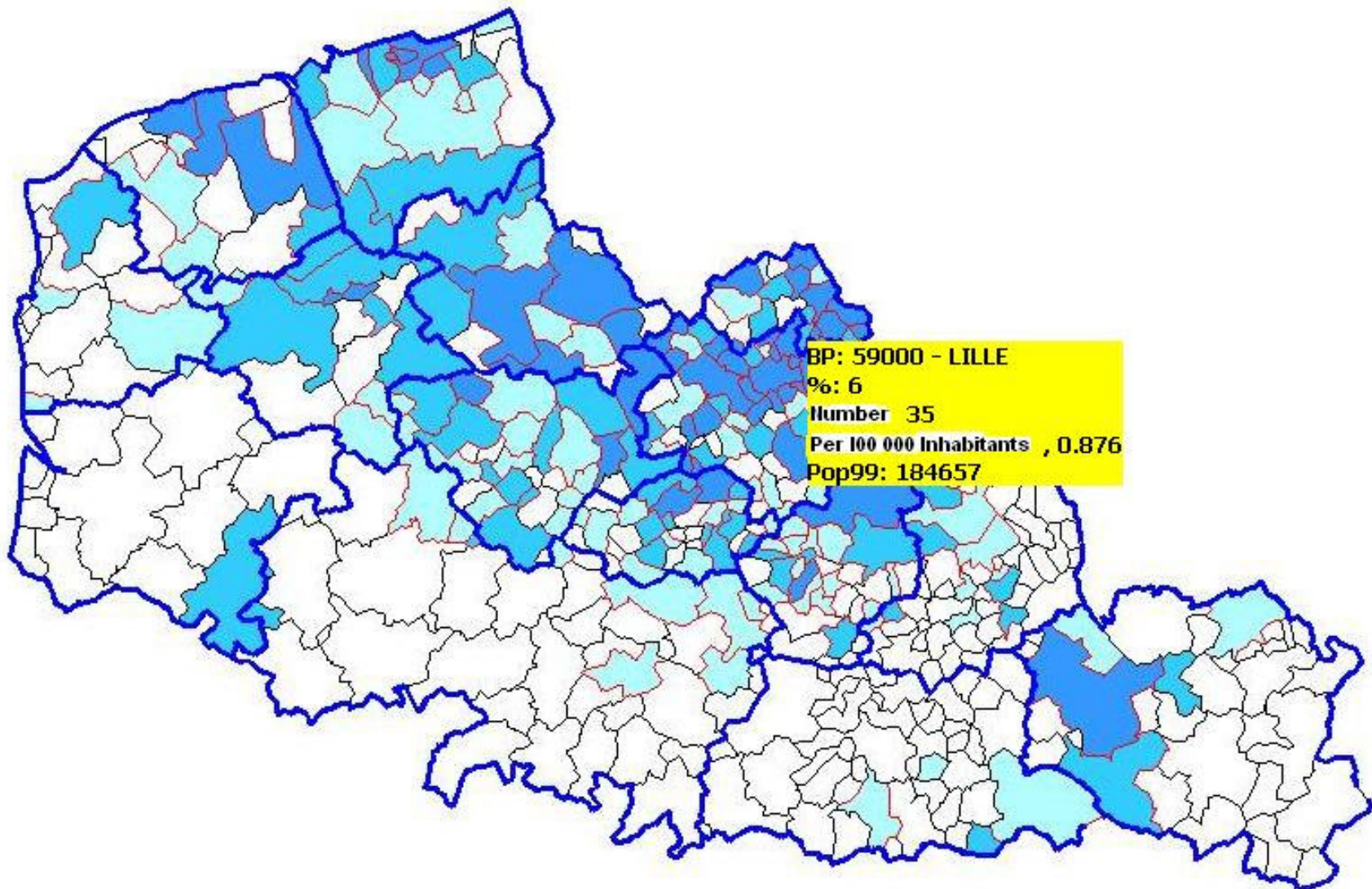
FR

24C49Z

Attraction hospitaliere - CHRU de Lille - Année 2006

GHM 24C49Z: Prelevements d'ovocytes : séjours de moins de 2 jours

Séjours hospitaliers (par bureau postal résidentiel des patients), exprimés en pourcentage de l'ensemble des séjours



GHM_24C49Z

0.2-0.2%

0.3-0.5%

0.7-6%



DISCUSSION/CONCLUSION

What is novel here?

- Background inventory by department the **Parhtage** ws.
- Providing GKD & reflection
- Multiple uses, will answer users' needs
- Spark off new needs in geomarketing way « citizen's mobility »

Development of prototype

- Choice of database
- Advantages/Inconvenients
- Marketing campaign
- Future access and updating of our e-Atlas

Conclusion

For Professionals & General Public, mapping could and should answer to different problems, which are linked to epidemiology, management strategies and practices of health care decision-makers, and to help patient or client find a best appropriate proximity unit for a future predicted hospital admission.

For that, in France, technology development of information and communication in our society, health policy and professional like geographers give to people leverage to become active actors of their own health.

Acknowledgments

Thank you for your listening