

Wound Care 2017

3rd International Conference on

Wound Care, Tissue Repair & Regenerative Medicine

Embassy Suites by Hilton Dallas Park Central Area

September 11-12, 2017 Dallas, Texas, USA

PU epidemiology in France

B. Barrois [1,2], D.Colin[1], J.M.Michel[1],
B Nicolas[1], S Robineau[1], N Salles[1], F-A Allaert [1],

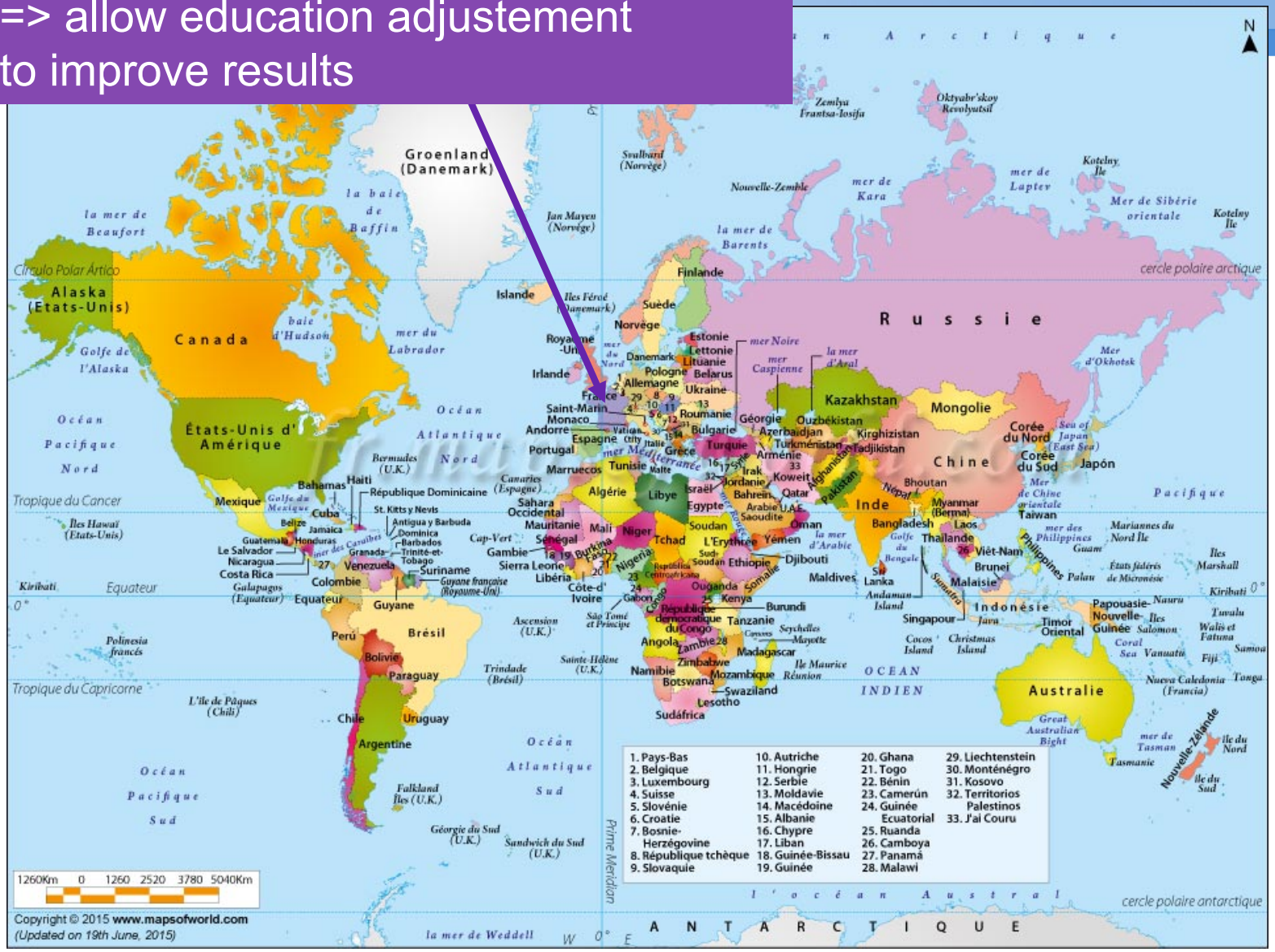
[1]**PERSE (French PUAP) FRANCE**

[2] **CH de Gonesse (95) FRANCE**

PERSE

Centre Hospitalier de Gonesse

Epidemilogical knowlegde
=> allow education adjustement
to improve results





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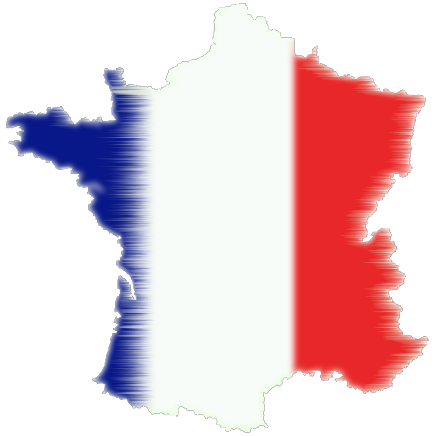
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PU Prevalence knowledge in France

- Different types of Surveys are conducted :
  - Hospital surveys in Gonesse Hospital (Great Paris)
  - University hospitals
  - Intensive care units,
  - At home study
  - Paediatrics units,
  - Specific populations

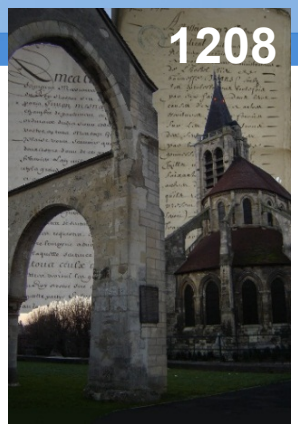


- Regional surveys : hospitalized population in Ile de France and home care in Brittany, Aquitaine and Alsace
- **National surveys were conducted each ten years by PERSE society in hospitals.**



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Gonesse Hospital



- General hospital since 1208
- In Great Paris area
- 1000 beds
  - Acute care and emergency ward
  - Medical and surgical activity
  - Psychiatrical hospitalisation
  - Long care units
  - Obstetrical activity







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Local survey in Gonesse Hospital

Quarterly Prevalence Survey since 1991

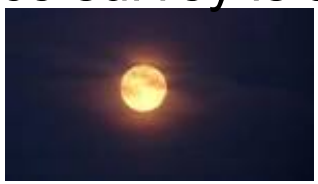
Epidemiological survey :

Same questionnaire

Auto administrated questionnaire :

=> Realized by nurses in their own ward

One prevalence survey is an alone « photography »





Instead repeated same prevalence surveys allow a longitudinal vision



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Local survey in Gonesse Hospital

Prevalence Survey since 1991

On every hospitalized patient in all wards
(including psychiatric and except pediatric and maternity):

-number of patients :
around 600
- PU etiology
neurological , end of life, accidental
- PU stages
stages1+2, stages 3+4
- PU locations
heel(s), sacrum, other locations
- PU providement
acquired PU or imported PU

Analysis :
prevalence, stages and locations, PU providement, patients diseases
+ cross analysis between location/stages/wards/

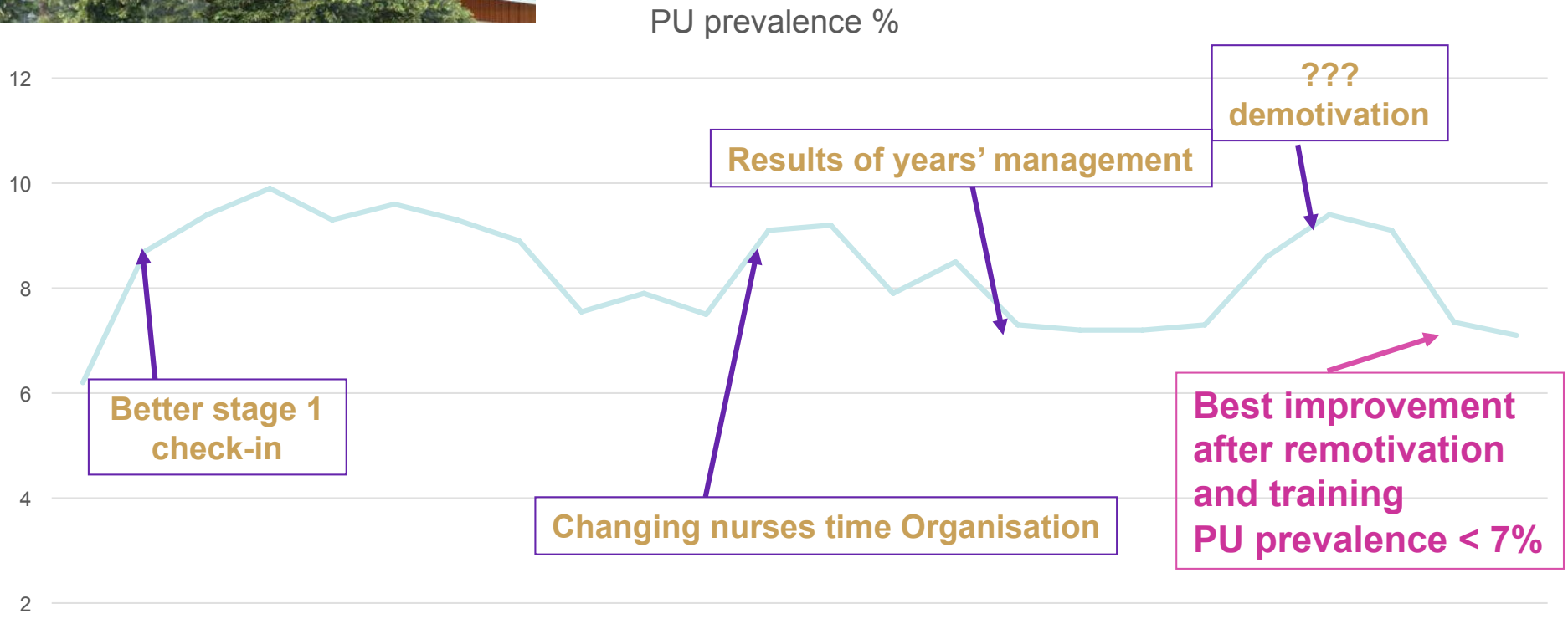


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Local survey in Gonesse Hospital

quarterly prevalence survey during 25 years







Local survey in Gonesse Hospital

Prevalence Survey Results in 2015

- **prevalence < 7%** (under all national and international results)

- number of patients :
  around 600
- PU etiology
  neurological (45%) end of life (15%), accidental (40%)
- PU stages
  stages1+2 = 75 % , stages 3+4 = 25%
- PU locations
  heel(s) = 30%, sacrum = 40%
- PU providement
  acquired PU (75%) or imported PU (25%)



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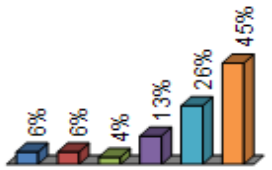
1 incidence survey
all incoming patients on 3/12/2013 in Gonesse Hospital

- 53 patients (30 men)
- 28% > 75 yo

âge

Moyenne = **58** Ecart-type = **19**

	Nb	% cit.
Moins de 20	3	6%
De 20 à 29	3	6%
De 30 à 39	2	4%
De 40 à 49	7	13%
De 50 à 59	14	26%
60 et plus	24	45%
Total	53	100%



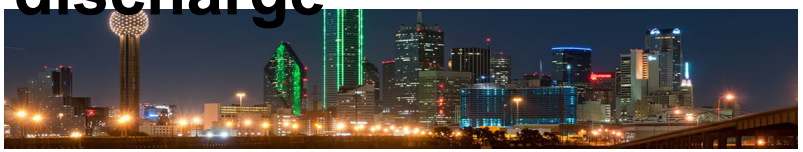
- Risk level assessed on French scale

score de la grille des peupliers	Nb. cit.	Fréq.
Non réponse	23	43,4%
Moins de 1,67	18	34,0%
De 1,67 à 3,33	5	9,4%
De 3,33 à 5,00	3	5,7%
De 5,00 à 6,67	1	1,9%
De 6,67 à 8,33	2	3,8%
De 8,33 à 10,00	0	0,0%
10,00 et plus	1	1,9%
TOTAL OBS.	53	100%

Minimum = 0, Maximum = 10
Somme = 60
Moyenne = 2,00 Ecart-type = 2,64

92% had no risk
4 patients with high risk level (> 6), are 69, 75, 78, 89 yo
1 patient with 2 stage 1 PU (sacrum and 1 heel)

- Length of stay : 77% < 1 week
- Results : **No acquired PU, 1 Patient with PU healed before discharge**



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University Hospital in Paris 2004

535 adult patients (aged 59 +/- 19 y)

Prevalence = 6,9%



Location

- 40% heels
- 20% sacrum

Stage :

- 24% stage 1 & 29% stage 2

80% PUs acquired during stay

Barbut F, Parzybut B, Boelle PY, Neyme D, Farid R, Kosmann MJ, et al. Pressure sores in a university hospital. Presse Med.2006 May;35(5 Pt 1):769-78.



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University Hospital in Saint Etienne 2004

- Global Prevalence : 5.1%
  - 4.7 % acute care wards, 8.9% in rehabiliatation wards, and 12% in long term units
- Average age 75 y,
- 53% stages 1 and 2
- 73% acquired PU



Corbin A&al, PU prevalence among 1560 hospitalized patients, one week survey in a UH - Hygienes-2006-14,3,169-180



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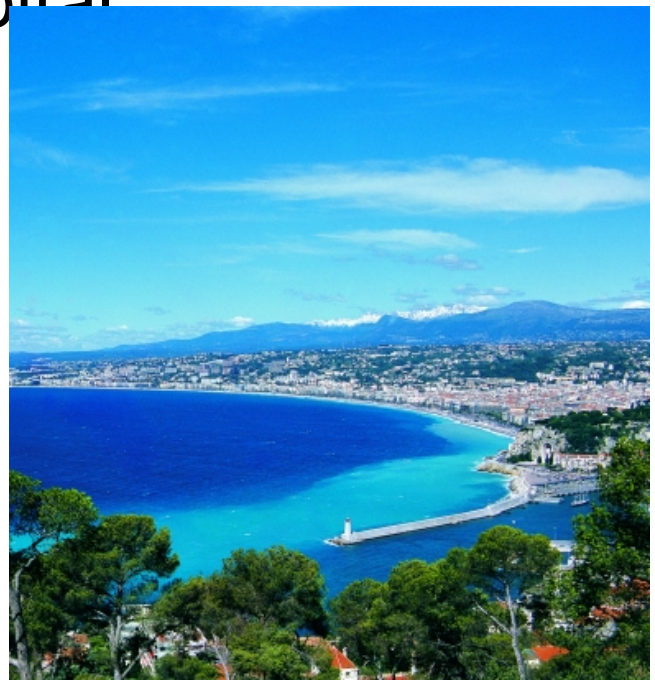
University Hospital in Nice 2006

- 1611 patients (average age = 62 y)

- **Prevalence = 16,6%**
  within 7,5% contracted in the hospital
  average age = 76 y

- Locations
  heel(s) = 46%
  sacrum = 26%

- 29 % ≤15 on Braden scale



Daideri G, Berthier F, Brocker P, Darmon MJ, Mignolet F, Quaranta JF, Staccini P. [Prevalence of pressure sores in a university hospital in 2003].Rev Epidemiol Sante Publique. 2006 Dec; 54(6):517-27.



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University Hospital in Bordeaux

	2012 (n=1907)	2013 (n=1954)	*p*
Escarres	214 (11,2%)	211 (10,8%)	*0,67*
Age	66,4±19,8	65,3±19,9	*0,64*
Sacrum	121 (57,9%)	117 (56,5%)	*0,58*
heel	63 (30,1%)	59 (27,6%)	
Ischion/Trochanter	6 (2,8%)	5 (2,4%)	
others	19 (9,1%)	28 (13,5%)	
Stades			
1	65 (31,1%)	100 (47,6%)	*0,005*
2	62 (29,7%)	39 (18,6%)	
3	37 (17,7%)	42 (20%)	
4	45 (21,5%)	29 (13,8%)	



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PU incidence and prevalence in Bordeaux Emergency department



- Observational study (15 days in june 2010)
  - 602 patients
  - Prevalence at admission : 7.8%
  - Incidence 5.4 /1000 patients
  - Risk factors :
    - Higher Comorbidity
    - High CRP level



- A very short stay can induce PU (stage1)

Thèse Medecine: Dugaret E- Prévalence et incidence des escarres aux urgences du Centre hospitalier universitaire de Saint-André à Bordeaux - Bordeaux 2 France 2010



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University hospitals (CHU)

- Younger patients than general hospitals and patients with PUs are older than others
- Prevalence Difference between CHU's
- Location same in CHU but different with general hospitals
- Stages : stage 1 is frequent but difficult to diagnose



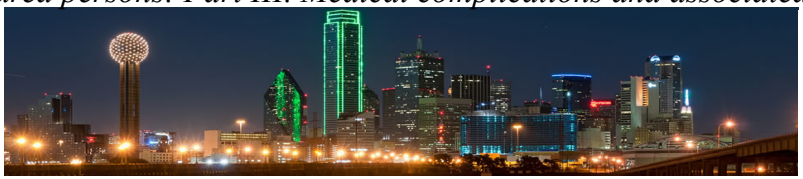
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PU & Spinal cord injured

- 1668 quadriplegics survey in 2001
- PU Prevalence = 14,1%
- More frequent with:
  - complete motor lesion,
  - urinary disfunction,
  - older patients
  - lower professional status



Klotz R, Joseph PA, Ravaud JF, Wiart L, Barat M; Tetrafigap Group.- The Tetrafigap Survey on the long-term outcome of tetraplegic spinal cord injured persons: Part III. Medical complications and associated factors. Spinal Cord. 2002 Sep;40(9):457-67.



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Geriatric patients



- **1126 patients**
  in acute geriatric wards
  with high or very high risk
  (obervational **prospective** survey in 2004)

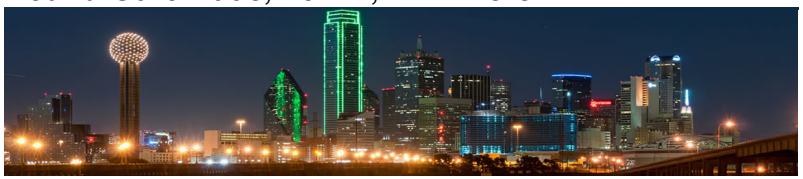
- Average age : 84,7 y

- **Incidence : 15,7%**

- Location & Incidence : 10% pelvis, 7% heel(s)

- **Occurence is higher if very high risk or mixte incontinence (*P<0,001)***

Meaume S, Colin D, Barrois B, et al. Preventing the occurence of pressure ulceration in hospitalised elderly patients. Journal of Wound Care 2005; vol 14, n°2 : 78-82.



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Pediatric health establishment

- A preliminary study in 2009 :
  - 11% PU's children / 600 disabled children
  - Most PU are under orthosis





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Specific populations :

- Intensive care units in 1996 :
  prevalence : 22,6% / 800 beds

- **Intensive care unit in France (1200 beds) june 2017 > results at the end of 2017…**

- First home care survey in 1998 (prevalence : 13%)

Colin D, Barrois B, Allaert FA Nursing and medical care of pressure ulcers in hospitals in France. Advances in wound care: the journal for prevention and healing 8(5):54, 56-8.



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PU prevalence and PU risk assessment
in a psychiatric hospital

- 575 patients.
- 2,23 men(69%) /1 woman (31%).
- age = 47 y.o. (90 to 15 y.o.).
- BMI normal = 50%
  33% = BMI> normal while 40 % overweight
  17% = BMI < normal

Sans risque	449	78,09%
Risque	68	11,83%
Haut risque	31	5,91%
Très haut risque	18	4,17%
	575	

- 9 patients with PU (6 imported)
  = 1,57% prevalence (IC 95 % [0,55 % - 2,58%],

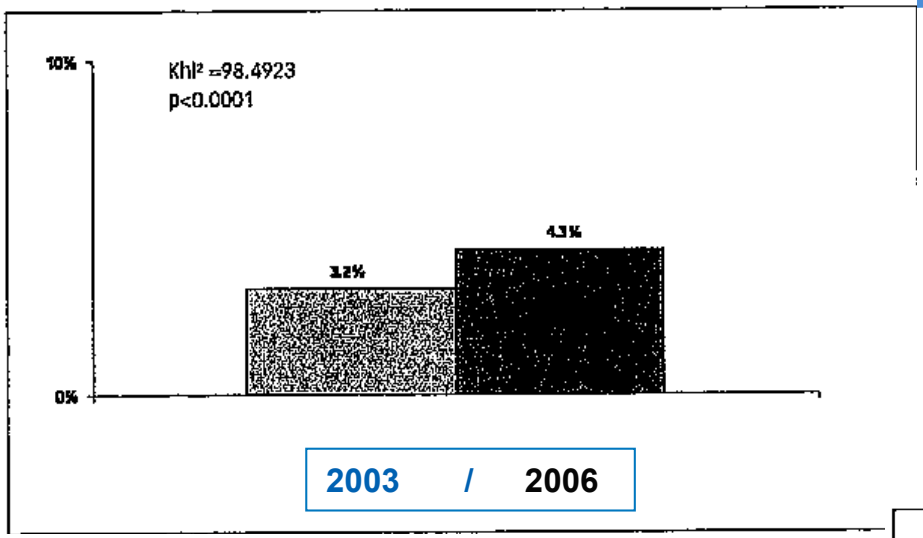
9 women,
age = 61a,
6/9 abnormal BMI (4 low, 1 high , 1 overweight)
89% reduced mobility

DUFEUTREL L , Gestions Hospitalières - Août/Septembre 2000- 534-

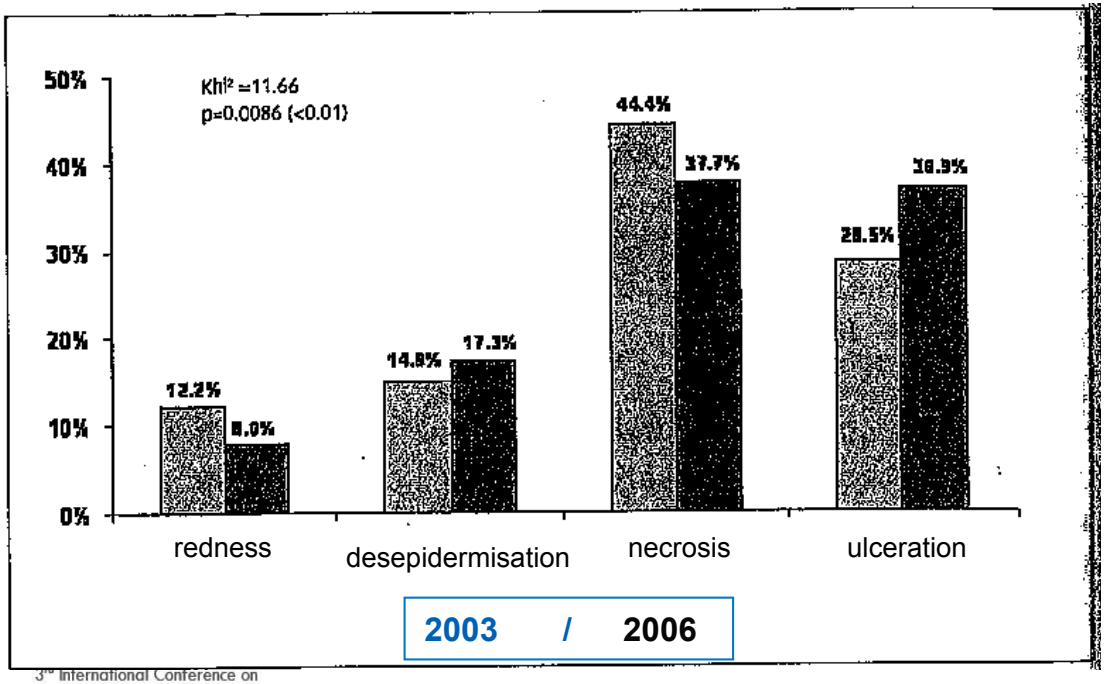


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At Home, comparison between 2003/2006



Prevalence / 10 000 patients



Allaert FA, Barrois B, Colin D, Evolution de la prévalence des escarres à domicile, Soins gérontologiques, 76,03/04-2009, 12-14

Colin D, Barrois B, Allaert FA Nursing and medical care of pressure ulcers in hospitals in France. Advances in wound care: the journal for prevention and healing 8(5):54, 56-8.



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Regional surveys

1/ in-hospitaled patients
2/ nursing home residents



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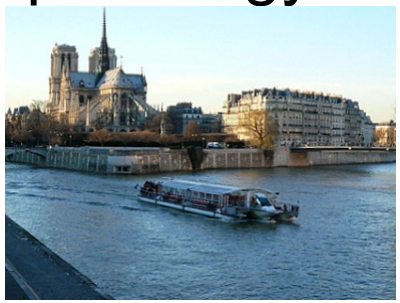
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Regional survey in Great Paris in 1993 :

12,050 patients: prevalence 5.2%

- Patients with pressure sores were significantly older (76.4 +/- 14 years) than the average age of patients in the study,

- 42% of pressure sores : patients with neurological pathology.
- 57% had a single pressure sore.
- 38% grade I lesions



- greatest number of pressure sores in medium and long-stay wards.

Barrois B, Allaert FA, Colin D A survey of pressure sore prevalence in hospitals in the greater Paris region. J Wound Care. 1995 May;4(5):234-6.



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Regional survey in Great Paris in 2014 : a prevention program with dynamic institutionnal incitation by regional health care agency :

- **principle : implement 5 high impact good practices**

1. Multi professionnal steerinf group
2. Risk assesment and reassesment (if necessary)
3. Prevention adaptation : supports and mobilisation
4. Early reaction as soon as redness onset
5. Professional and patients education



http://www.ars.iledefrance.sante.fr/Enquete-de-prevalence-risque-e.161820.0.html



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RESULTS

	Prevalence
patients with PU	9,1%
PU number	2889

	Age
Patient with PU	**81 yo**
At risk patients	**80 yo**
Total patients	**75 yo**

At Risk patients prevalence = 36%

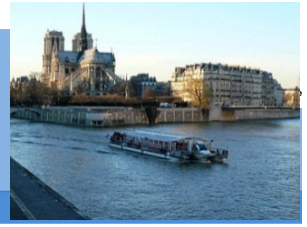
Stages	PU
Stage 1	**46%**
Stage 2	**31%**
Stage 3+4	**23%**

Locations	PU
Sacrum	38%
Heel (s)	39%
Trochanter and ischius	4%
Else	19%

	PU
Imported PU	53%
Local Acquired PU	47%



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27 903 patients were at risk during the 9 month campaign

953 developped PU >stage1
i.e. about 4% at risk patients

AGAINST usUal PU incidence on at risk patients = 14 / 17%

⇒ Estimation : **at least 10% at risk patients (2790 patients)**

did not develop PU with this prevention campaign

=> One PU cost estimation is 4500 euros :

12 millions euros was saved





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Home care patients : regional prevalence studies

- **6,4% :** Alsace = 992 USL
- **6.5% :** Paris = 1474 résidents
- **5,2% :** Drôme-Ardèche = 1479 résidents
- **4,6% :** PRIAM study 44 895 national residents en France

***Clement F**. La revue francophone de gériatrie et gérontologie. Oct 2008. Vol 15. N°148: 447-452.*
***Caron-Mazet J**. Ann Dermatol Venerol 2007;134:645-51*
***Armand N**. Enquête de prévalence des infections en EHPAD. 21ème Congrès de la Société d'Hygiène Hospitalière*
***Chami K**. Enquête PRIAM- prévalence des infections dans les EHPAD. Revue d'Epidémiologie et de Santé Publique. Sept 2008, Vol 56; N°5S, P282*



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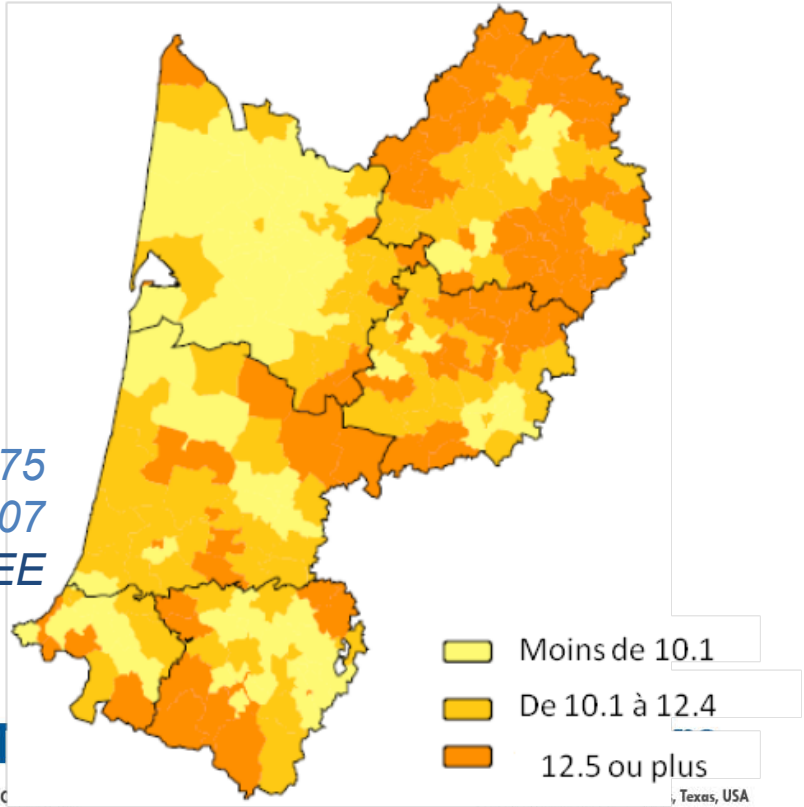
PU epidemiology in home care in Aquitaine

Elderly are 10% > 75 yo

485 questionnaires > 149 returns > **9999 residents**

High dependancy (74% GIR 1 or 2)
High diseases (PMP 227)

Prevalence = 4,9%



Pourcentage de personnes âgées de 75 ans ou plus au 1er janvier 2007
Source : INSEE

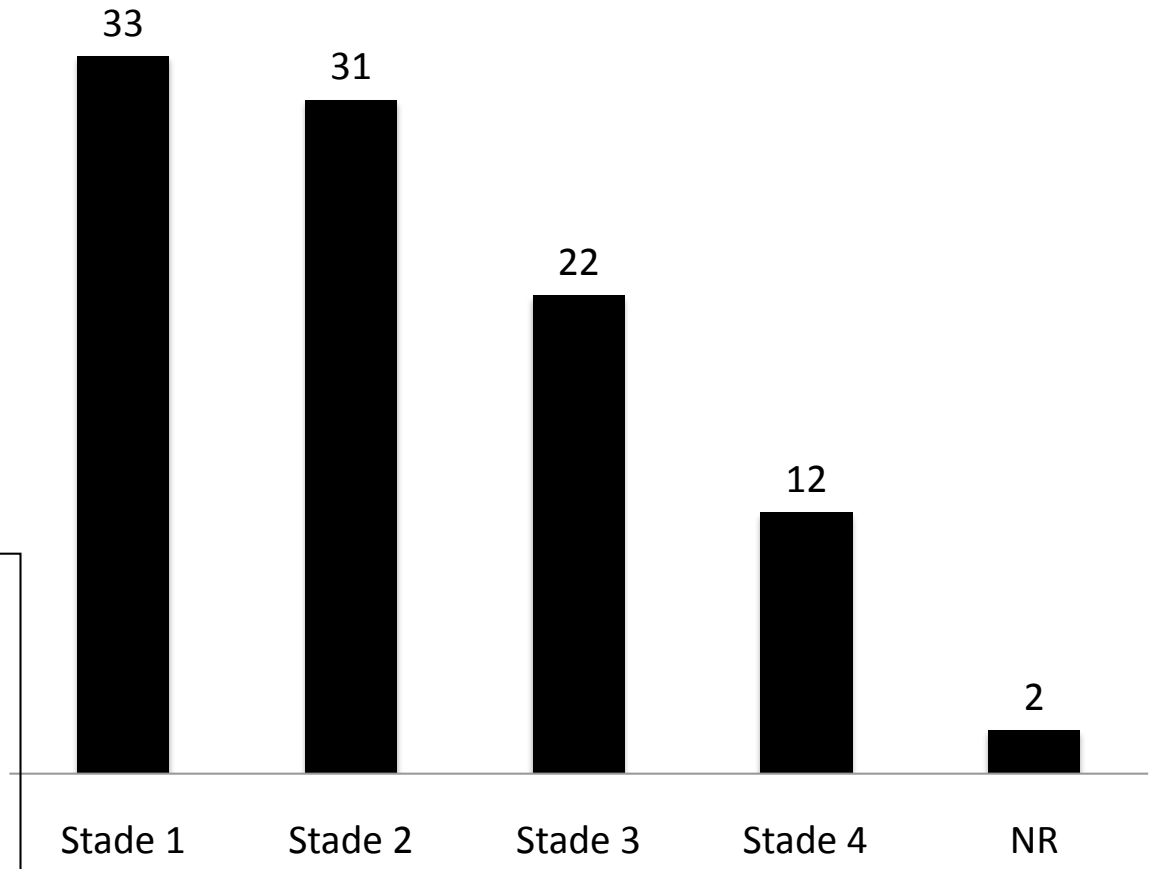
Travail de Doctorat de Médecine en cours (Cécilia Torressan)



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PU stages and location

- Sacrum (47%) and Heels (37%)



PU frequency

increase with diseases and dependancy level



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Study of the Prevalence of Pressure Sores in Nursing Homes in Brittany 2013 Survey

- 550 Nursing Home britons interviewed (via postal questionnaire) on:

⇒ **The results cover 174 structures**

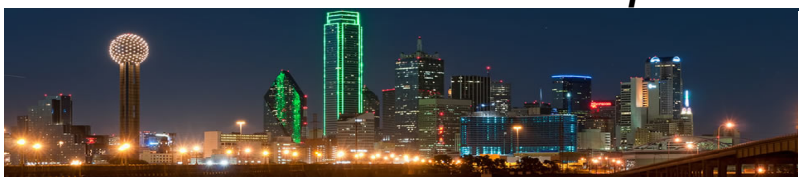
With a rate of response of 31.6 percent

- **POPULATION : 14 960 Residents**:,
  - **Average Age**: 85.6 ans
  - GMP average : 663.6 and PMP average: 177.8
  - **Enternal Nutrition Number**: 37 (0.02%)
  - **Incontinent Residents**: 58%

RESULTS = 5,73 % of 174 Nursing Homes 14960 residents

S Robineau**, B Nicolas**, MP Le Bot*, A Durufle**,S Petrilli, P Gallien*

**** Centre hospitalier de Saint Malo, ** Pôle MPR Saint Hélier***



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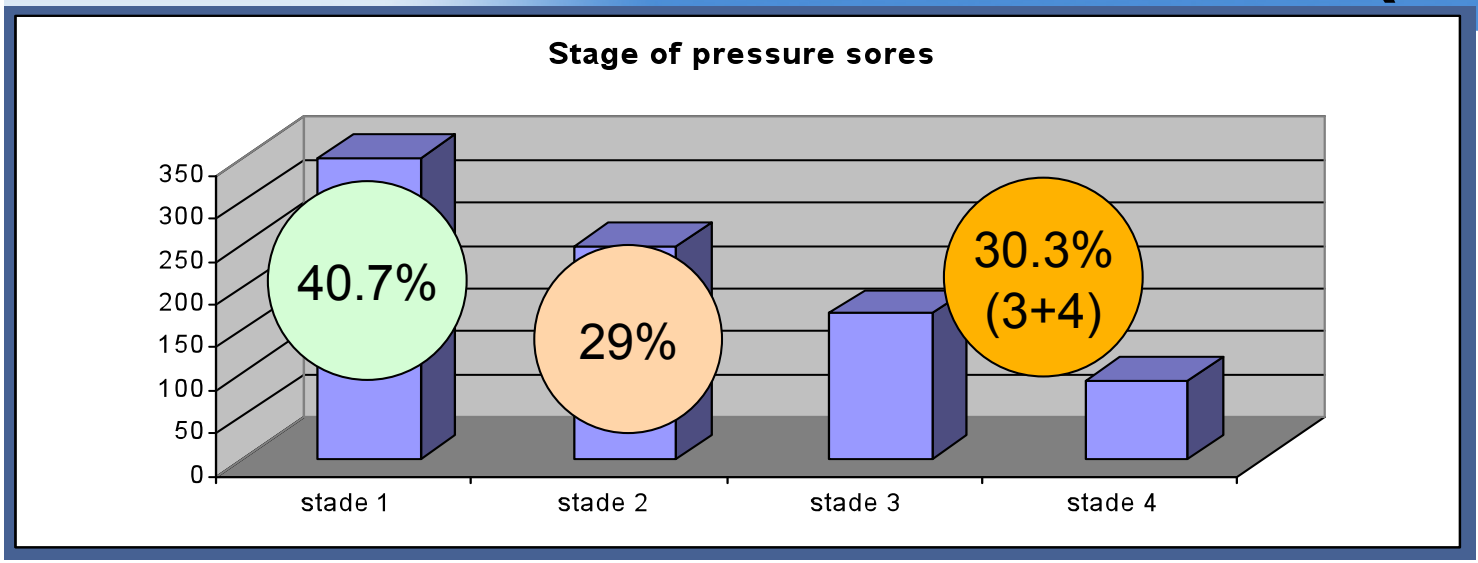
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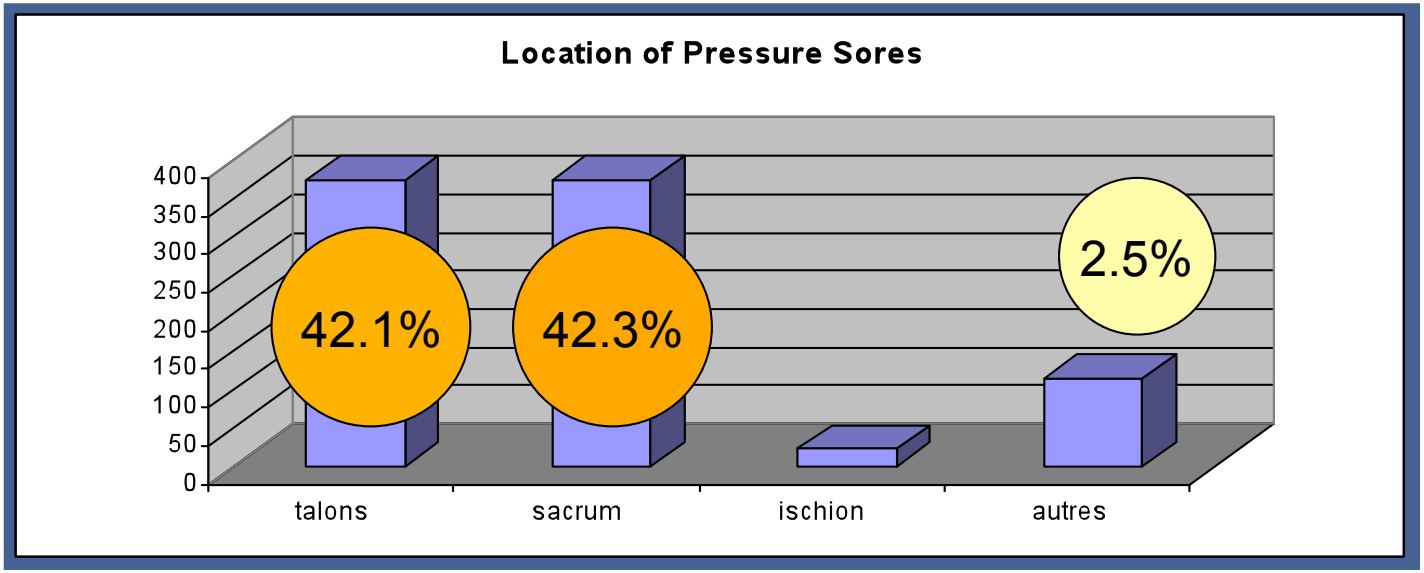
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PU Prevalence : 5,73% (858 PU)







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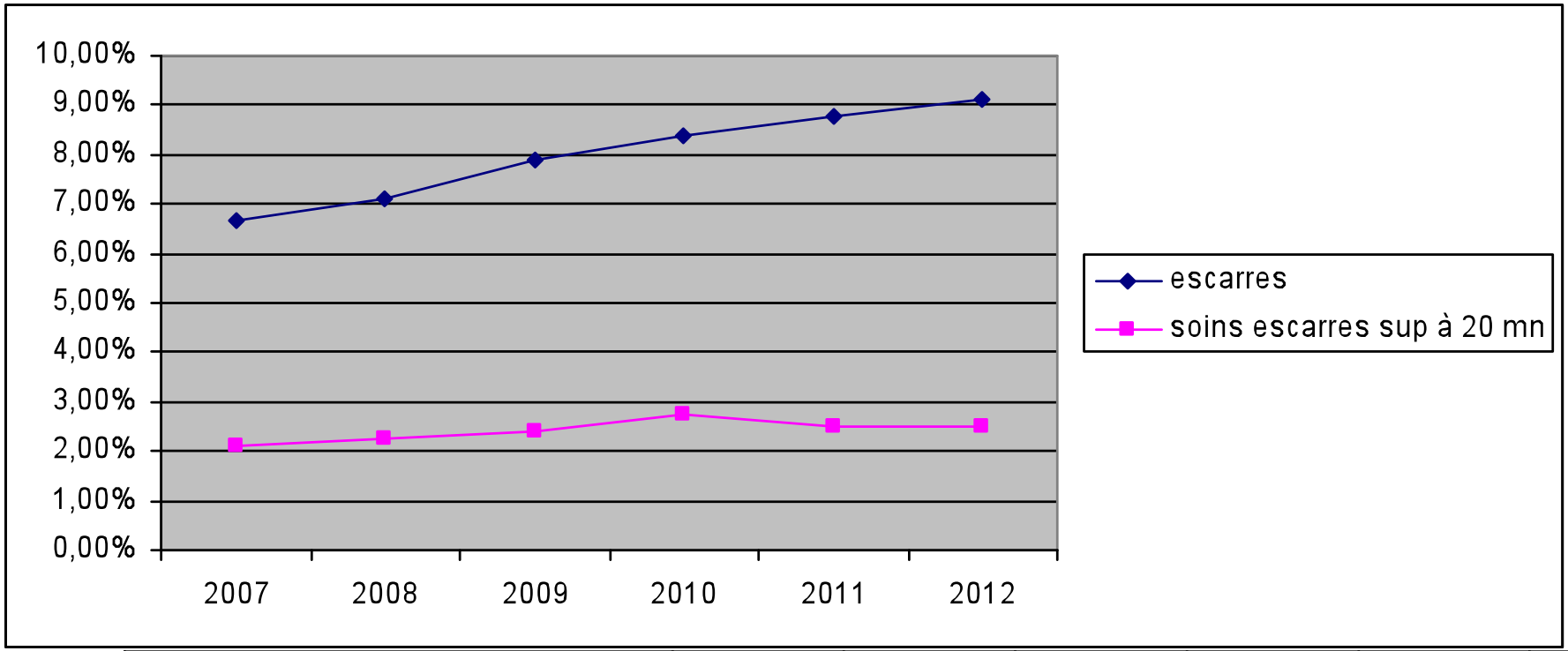
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Percentage Evolution of Pressure Sores in French Nursing Homes with Pathos (ARS BRITTANY)



	2007	2008	2009	2010	2011	2012
Pressure sores	6,68%	7,10%	7,91%	8,38%	8,76%	9,13%
care upwards of 20 minutes	2,11%	2,27%	2,40%	2,73%	2,50%	2,48%



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Prevalence = the sign of good practices (efforts) from teams

The Training of nurse and nursing aids: stage 1 is reported by number

Cost of Pressure Sores > Change the view, invest in the prevention



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NATIONAL FRENCH SURVEYS



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French National survey in 2004

- Questionnaire sent to 1149 hospitals = answers : 93 %
- 1170 wards for **37 307 patients included**

  Average Age : 72,3 y

  Median age : 75 y (33 à 92)



- **3 314 patients with at least on PU, prevalence = 8,9%**
- single PU : 64,3 % (n=2117)
- *63,2 % women /Average Age : 80,7 ans*

Barrois**, **B**., C. Labalette, and P. Rousseau, et **al**. (**2008**). A national prevalence study of pressure ulcers in French hospital inpatients. **J Wound Care 17:373–376



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French National survey in 2004



PU Locations and disease :

Sacral PU // incontinence
Heel PU // arterial disease



Patients with Pu are older than whole hospitalized patients
(p< 0,0001)

Barrois B, J Wound Care. 2008 Sep;17(9):373-6, 378-9.



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French National survey in 2004

- Location :
  Sacrum : 34 %
  1 ou 2 heels : 28,4 %
  Sacrum + heel(s) : 13,4 %

Stage(%) (n=1104)	Heel(s) (n=599)	Sacrum
stage 1	23,7	36,8
stage 4	26,0	7,2

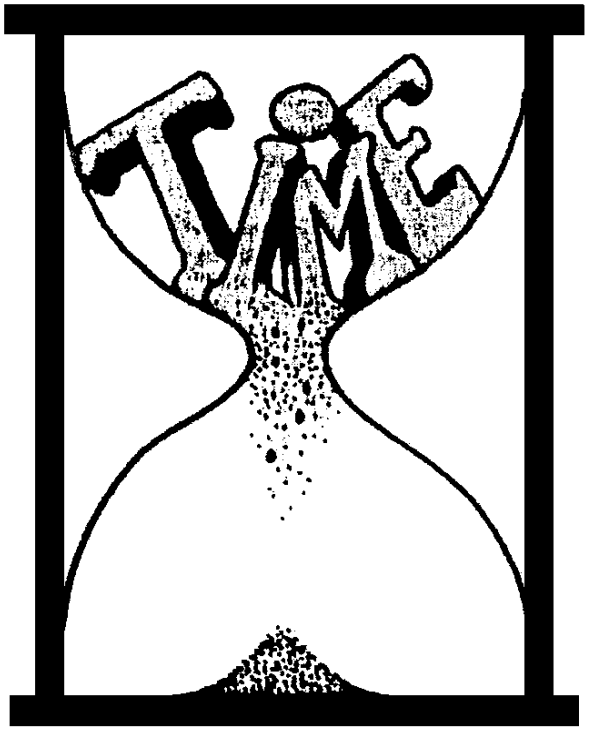


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Between 1994 and 2004,

Moderate evolution,

- nearly same prevalence



- PUs severity has decreased



PU Prevalence National survey

RESULTS 2014



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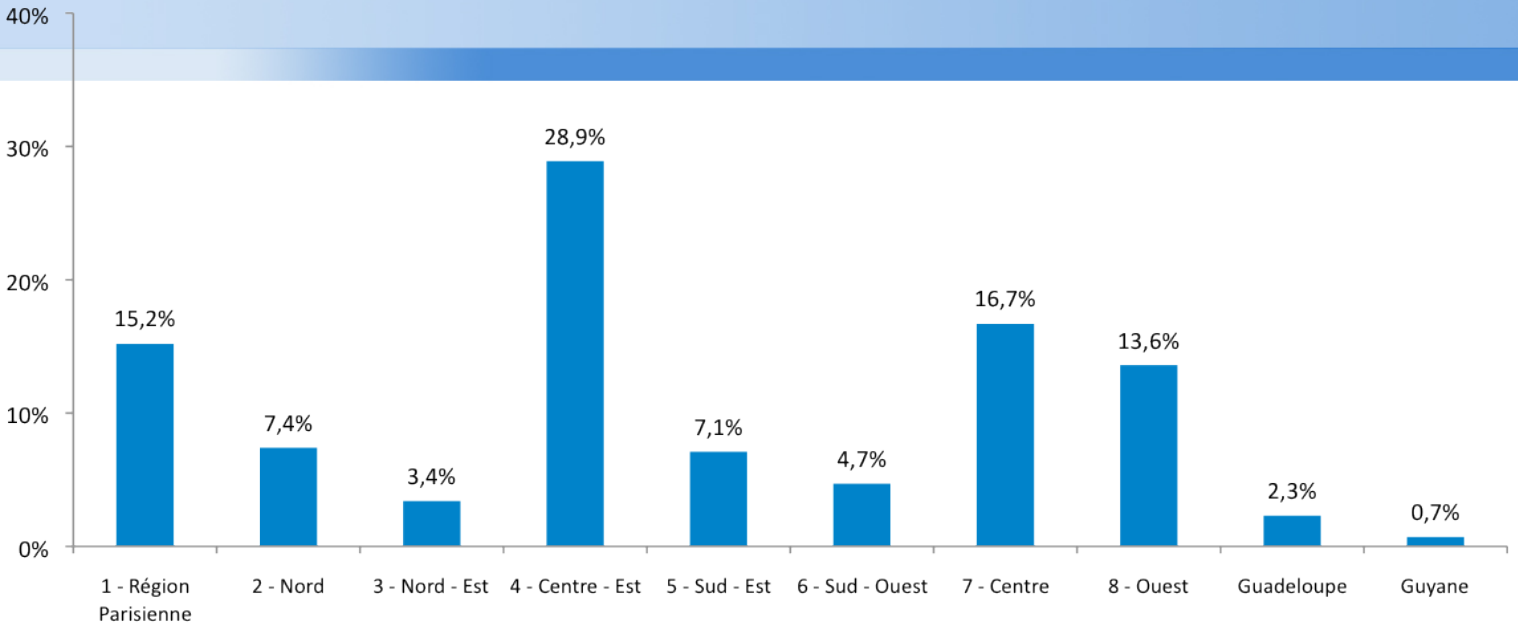
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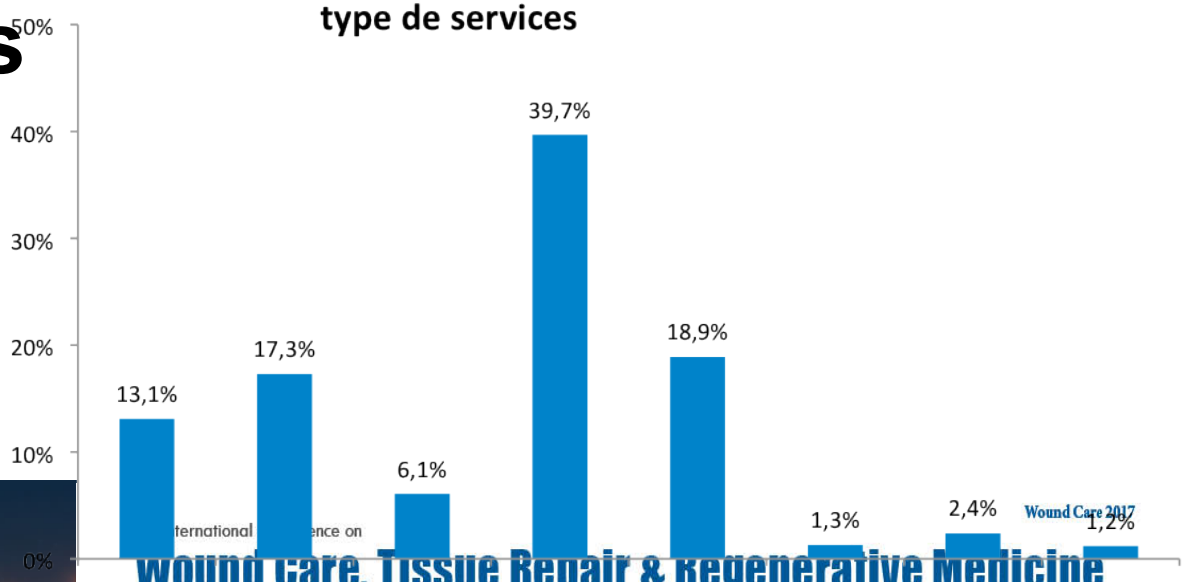
Regional distribution





776 hospital wards all around France

type de services





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Results



- **21 538 patients**
- 12752 women (59.2%) - 8786 men (40.8%)

PU prevalence (1756 PU-patients) :

prevalence = 8.1% *IC95%=[7.7 ; 8.5]*

7.8% *IC95%=[7.3 ; 8.3]* for women (n=997) ,

8.6% *IC95%=[8.0 ; 9.2]* for men (n=756) ***(p=0.0381)***



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Prevalence and type of wards



wards	Patients number	With PU	% PU
Home care unit	5747	413	**7.2** *[6.5;7.9]*
rehabilitation	3768	444	11.8 *[10.8;12.8]*
Long term unit	1867	162	**8.7** *[7.4;10.0]*
medecine	6465	550	8.5 *[7.8;9.2]*
surgery	3110	164	**5.3** *[4.5;6.1]*
Obstetrics	204	0	0
Intensive care	196	18	**9.2** *[5.1;13.2]*
Psychiatrics	181	2	1.1 *[-0.4;2.6]*
Total	**21538**	**1753**	**8.1** ***[7.7;8.5]***

Patient and organisational variables associated with pressure ulcer prevalence in hospital settings: a multilevel analysis. Bredesen IM, Bjøro K, Gunningberg L, Hofoss D. BMJ Open. 2015 Aug 27;5(8)



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PU patients Age

PU patients are older than
Average of hospitalized patients
+ 8,5 Y.O. *p < 0,0001*

Base	N	Moyenne	Ecart-type	Minimum	Maximum	95% IC	
Ensemble : Age moyen par service	761 services (Estimation sur 21738 patients)	71.4054	12.8921	2.0000	92.0000	70.4880	72.3228
Patients avec escarres : Age moyen	1249	79.8559	12.4306	15.0000	102.0	79.1658	80.5459
Différence		-8.4505	12.6072	**Valeur du test t :** -14.58 **p** : <0.0001			

[Trends in the prevalence of pressure ulcers in an acute care tertiary hospital (2006-2013)].Alonso-Lorente C, Barrasa-Villar JI, Aibar-Remón C.Rev Calid Asist. 2015 May-Jun;30(3):135-41.



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Risk level



- 4 levels were proposed :
  - » No risk
  - » Low risk
  - » Moderate risk
  - » High risk



- Scale was each ward choice,

> Either Clinical assesment or risk scale assesment , or both



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Most frequent risk factors





–incontinence mixte (49.4%),

–denutrition (48.6%),

–Chair rest (42.4%),

–Bed rest (35.9%),

–diabetis (23.5%).



Risk level for PU patients

Risk level	Type of wards						
	Home care	rehab	Long term	medecine	surgery	Intensive care	**total**
	%	%	%	%	%	%	**%**
none	0	1.7	1.9	1.5	8.8	0	**2.2**
low	5.0	12.6	10.2	10.4	11.5	0	**10.2**
moderate	32.0	33.1	19.4	27.9	38.5	31.6	**30.4**
high	63.0	52.6	68.5	60.2	41.2	68.4	**57.2**



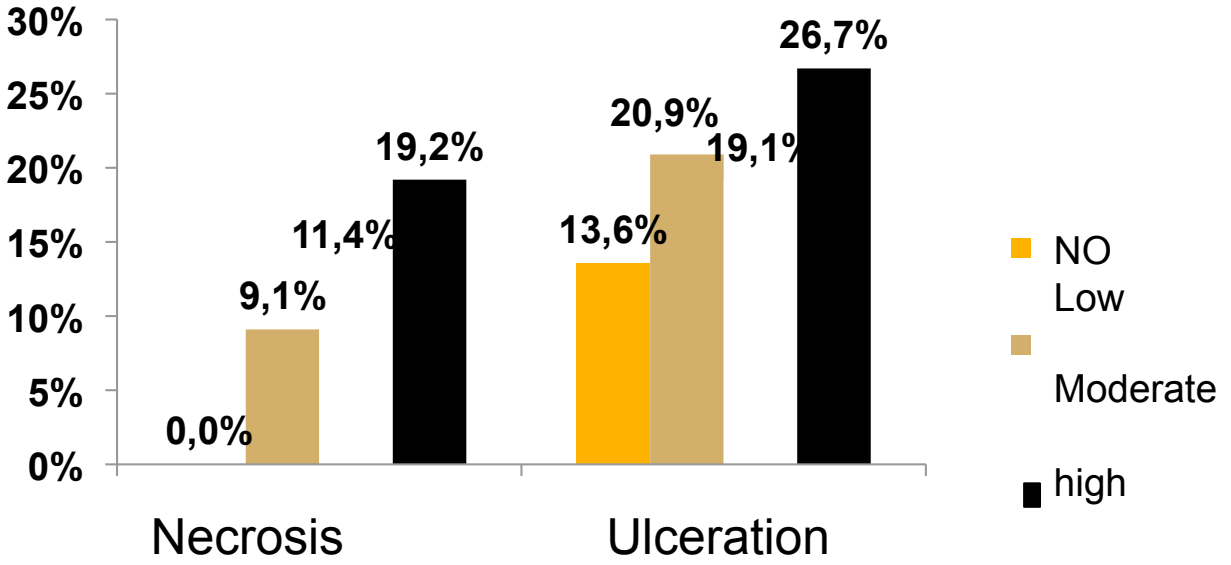
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Risk level and PU stages:



no risk : 0.0% necrosis and 13.6% ulceration

high risk: 19,2% necrosis and 26.7% ulceration

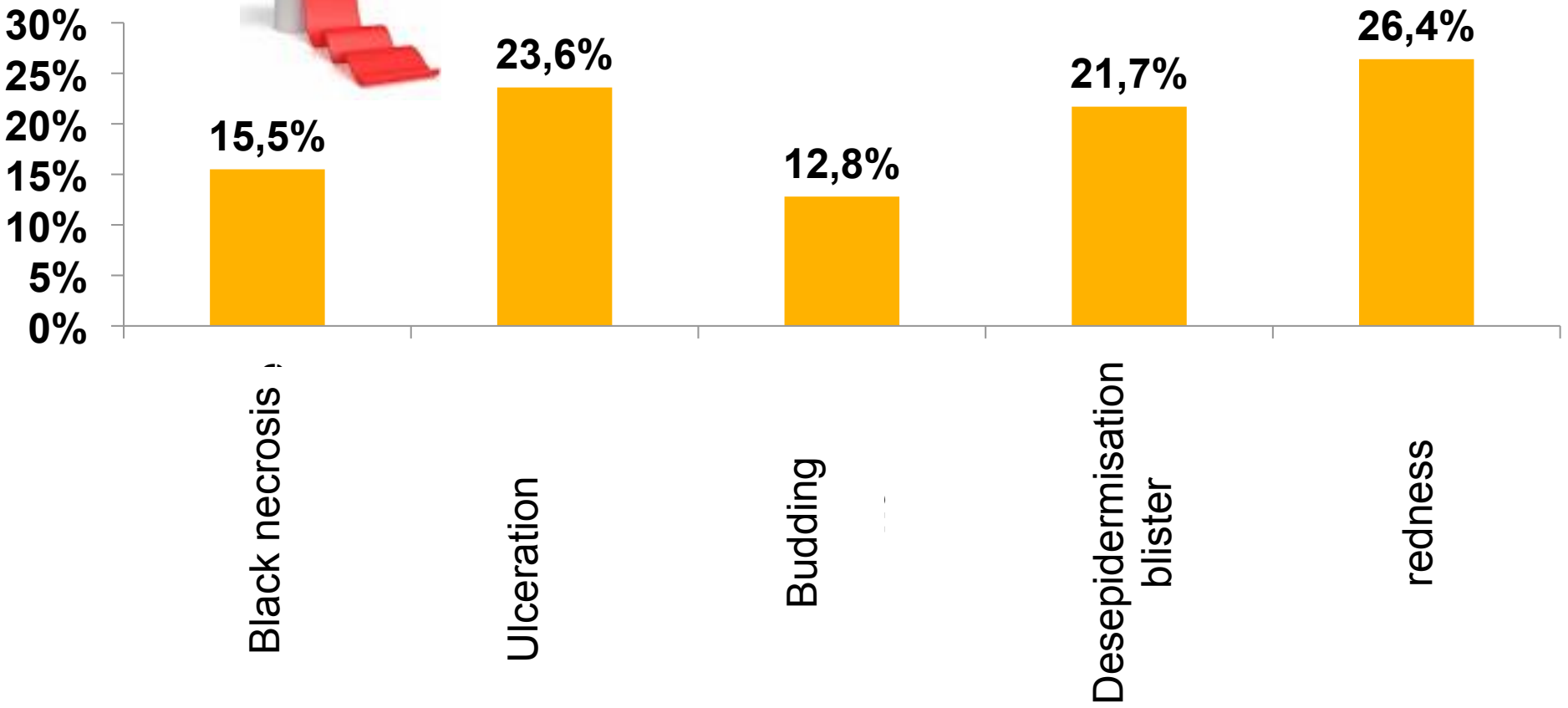




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39,1% Serious PU in 2014 / 50% in 2004







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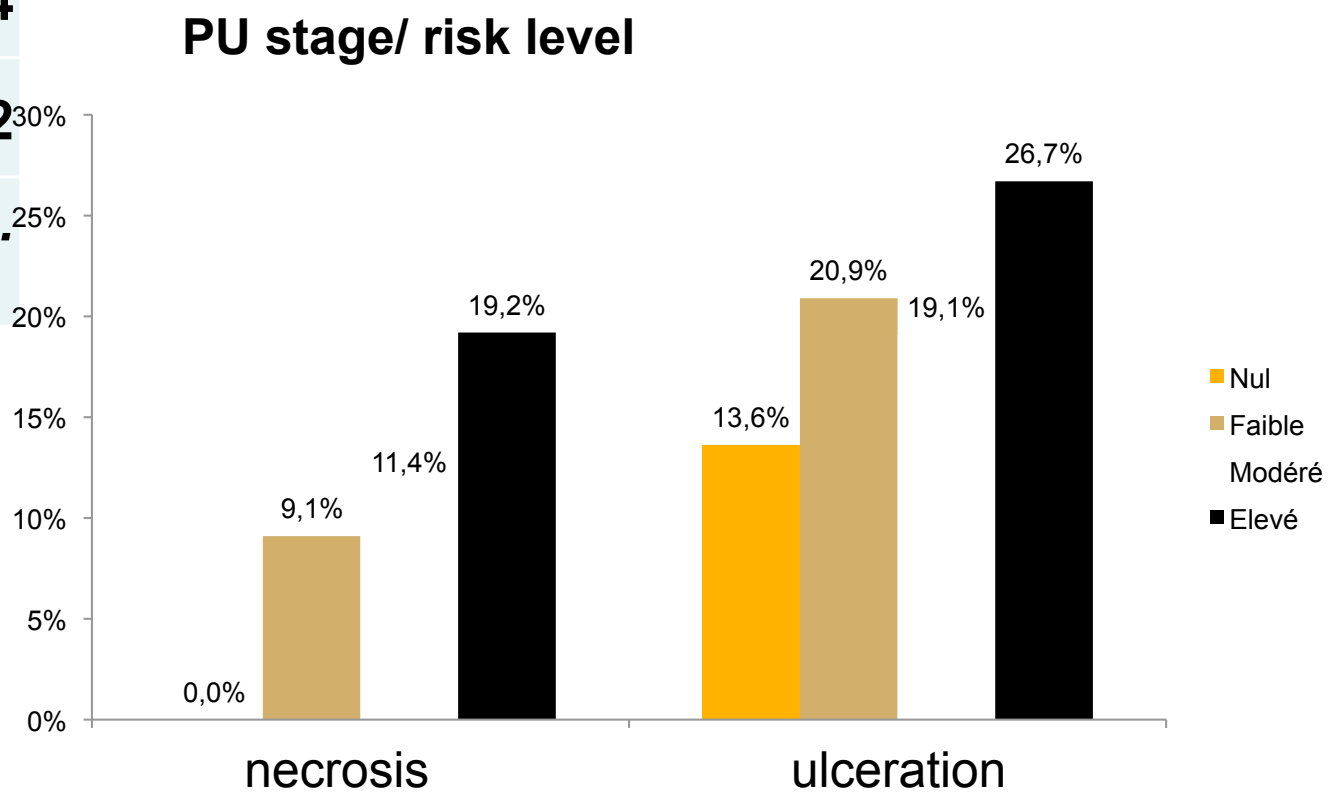
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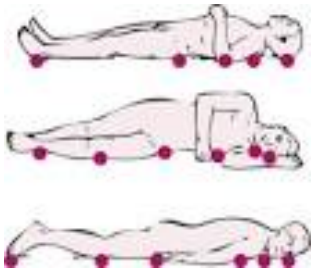
Risk level	N	%
No	27	2.2
Low	123	10.2
Moderate	368	30.4
High	693	57.2
Total	*1211*	*100.0*





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PU Locations



Sacrum = 50,70%

***BUT* = 54,1% if risk level is high (p : 0.0014)**

.	Home care	rehab	Long term	medecinel	surgery	Intensive care	total	chi2
sacrum	48,20%	43,30%	46,4%	56,40%	53,60%	57,90%	**50,70%**	p 0,02

Heels= 53, 3%

heels	total		Intensive care
	N	%	%
right heel	447	35.6	52.6
Left heel	463	36.9	36.8
2 heels	241	19.2	31.6

Delmore, J Wound Ostomy Continence Nurs. 2015 May-Jun;42(3):242-8



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locations

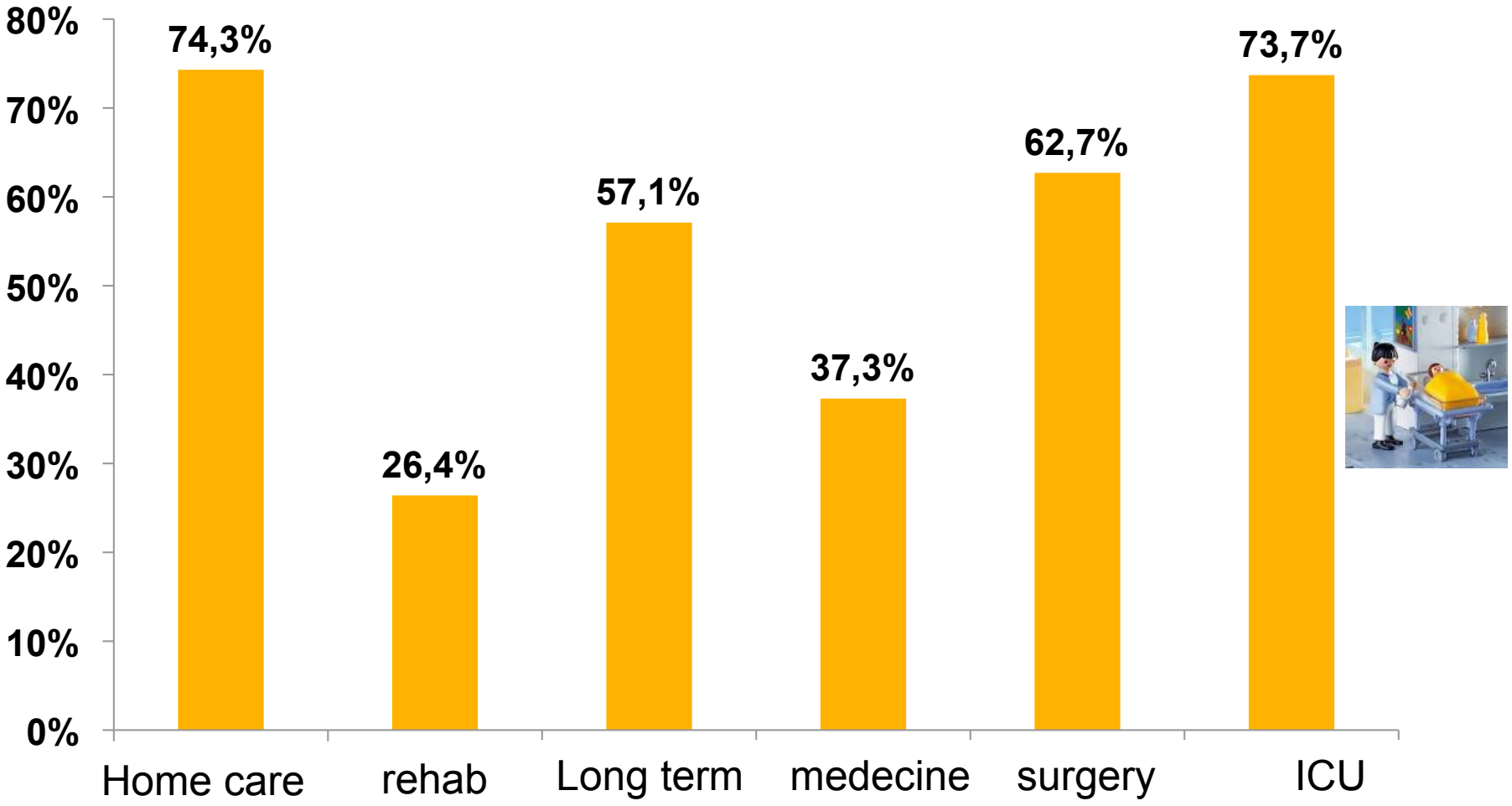
PU locations	ward						total	Chi2
	Home care	**rehab**	**Long term**	**medecine**	**surgery**	**Intensive care**		
	%	%	%	%	%	%	%	P value
Right or left heel	**48.2**	**58.6**	**49.1**	**55.1**	**46.4**	**57.9**	**53.3**	0.0751
right or left Trochanter	1.0	0.3	2.7	1.9	2.0	0	1.4	0.3673
right or left Ischion	4.2	4.6	7.1	2.8	2.6	0	3.7	0.2344
Sacrum	**48.2**	**43.3**	**46.4**	**56.4**	**53.6**	**57.9**	**50.7**	0.0207
Head	0	0.7	0	1.1	3.3	10.5	1.2	<0.0001



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Acquired PU = 45,7%

Incidence of hospital-acquired pressure ulcers - a population-based cohort study.Gardiner JC, Reed PL, Bonner JD, Haggerty DK, Hale DG.Int Wound J. 2014 Dec 3.





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Conclusion

- Prevalence is decreasing
- Results are coherent with international results* and with previous studies (1994-2004)

AND



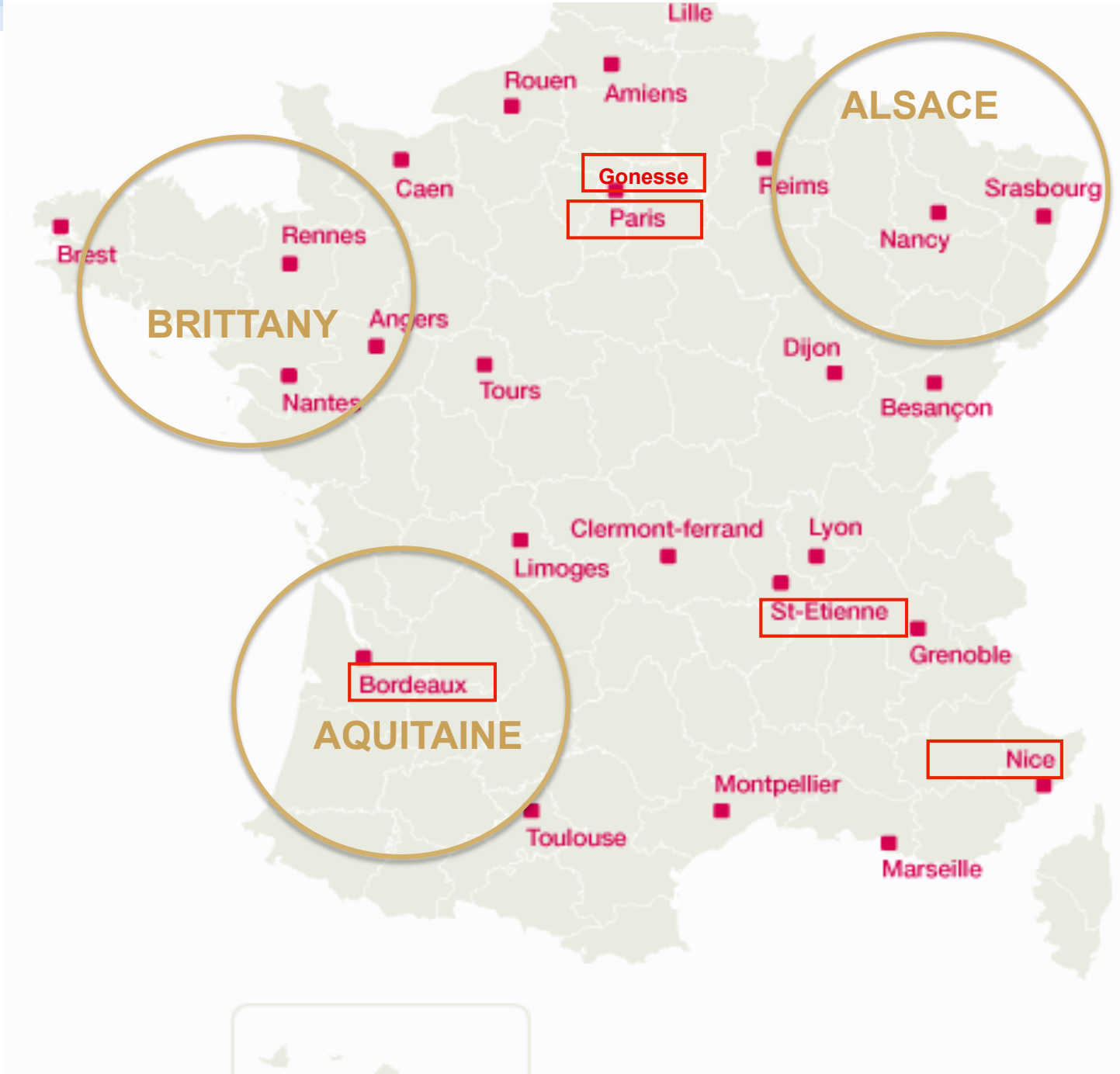
- *Most risk is high most serious PU are*
- Description // sort of ward to allow best organization and therapeutic strategies

* Patient and organisational variables associated with pressure ulcer prevalence in hospital settings: a multilevel analysis.Bredesen IM, Bjøro K, Gunningberg L, Hofoss D.BMJ Open. 2015 Aug 27;5(8)



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PU prevalence in France



PU prevalence in France

Is comparable with prevalence in all industrialized nations

and we can assess “job” results by comparing enquiries





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