

# **Antibiotic resistance in bacteria from outpatients**

**In France**

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**Bacteriology-Hygiene**

**Pitié-Salpêtrière hospital, Paris**



**ONERBA : non profit organization  
supported by AFSSAPS  
(French drug agency)**

# Antibiotic consumption in the community winter months, per age classes France 2001-2006

Courtesy  
D. Guillemot

- 23 % overall

- 34 % 0-5 years

- 35 % 6-15 years

- 18 % >15 years

# Antibiotic consumption in the community winter months, per ATB classes France 2001-2006

Courtesy  
D. Guillemot



- 25%  
penicillins

- 23 % overall

- 26%  
cephalosp

- 32 %  
macrolides

+ 14 %  
quinolones

What about  
resistance rates ?

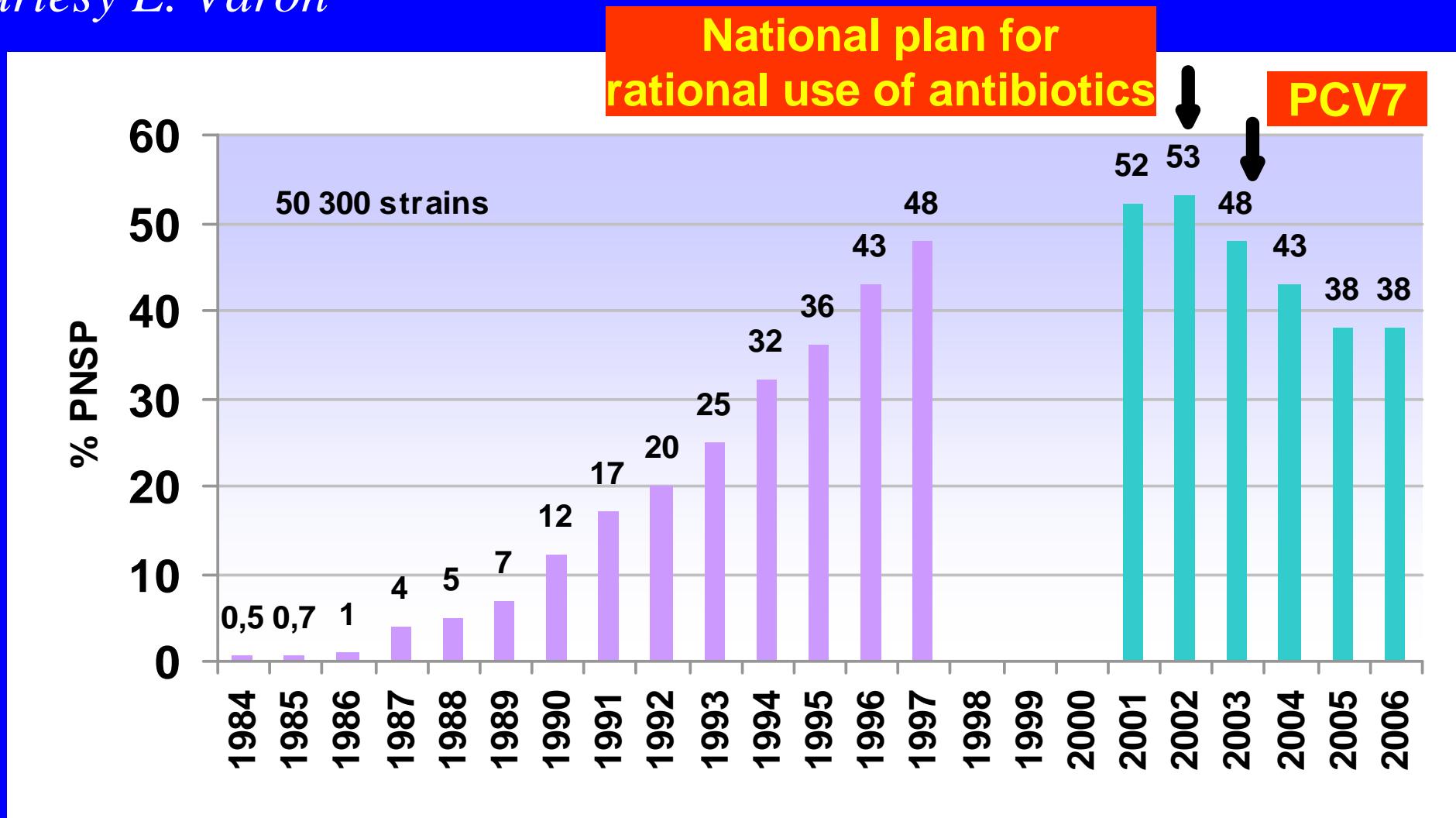
Good news...  
and  
Bad news !

# Good news

# *Streptococcus pneumoniae* and penicillin, erythromycin

# % Penicillin non susceptible *S. pneumoniae* in France 1984 - 2006

Courtesy E. Varon



1984-1997 : GEEP - P. Geslin ; 2001-2006 : ORP - E. Varon, L. Gutmann

Vincent Jarlier November 2008

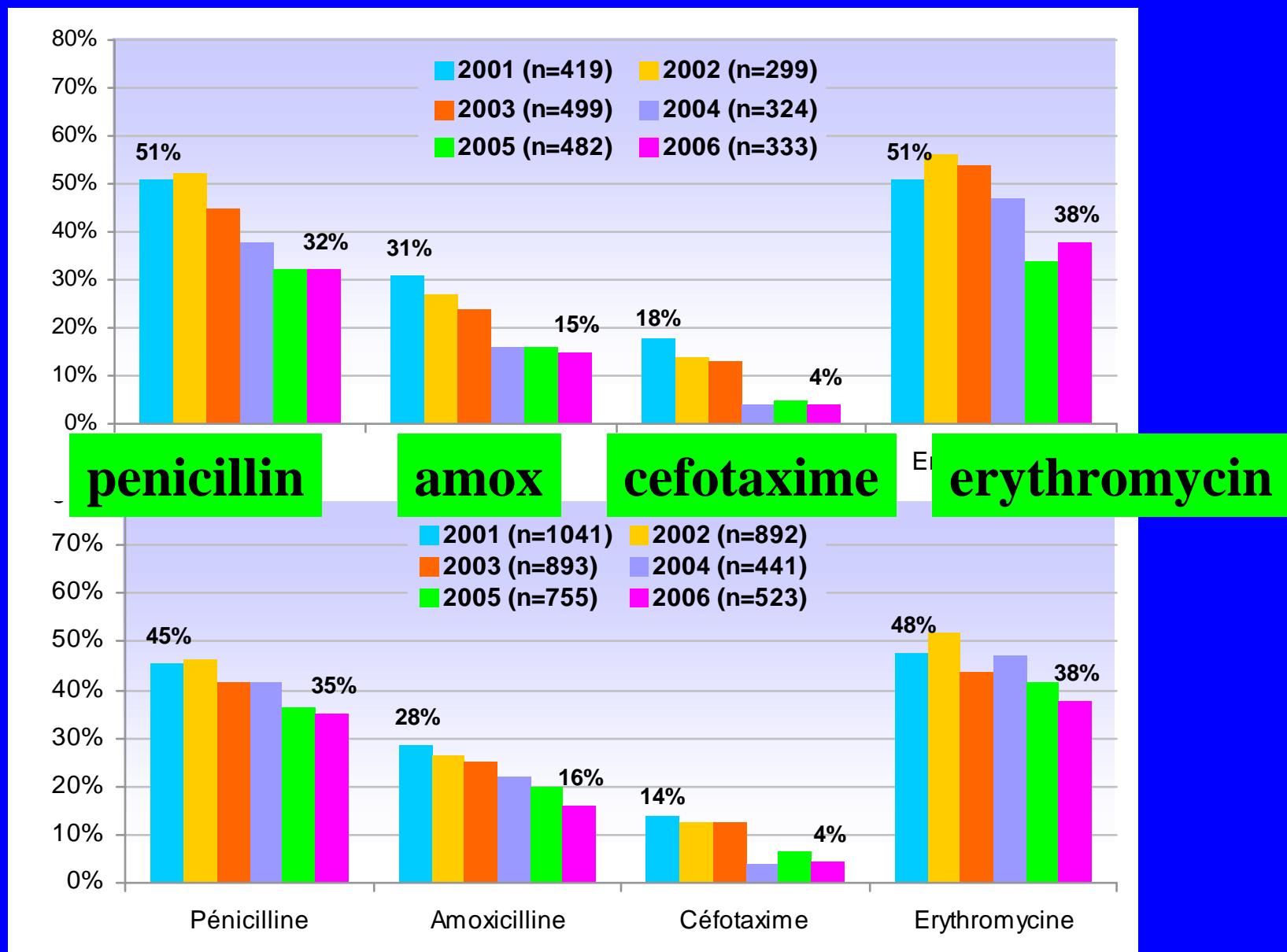
CNRP, Annual report 2007

# *S. pneumoniae* : evolution of antibiotic resistance in France 2001-2006

Courtesy  
E. Varon

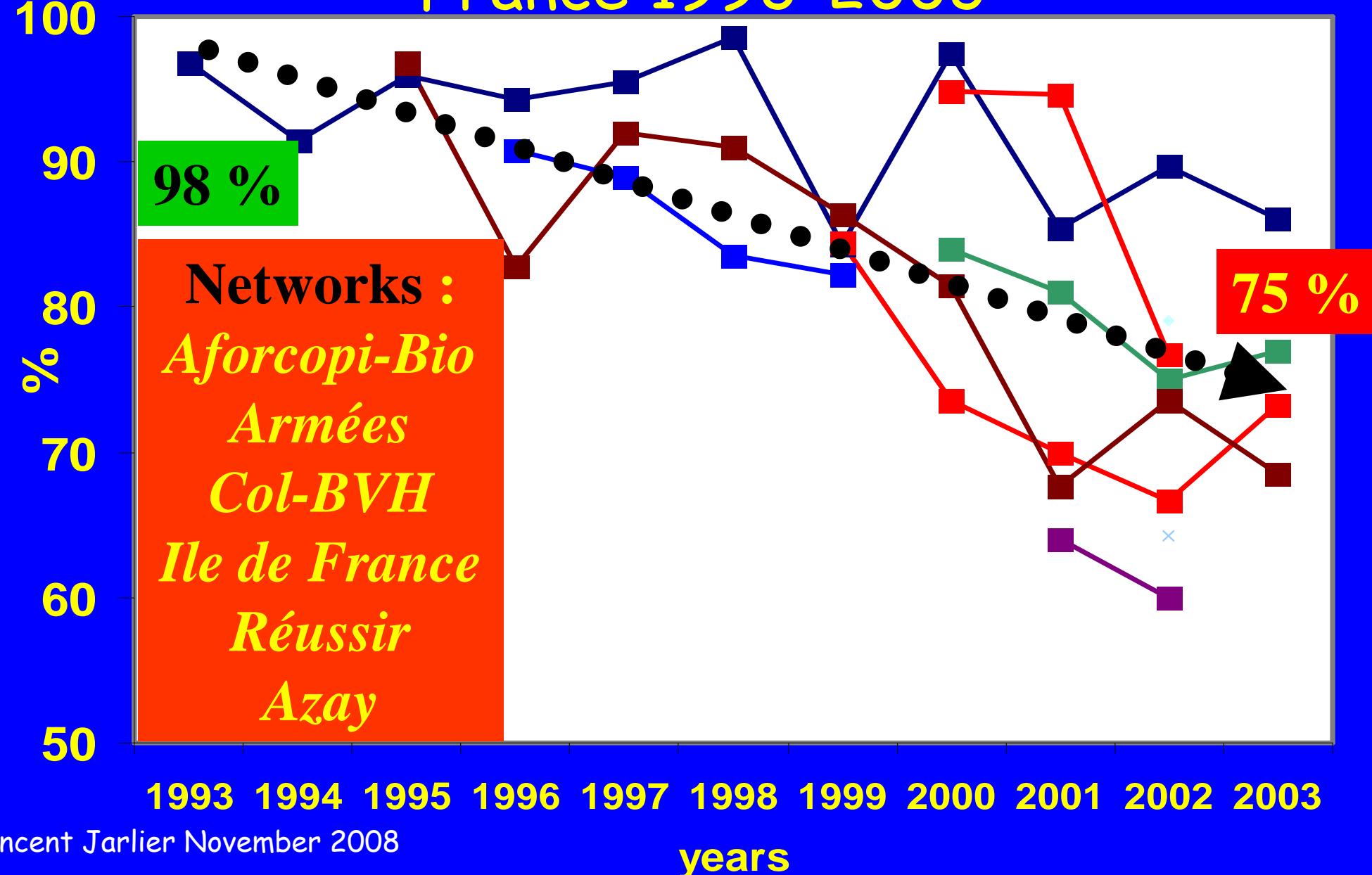
Children  
≤ 15  
years

Adults  
> 15  
years



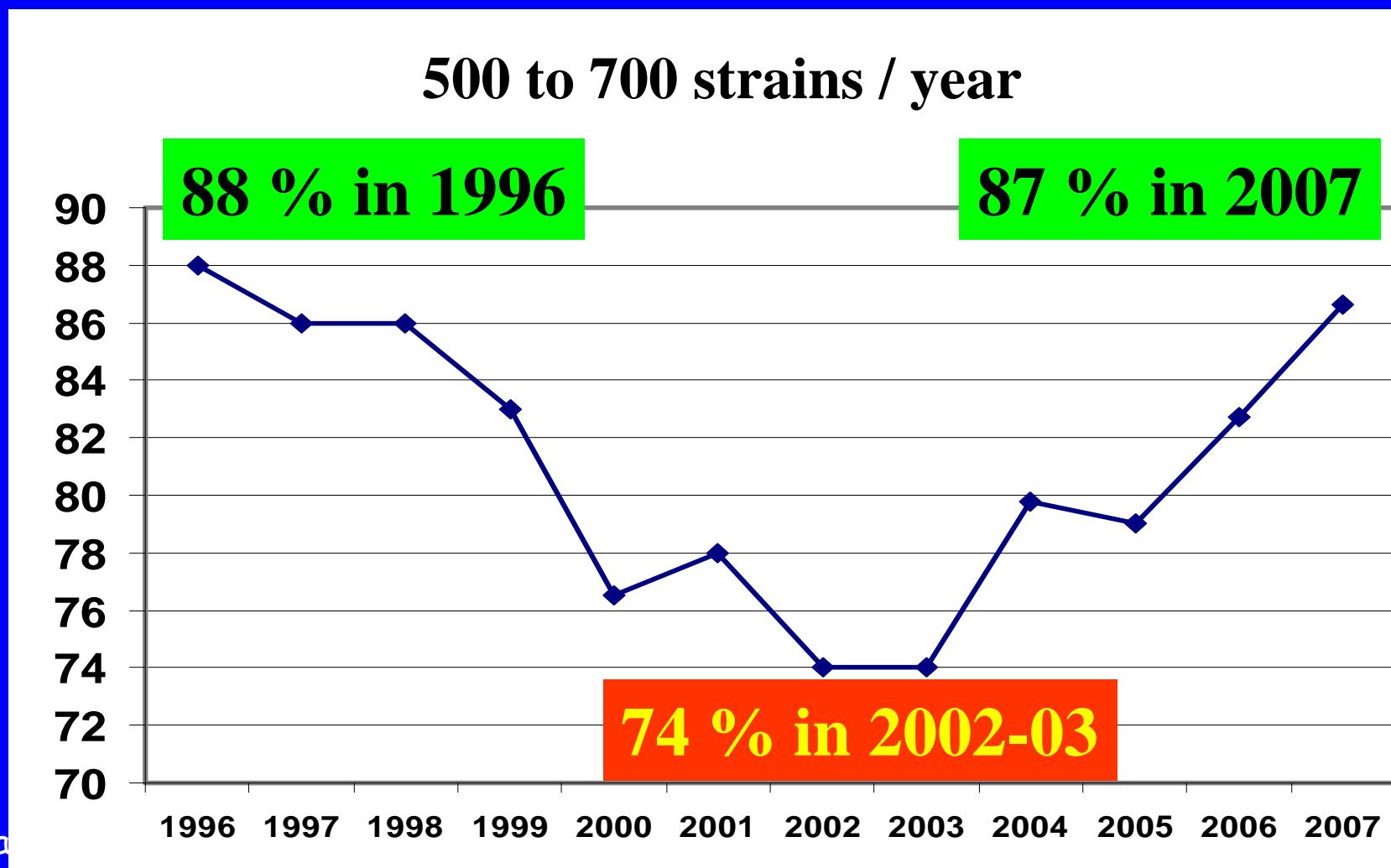
*Streptococcus pyogenes*  
(StrepA)  
and erythromycin

# Decrease of erythromycin susceptibility in *Streptococcus pyogenes* France 1993-2003



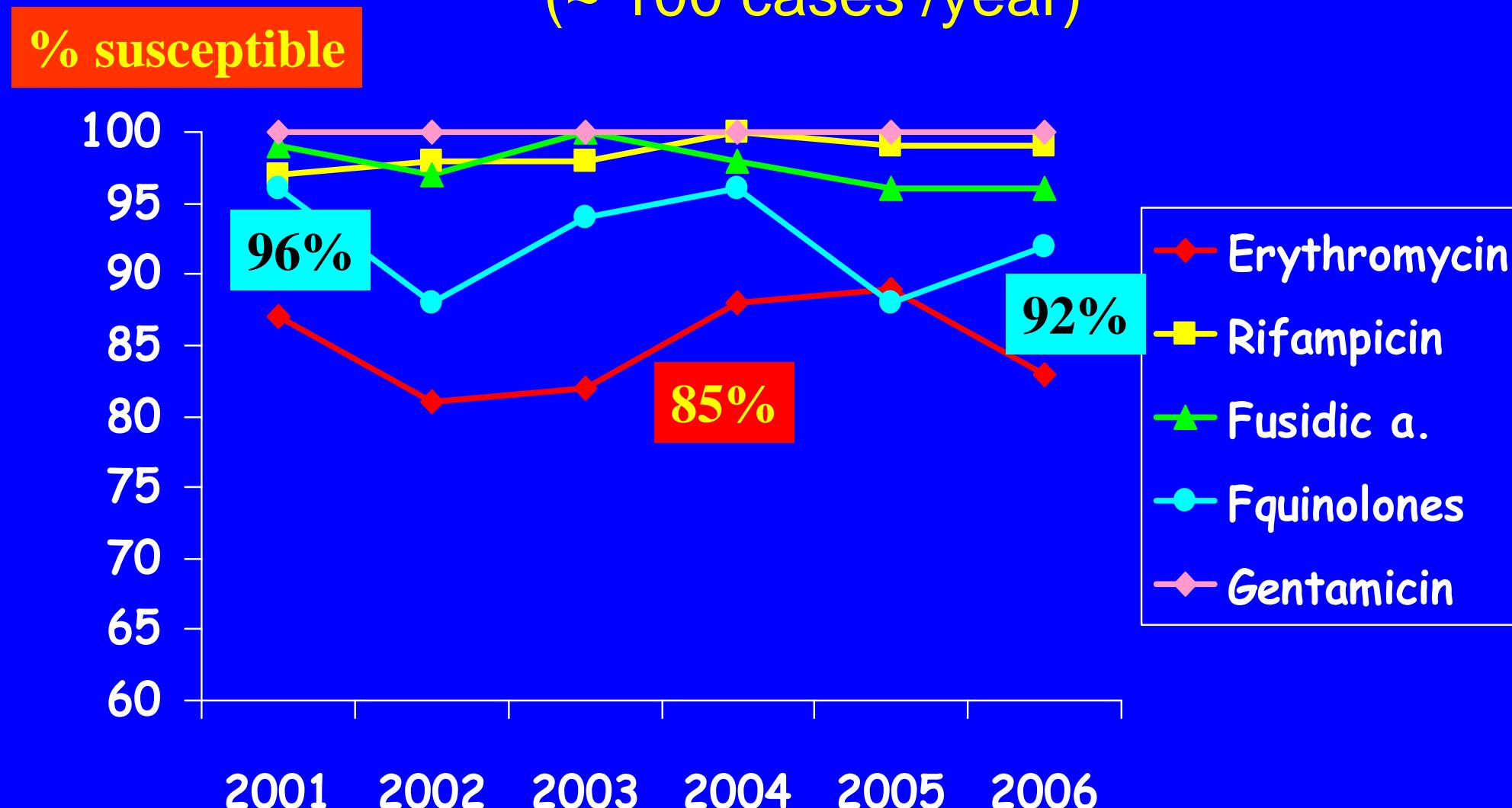
% of erythromycin susceptibility  
in *Streptococcus pyogenes*  
12 years survey in France 1996 - 2007  
Network REUSSIR

Courtesy H. Chardon



*Staphylococcus aureus*  
in community acquired  
bacteremias

# Susceptibility to non $\beta$ -lactams in MSSA isolated from CA bacteremias (standard definition) Network Ile -de-France 2001-2006 (~ 100 cases /year)



*Staphylococcus aureus*  
in community acquired  
Skin –soft tissue infections

% susceptibility in MSSA causing  
CA SSTIs  
Network Col-BVH  
2006 prospective study (285 cases)

Erythromycin	90
Rifampicine	100
Fusidic acid	97
Tetracyclines	97
Gentamicin	99
F.quinolones	97

# CA MRSA producing PVL toxin in the community

# MRSA PVL : retrospective study ONERBA 2000-2003

	2001	2002	2003
MRSA	2.647	2.568	1.333
PVL pattern	21 ( <u>0.8%</u> )	17 ( <u>0.8%</u> )	9 ( <u>0,7%</u> )
Available strains	11	10	6
PVL strains	11	10	6

# MRSA PVL : prospective study ONERBA 2004

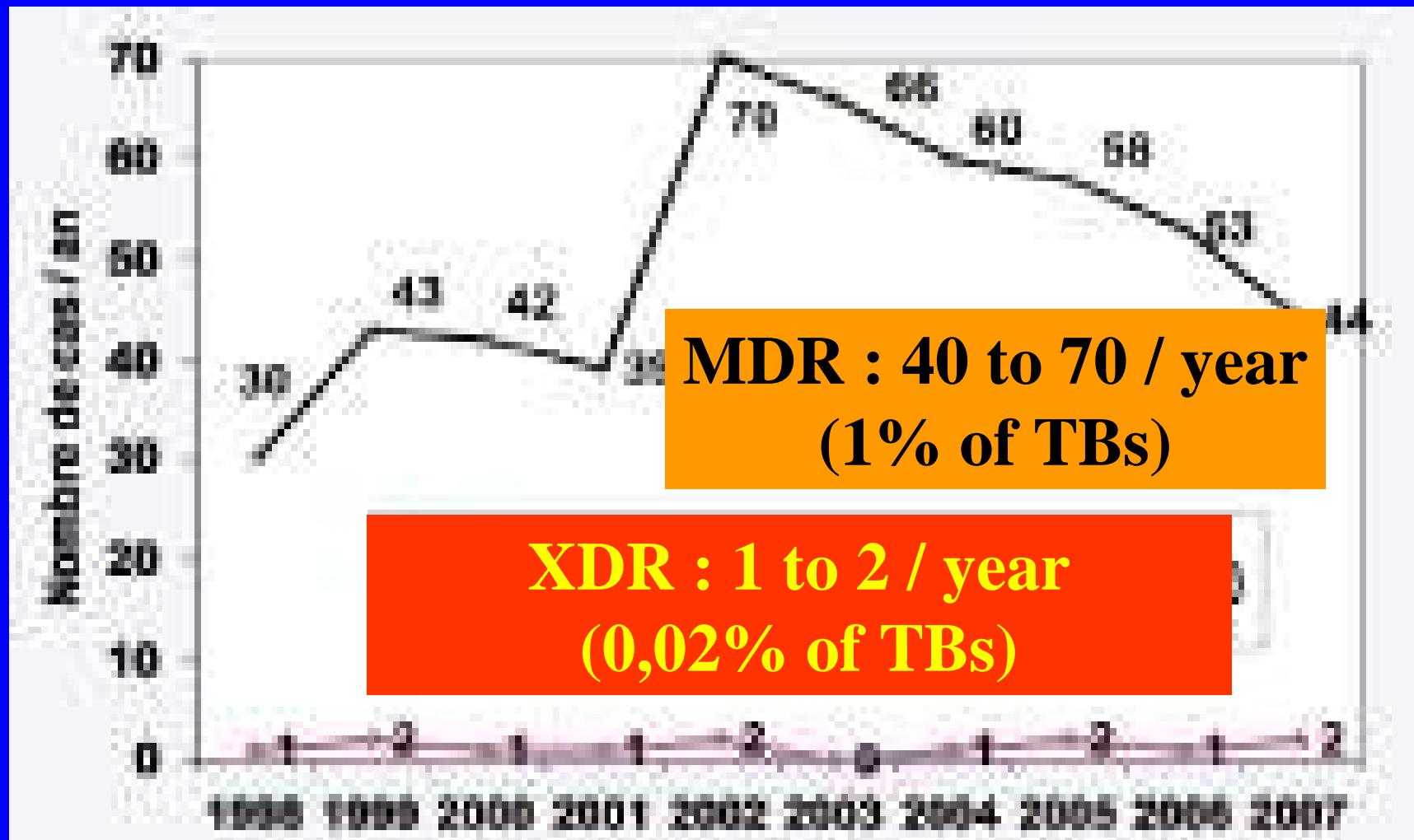
	Total		inpatients		outpatients	
	N	%	N	%	N	%
MRSA	3901		3249		652	
PVL pattern	56	(1.4)	55	(1.7)*	1	(0.1)
PVL strains	48*		47		1	

\* 6 strains not tested

\* National extrapolation : 1.7% x 60 000 MRSA cases /year  
>> ~ 1000 cases MRSA PVL cases/year

# **Resistant tuberculosis**

# Cases of MDR and XDR tuberculosis in France 1998-2007



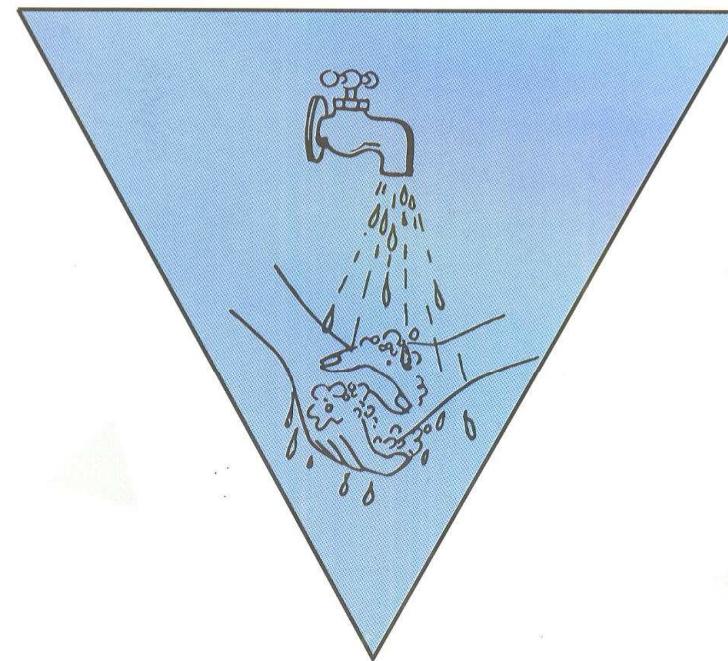
# Curbing MRSA in French hospitals : decreasing the risk of H-MRSA spread into the community

1993 - 2007

# MRSA control Programme Univ. hospitals Paris area (AP-HP)

1993

## MAITRISE DE LA DIFFUSION DES GERMES HOSPITALIERS MULTI-RÉSISTANTS



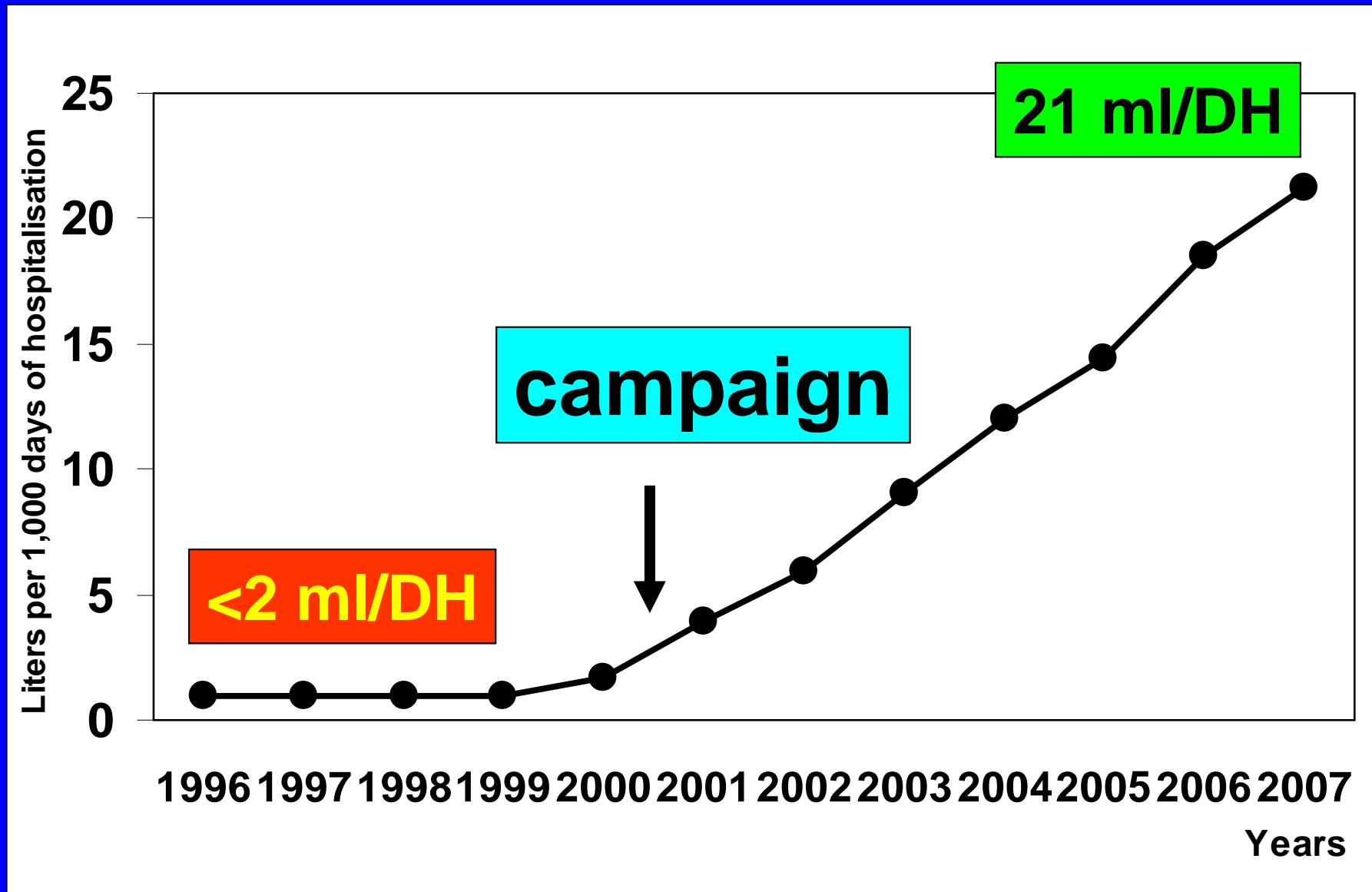
# Alcool based hand rub solutions campaign at AP-HP

2001-02

Vincent Jarlier November 2008

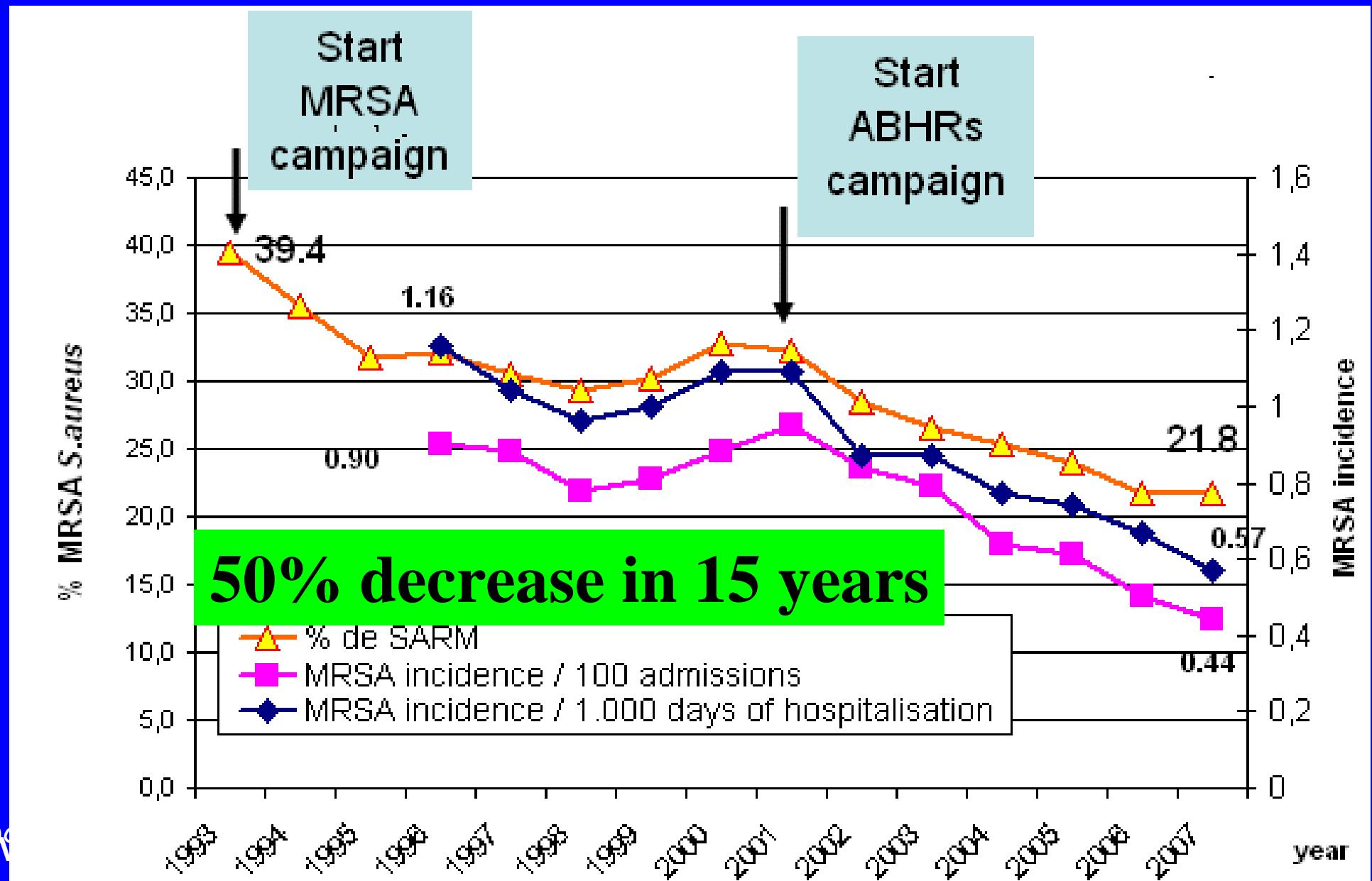


# Alcool based hand rub solutions Paris area hospitals (AP-HP)



# % MRSA in *S.aureus* and MRSA incidence (per 100 admissions or 1,000 DHs)

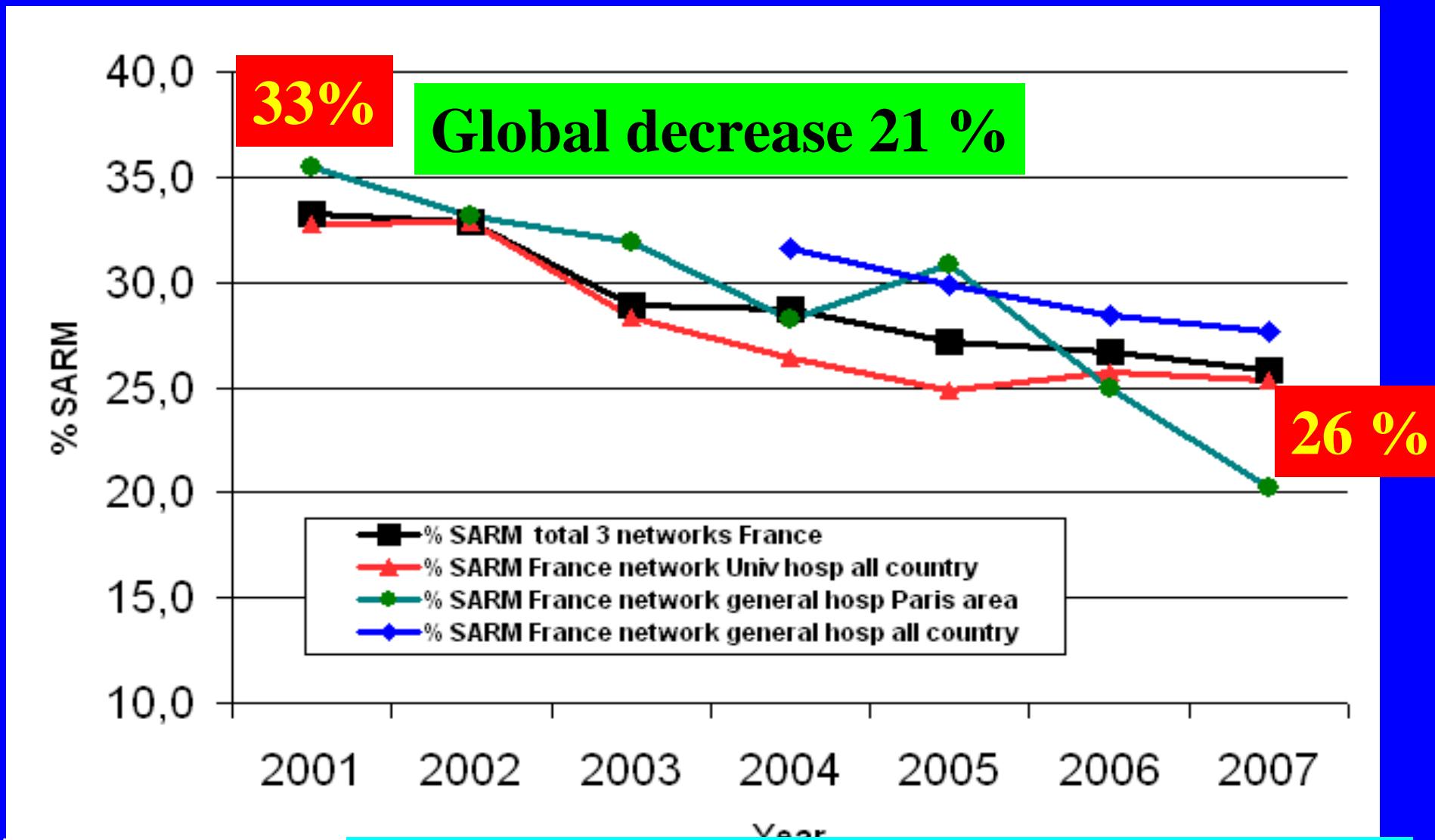
Univ. hospitals of Paris area (n=39) 1993-2007



# MRSA control national programme 1999

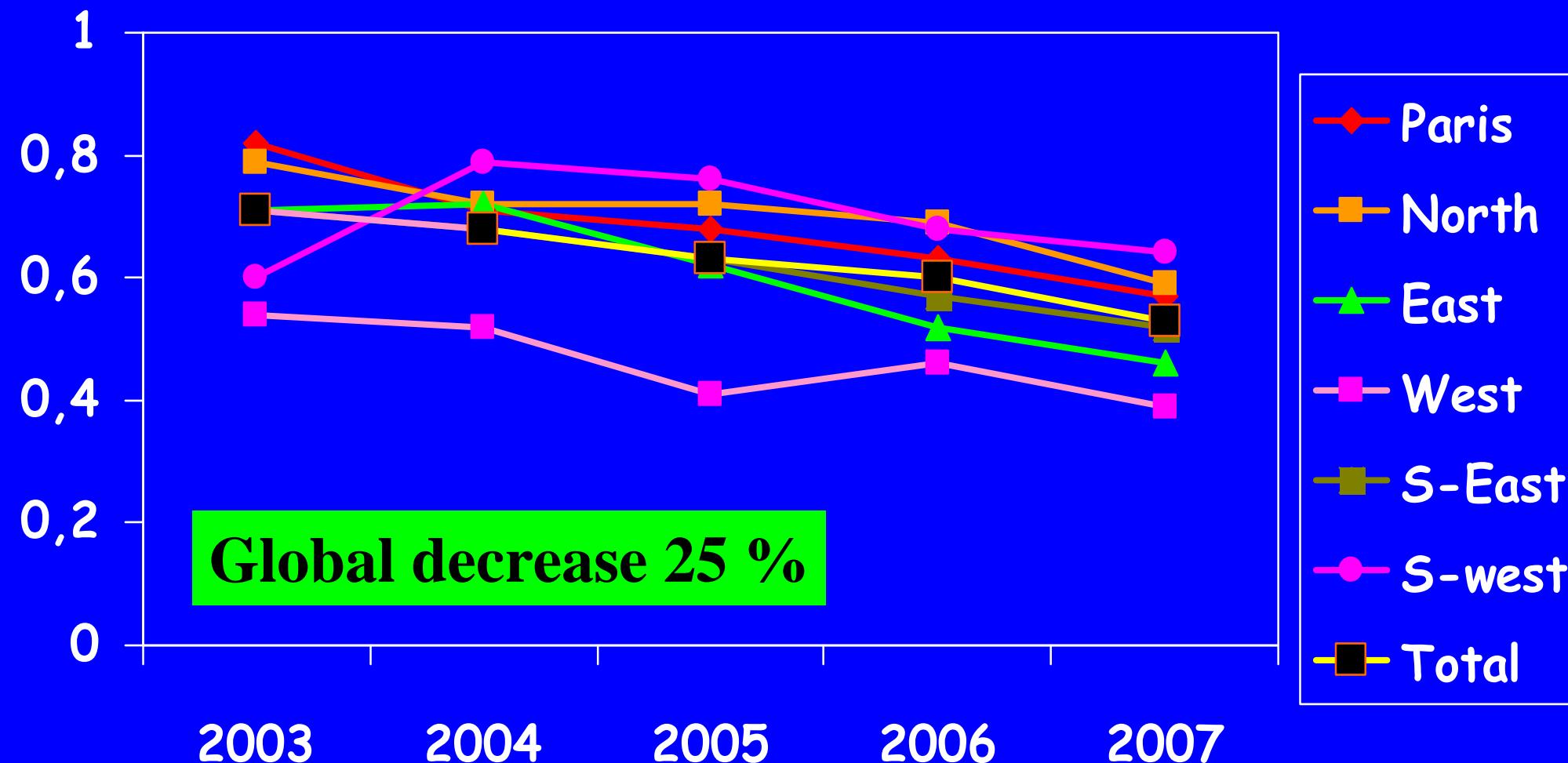


% MRSA in *S. aureus* from bacteremias in  
3 French networks participating in EARSS  
(19 Univ Hosp, 9 GH Paris area, 25 GH all country)  
2001-2007



Networks : Azay, Ile de France, REUSSIR

MRSA rates per 1,000 DHs  
227 French hospitals  
Networks C-CLIN - RAISIN  
2003-2007, Geographic areas

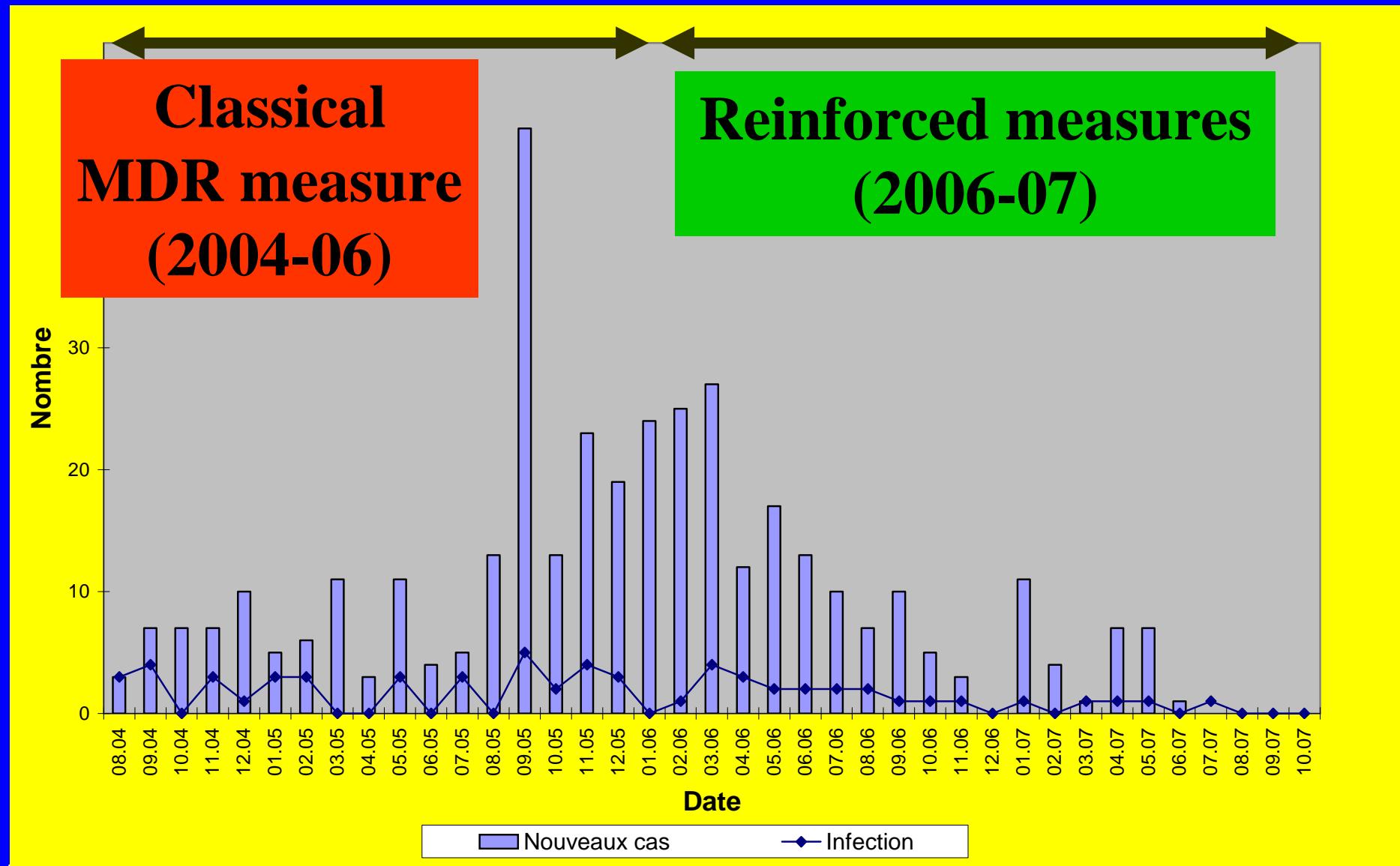


Global decrease 25 %

National extrapolation : still 50,000 MRSA cases / year !!

# VRE control in univ.hospitals of Paris area : decreasing the risk of H-VRE spread into the community

# VRE cases per month university hospitals, Paris area (AP-HP) 2004-2007



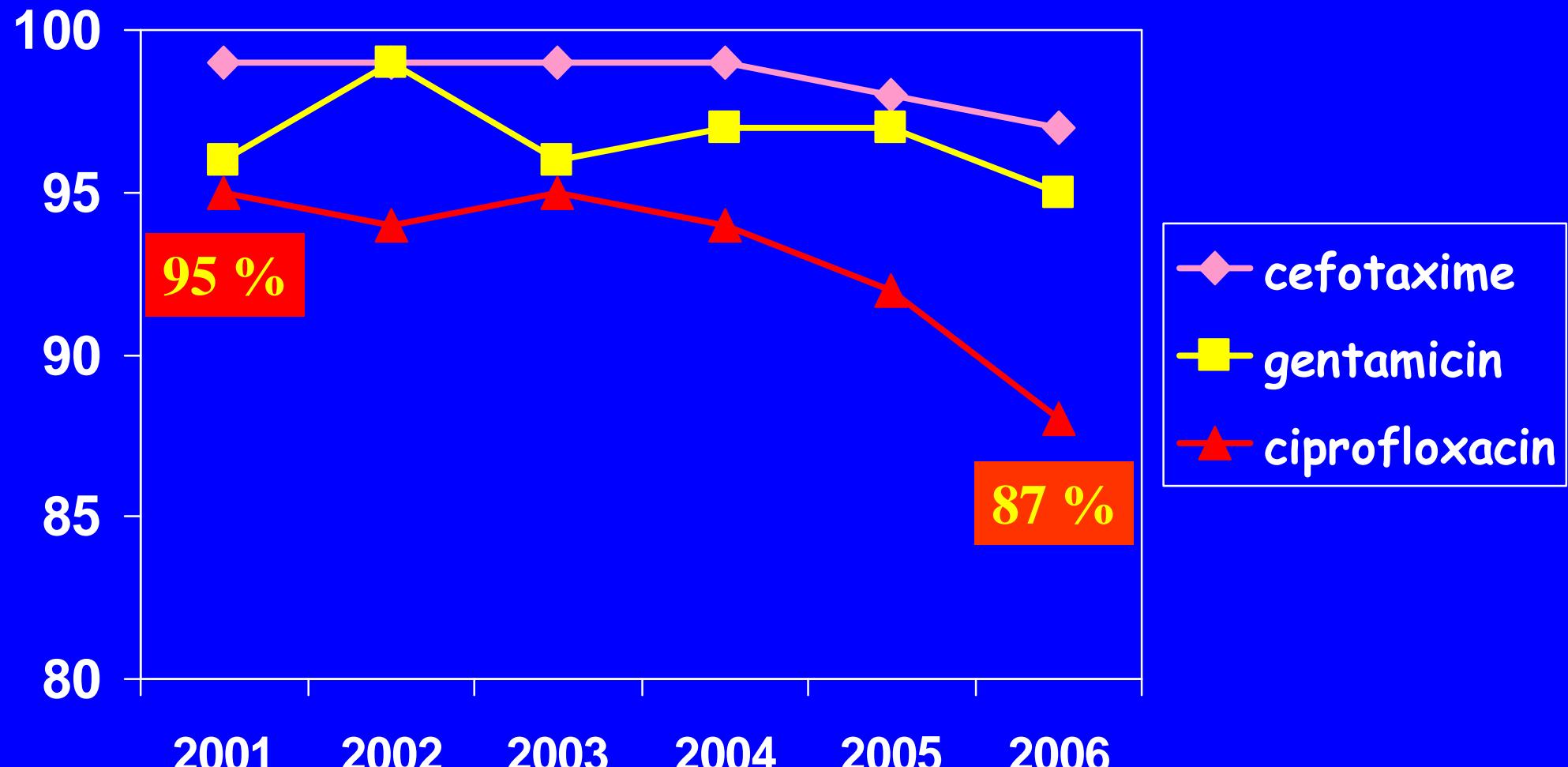
# Bad news

*Escherichia coli*  
and fluoroquinolones  
in bacteremias

# Susceptibility of *E.coli* to major drugs in CA bacteremias (standard definition)

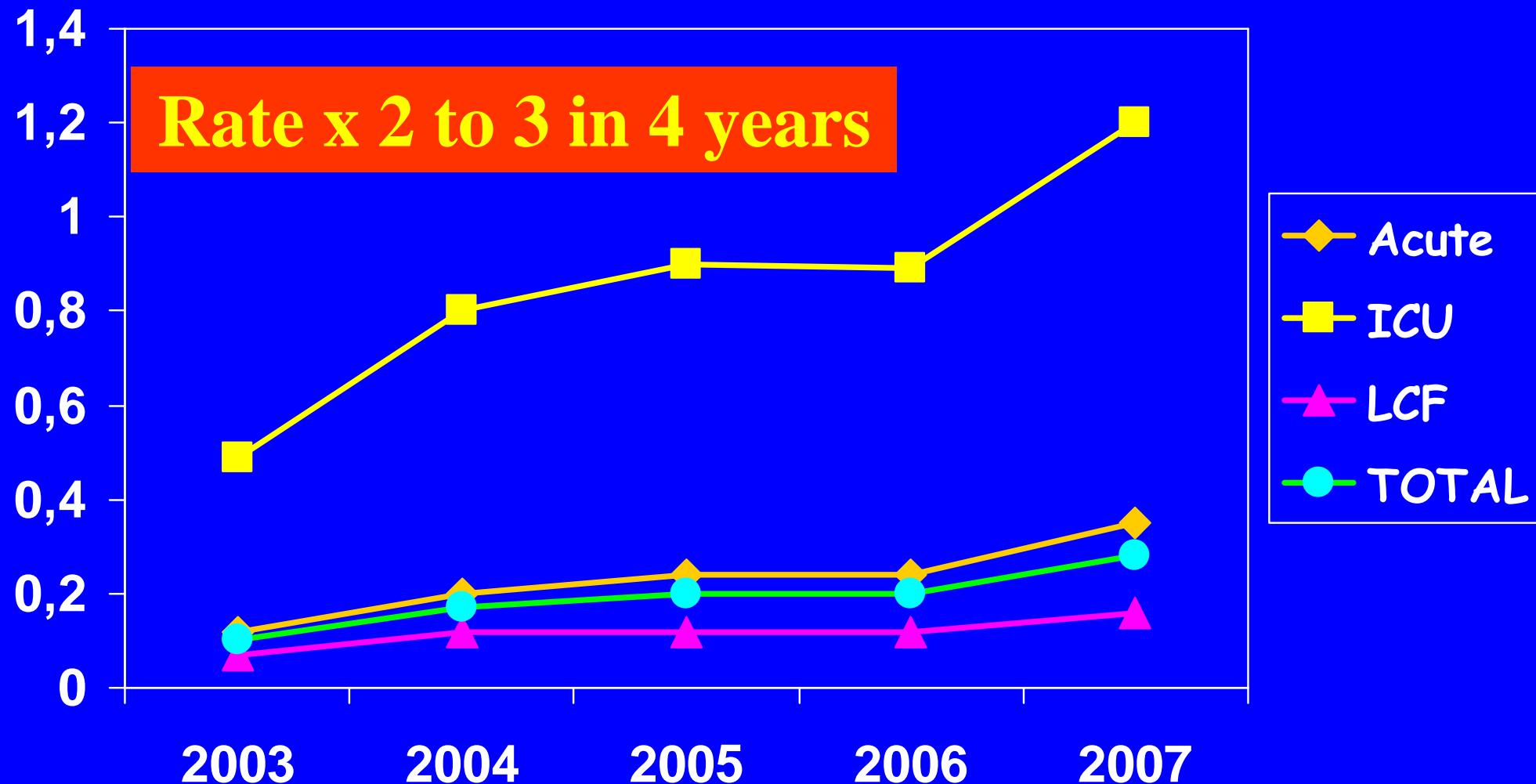
Network Ile-de-France

2001 – 2006 (~ 500 cases /year)

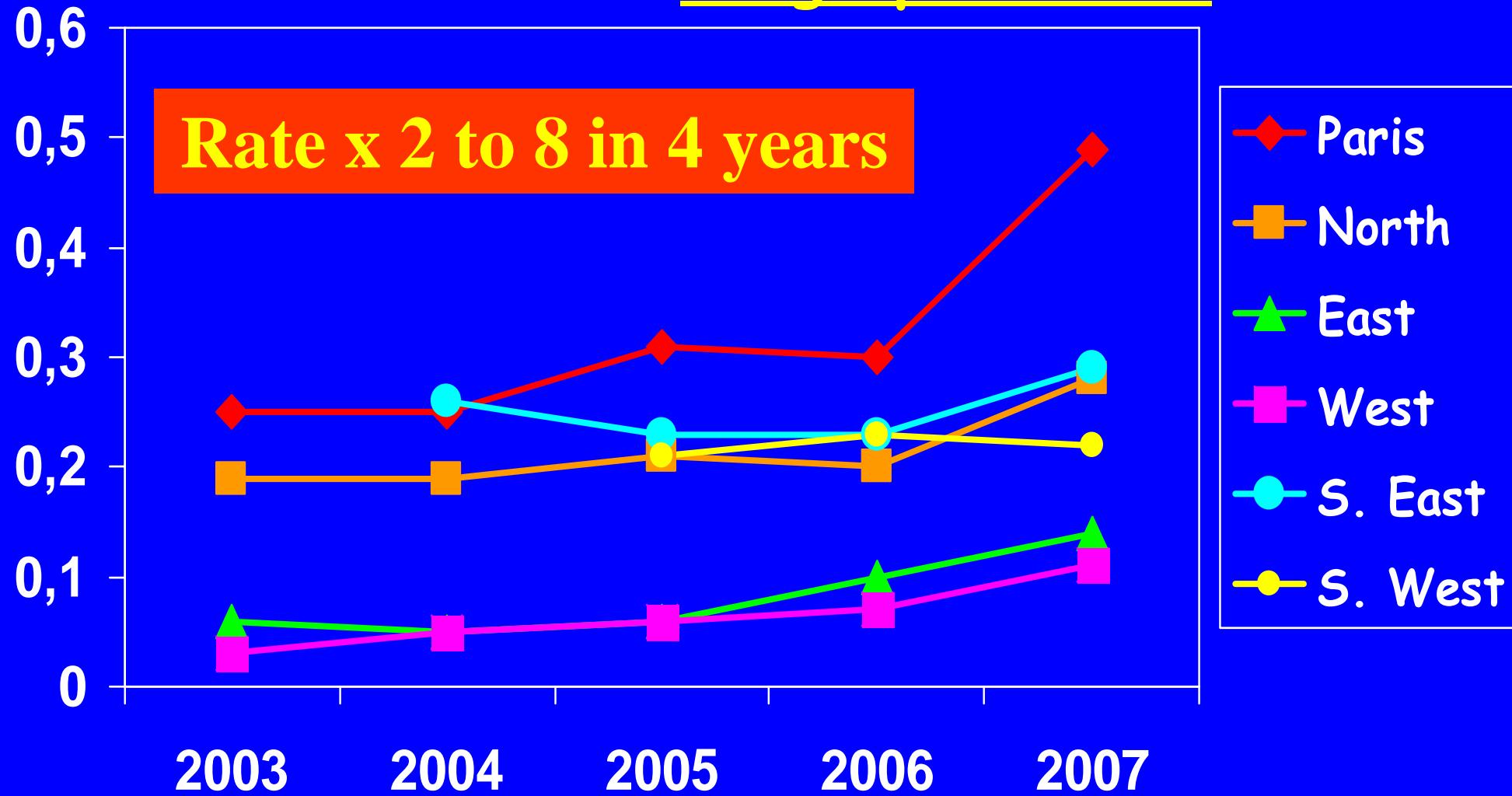


# **ESBL enterobacteria**

ESBL incidence rates per 1,000 DHs  
227 French hospitals  
Networks C.CLIN - RAISIN  
2003-2007 Medical activities



ESBL incidence rates per 1,000 DHs  
227 French hospitals  
Networks C.CLIN - RAISIN  
2003-2007 Geographic areas



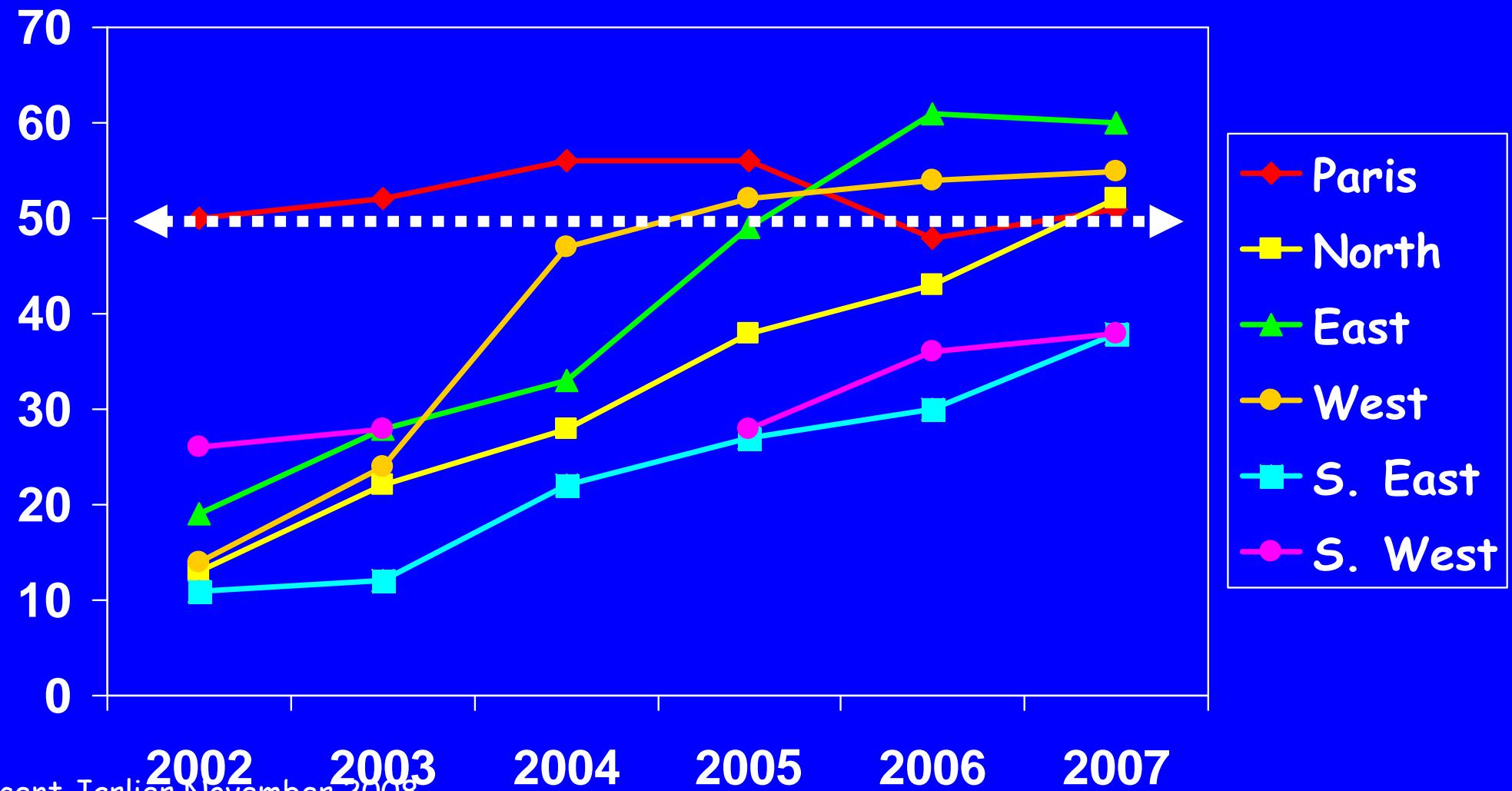
Now : 1 case of ESBL for 2 cases of MRSA

# **ESBL *Escherichia coli***

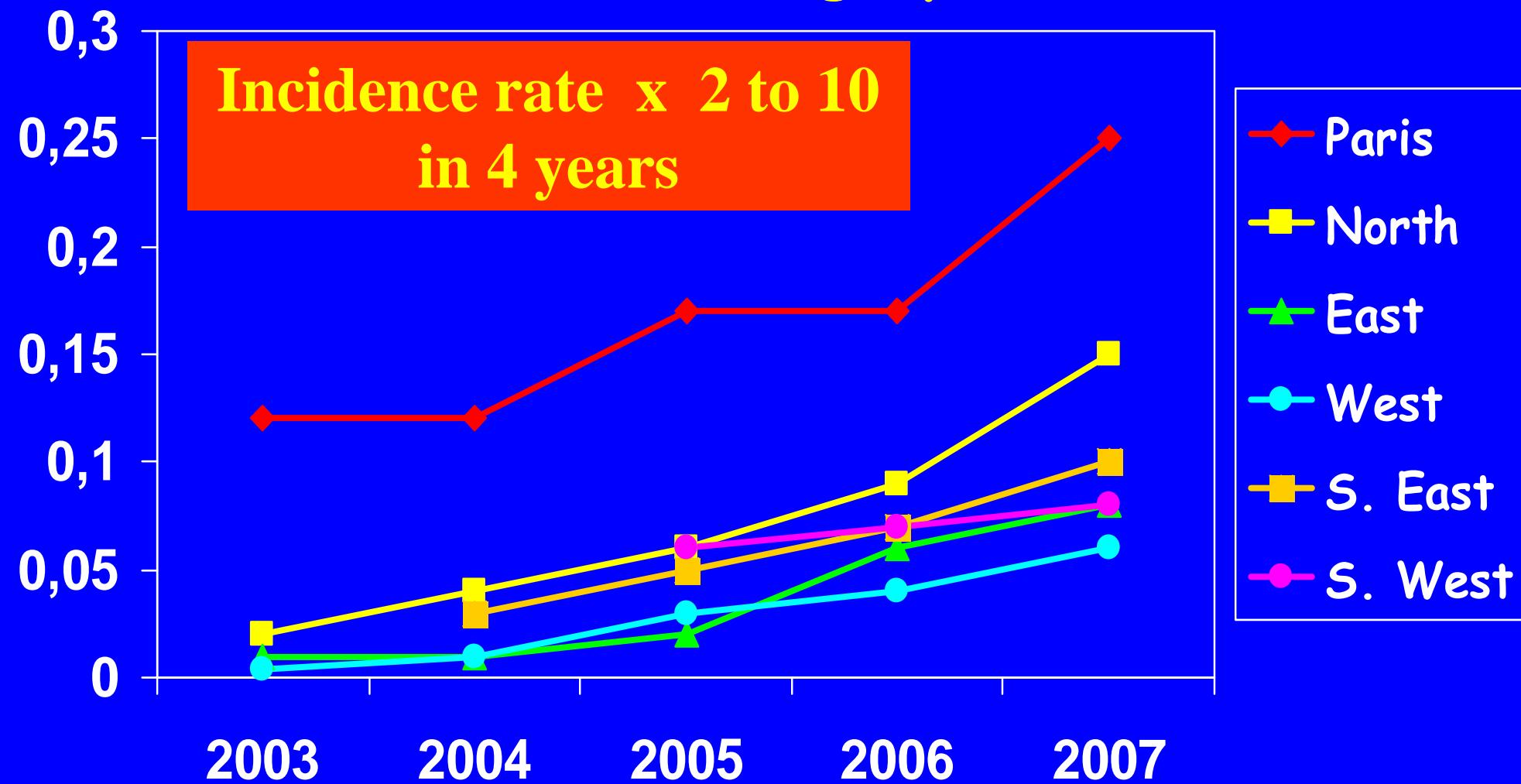
# Proportion of *E.coli* among ESBL enterobacteria 227 French hospitals

Networks C.CLIN - RAISIN  
2003-2007 Geographic areas

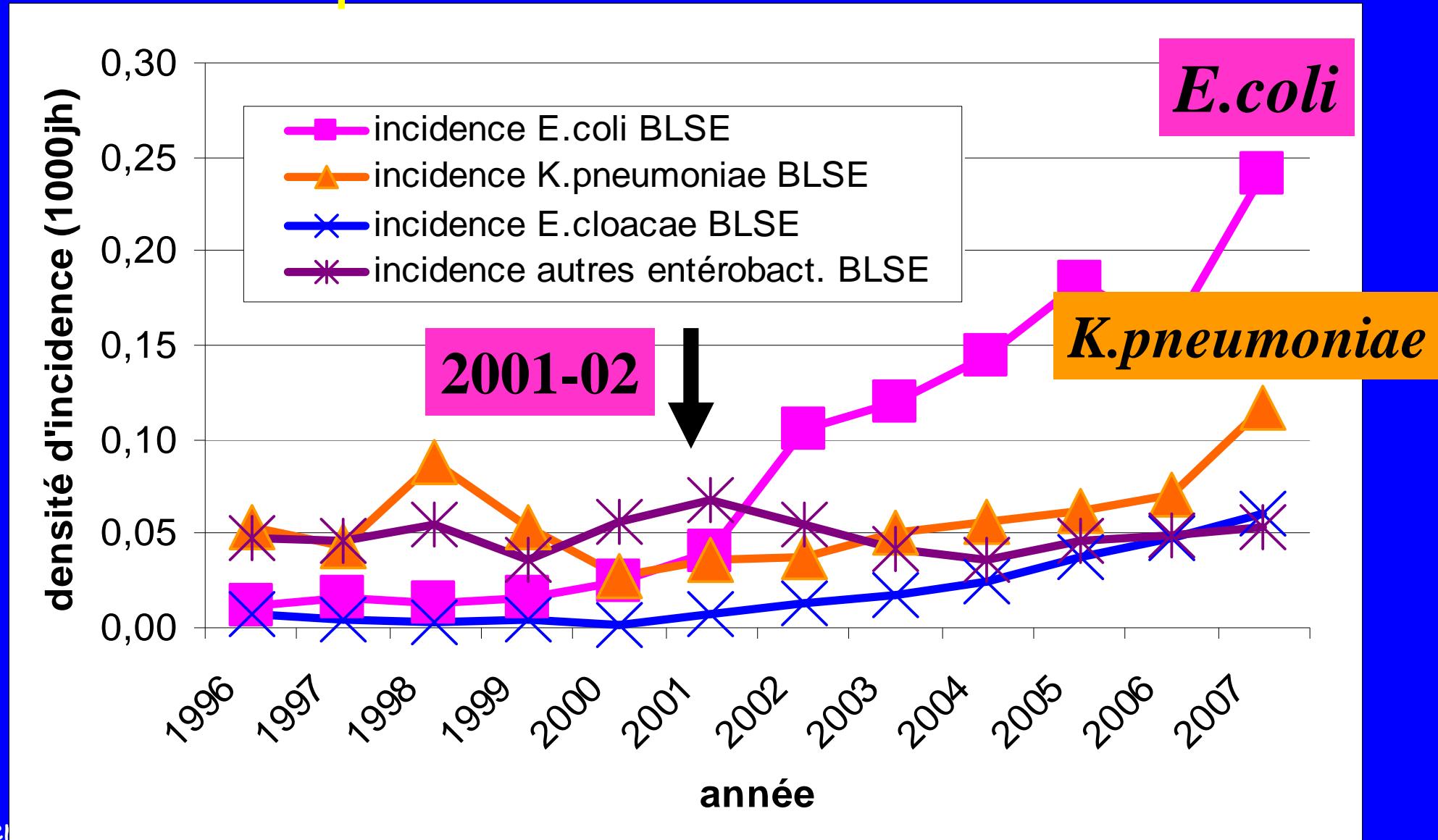
% *E.coli*



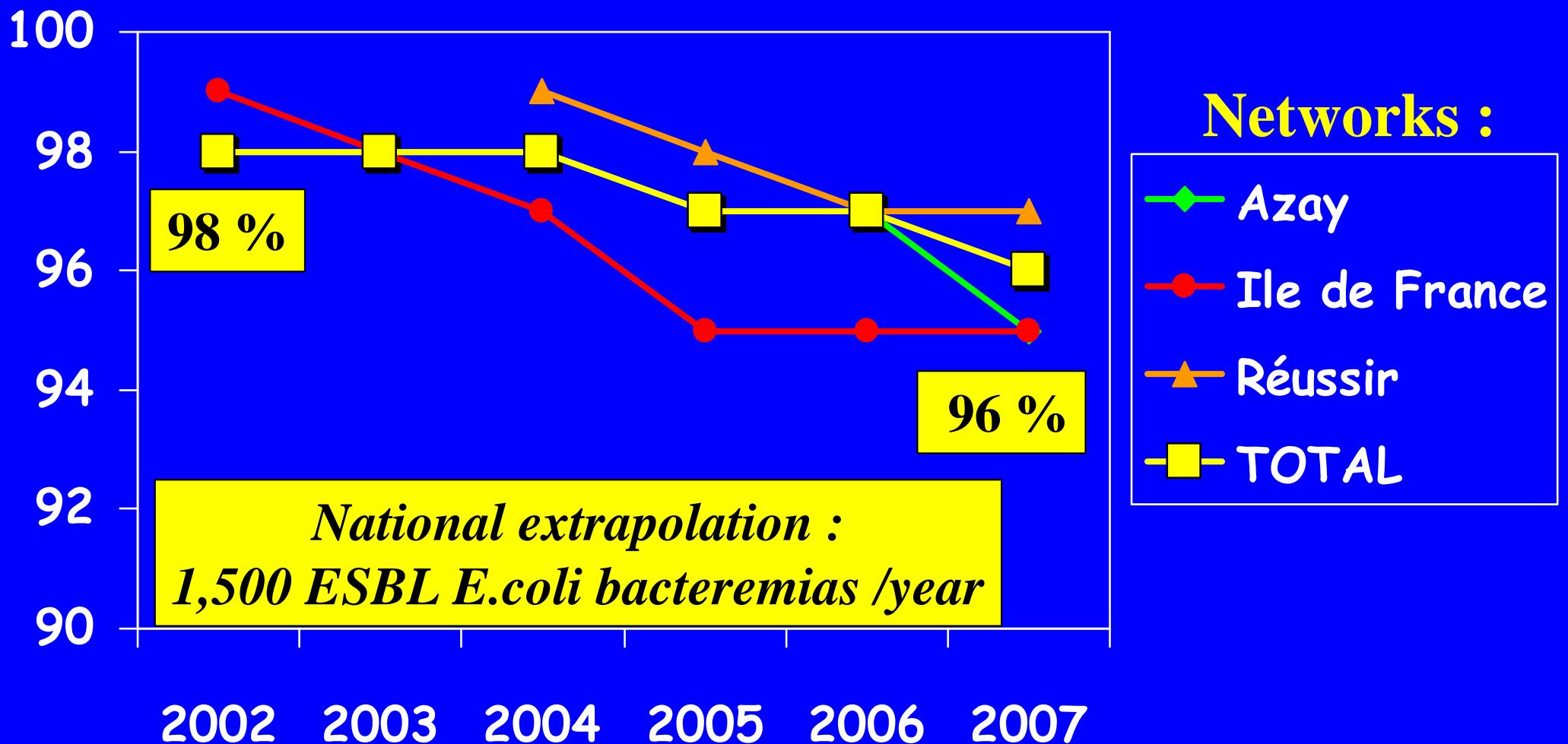
Incidence rate of ESBL *E.coli* per 1,000 DHs  
227 French hospitals  
Networks C.CLIN - RAISIN  
2003-2007 Geographic areas



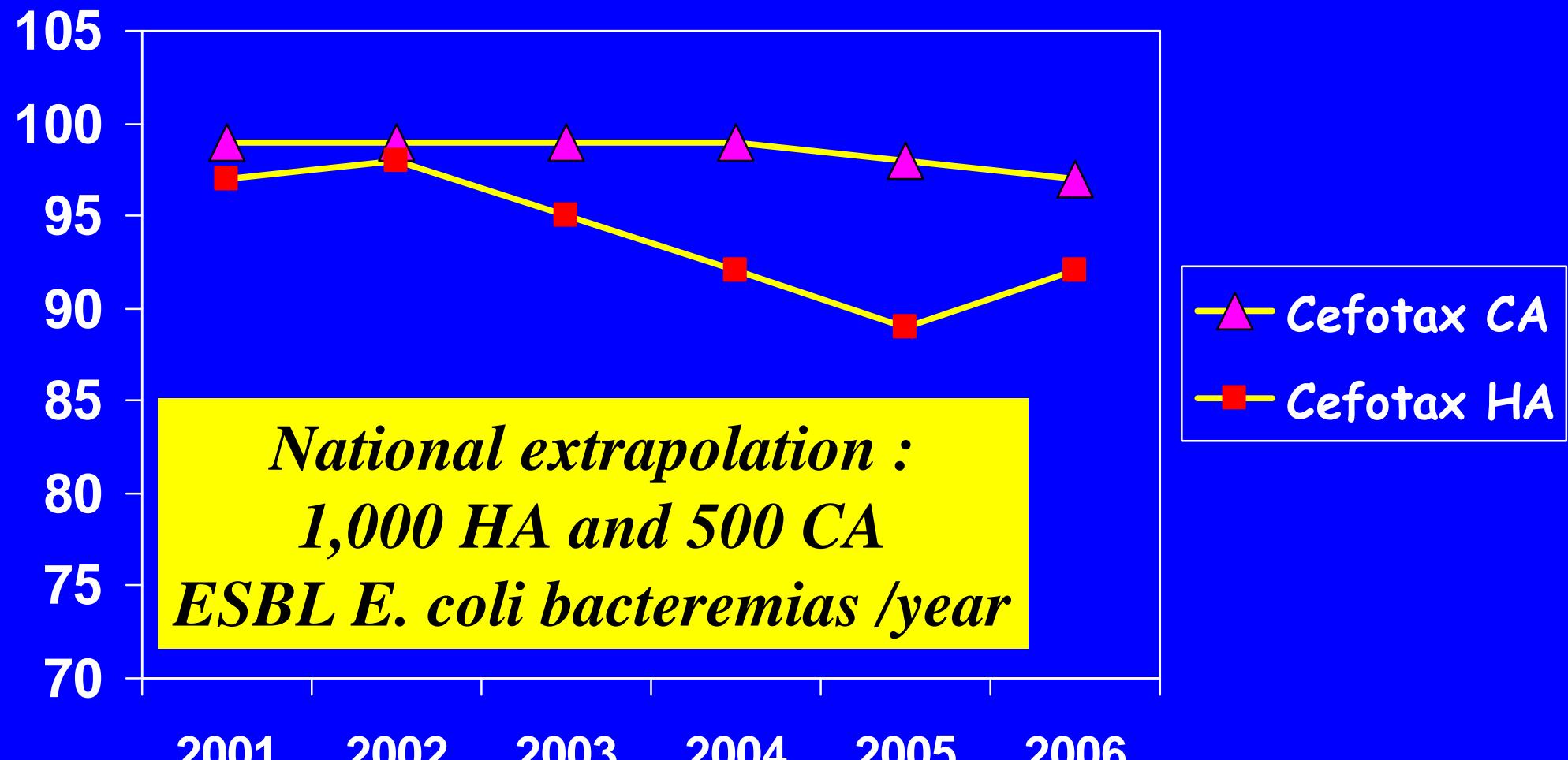
# Rate of incidence (per 1,000DHs) of different species of ESBL enterobacteria Univ. hospitals of Paris area 1996-2007



# % susceptibility to cefotaxime in *E.coli* bacteremias in France *% susceptible* 2002-2007 (EARSS)



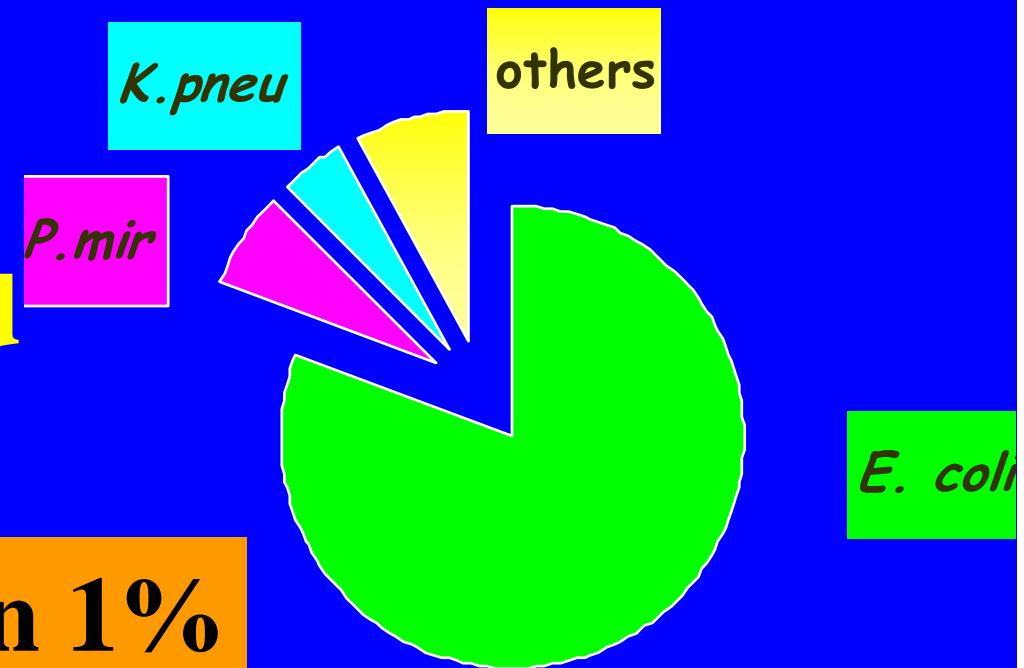
# Susceptibility of *E.coli* to cefotaxime in CA and HA bacteremias (standard def.) Network Ile-de-France 2001 – 2006 (~ 600 cases /year)



# ESBL enterobacteria in outpatients

## Prospective study ONERBA 2006

- 22 labs for GPs
- 2 months
- 6,771 strains included
- 72 ESBL



**ESBL global proportion 1%**

- 10/72 patients : no previous hospitalisation nor medical care at home

# Controlling antibiotic resistance in the community

Decrease  
ATB  
consumption



Vaccinations

ATB resistance  
community

# Controlling antibiotic resistance in the community

Decrease ATB consumption

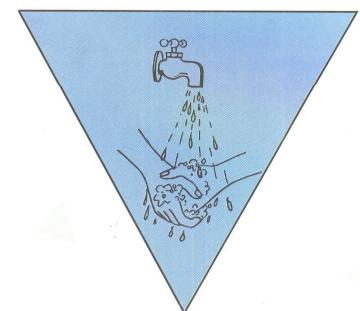


Vaccinations

ATB resistance community

MRSA, VRE  
ESBL

MAITRISE DE LA DIFFUSION  
DES GERMES HOSPITALIERS  
MULTI-RÉSISTANTS



ATB  
resistance  
hospital

Prevent  
cross  
transmission

La Friction Hydro-Alcoolique  
des mains C'est simple !

# Controlling antibiotic resistance in the community

Decrease ATB consumption



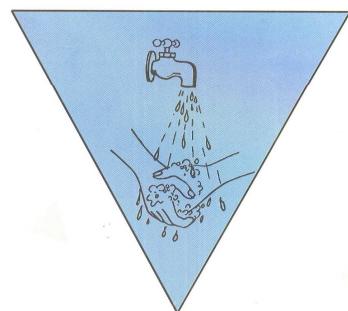
Decrease ATB consumption

Vaccinations

ATB resistance community

Vaccinations  
MRSA, VRE  
ESBL

MAITRISE DE LA DIFFUSION DES GERMES HOSPITALIERS MULTI-RÉSISTANTS



ATB resistance hospital

Prevent cross transmission

La Friction Hydro-Alcoolique  
des mains C'est simple !

# Controlling antibiotic resistance in the community

Decrease ATB consumption

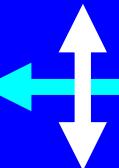


Decrease ATB consumption

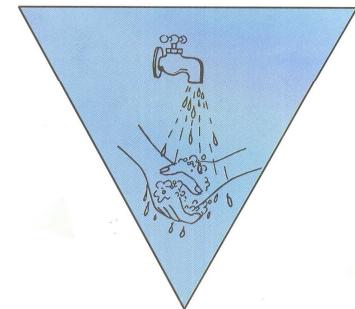
Vaccinations

ATB resistance community

Vaccinations  
MRSA, VRE  
ESBL



MAITRISE DE LA DIFFUSION  
DES GERMES HOSPITALIERS  
MULTI-RÉSISTANTS



ATB resistance hospital

Prevent cross transmission in schools, families...(ABHRSS)

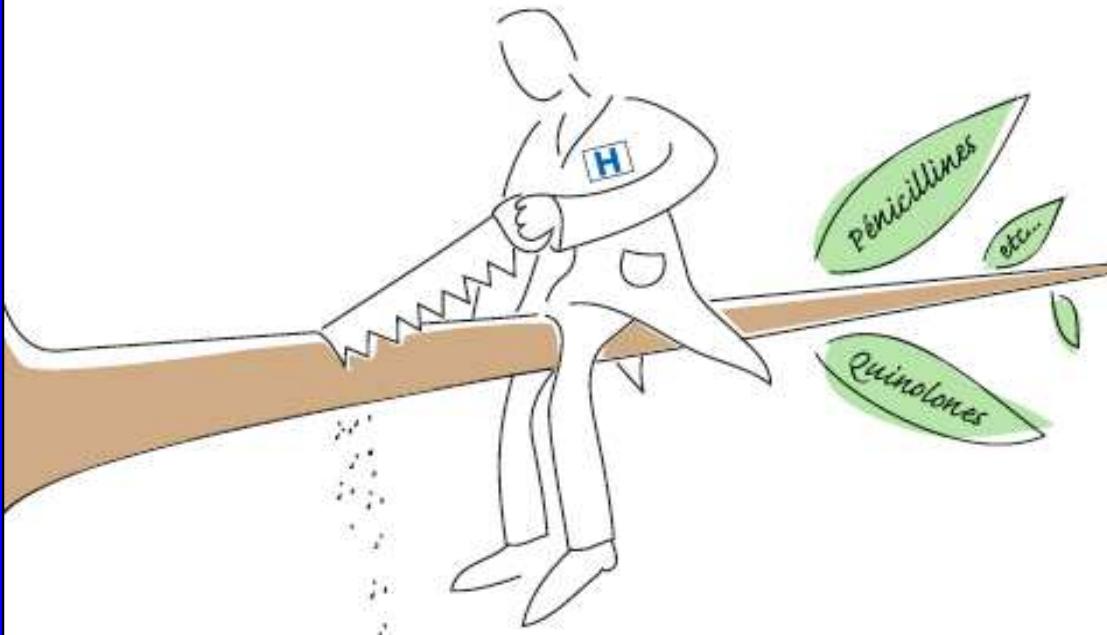
Prevent cross transmission

La Friction Hydro-Alcoolique  
des mains C'est simple !

# Antibiotic policy campaign at AP-HP

2006-08

**Thank you.....**



**Mieux utiliser les antibiotiques  
pour préserver leur efficacité.**