

Multiresistant  
*Enterobacter aerogenes*  
in Belgian hospitals,  
2000 - 2001

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# *Enterobacter aerogenes*

**Incidence (HC)<sup>1</sup> 1992**      0.09/10.000 P-days  
**2001**      0.31/10.000 P-days

**Proportion *E.a.* / *Enterobacter species* (HC)**

'92-'94      33.2 %

'00-'01      48.5 %

**Multiresistance (1994-1995)<sup>2</sup>**

**Sensitivity**      **Imipenem**      100 ⇨ 98 %

**Ceftazidime**      66 ⇨ 47 %

**Fluoroquinolones**      62 ⇨ 42 %

1. C. Suetens et al. , 17 th seminar "Infections deseases», Woluwe, 30 November 2001

2. O. Ronveaux et al., *Clin Microbiol Infect*, 1999; 5: 622-627.

# Belgian MREA-surveillance

Since 2000

Continuous multi-centre MREA-surveillance in acute Belgian Hospitals

- ➔ period of data collection: 6 months
- ➔ participation on voluntary basis
- ➔ confidentiality
- ➔ standardised data collection
- ➔ feedback of local data and national benchmarking

# Definitions

**Multiresistant E.a. (MREA) resistant to at least:**

one 3<sup>rd</sup> gen. cephalosporine:

*ceftazidime, cefotaxime, ceftriaxone, aztreonam*

and

one fluoroquinolone:

*ofloxacin, levofloxacin, ciprofloxacin*

**Nosocomial MREA (n-MREA)**

infection or carriage of MREA, hospital acquired and not present at admission (first positive culture > 48h. after admission)

# Collected data

- ➔ Number of MREA-strains from clinical and screening samples
  - ➔ Number of *Enterobacter aerogenes*, *Enterobacter species*, *Enterobacteriaceae*
  - ➔ Number of new hospital-acquired MREA-cases from clinical and screening samples
  - ➔ Number of admissions/ hospitalisation days
- \* Quality of data (2001/1): each patient is counted only once during the hospitalisation period (exclusion of doubles)

# Results

## Participation

2000/2: 50 acute hospitals

2001/1: 52

## After exclusion of hospitals without standardised data collection

2000/2: 30 acute hospitals

2001/1: 42

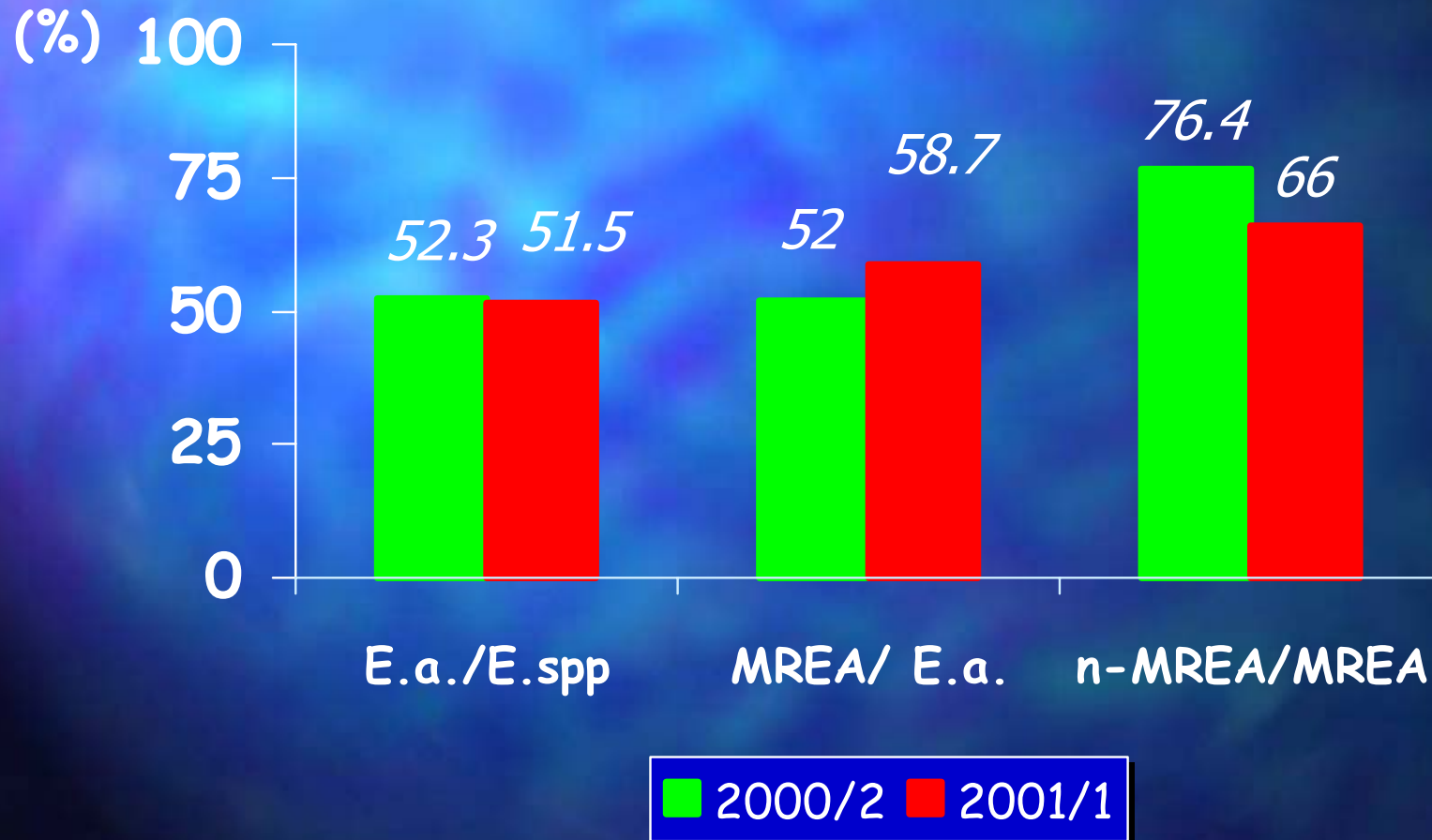
# Participating hospitals by size, region and LOS

<b>Hospital size</b>	<b>n hosp.</b>	<b>mean LOS</b>
< 200 beds	10	9.4 days
200 - 399 beds	18	8.2
400 + beds	14	8.7

## **Region**

Flanders	27	8.6 days
Wallonia	11	8.7
Brussels	4	8.0

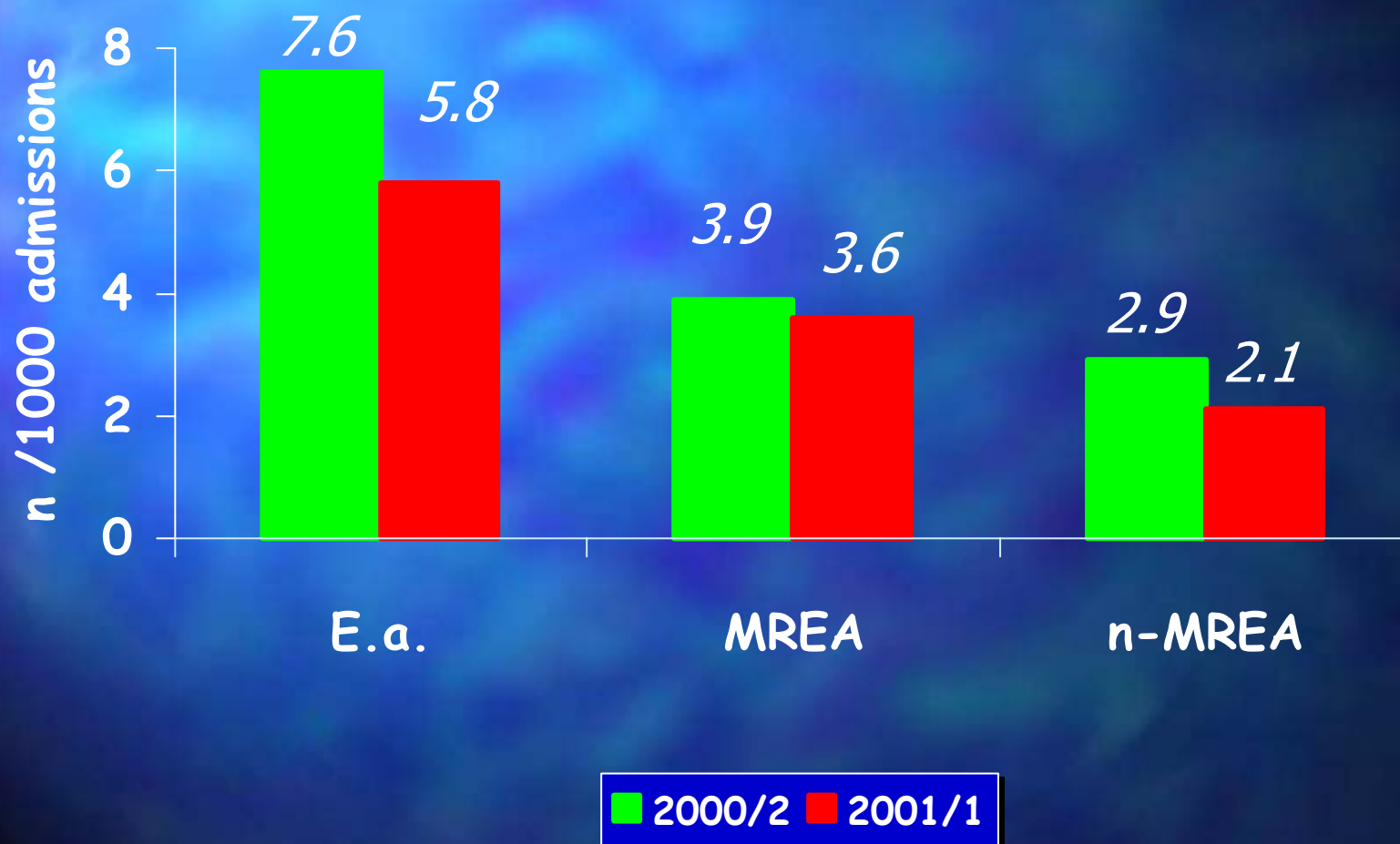
# Proportion of E.a., MREA and n-MREA (all hospitals, n = 42)



# Proportions of E.a., MREA and n-MREA by size, region and LOS (all hospitals, n=42)

Hospital size	E.a./E.spp.	MREA/E.a.	n-MREA/MREA
< 200 beds	56	66.7	92.4
200 - 399 beds	56.3	65.4	73.6
400 + beds	49.2	48.1	66.5
<b>Region</b>			
Flanders	49.6	49	74
Wallonia	60.7	69.8	68.3
Brussels	36.7	30.8	60
<b>Length of stay</b>			
< 8 days		50	57.9
8 - 9 days		55.2	72
10 days +		72	73.8

# Incidence of E.a., MREA and n-MREA (all hospitals, n=42)



# Incidence rates of E.a., MREA and n-MREA by size, region and LOS (all hospitals, n=42)

Hospital size	E.a.	MREA	n-MREA
< 200 beds	4.4	2.8	2.8
200 - 399 beds	6.6	4.3	2.9
400 + beds	6.8	3.3	2.2
<b>Region</b>			
Flanders	5.7	2.8	2
Walloon	9.4	6.6	4.4
Brussels	5.3	1.6	1
<b>Length of stay</b>			
< 8 days		2.8	1.6
8 - 9 days		3.8	2.9
10 days +		5.3	3.5

# Evolution of E.a., MREA & n-MREA proportions

(min 2 participations, n = 30 hospitals)

	n	2000/2	2001/1	p
E.a. / E. spp.	26	51.1	51.4	0.90
E.a. / Enterobacter.	20	7.9	6.2	0.28
MREA / E.a.	28	58.1	57.4	0.90
n-MREA / MREA	21	74.5	73.1	0.88

# Relationship between MRSA- and MREA- resistance rates

## Preliminary:

### Resistance class:

Low:	< percentile 25
Intermediate:	25-75 percentile
High:	> percentile 75

## Results:

- 34 hospitals participated to both surveillances
- Same resistance class for MREA/MRSA: 55,9%
- High class for both: 17,6%

# Discussion



- small sample size
- differences: hospital size and region
- recently started (heterogeneity)

No statistically significant evolution between the two periods

Increasing trend of E.a. between '96 to '01:

*E.a./ E. spp.:*            35.4%            51.9%

*E.a./1000 adm.:*        3.9                6.6

The Scientific Institute of Public Health and the GOSPIZ/GDEPIH want to thank all those who, by their participation contributed to the struggle against multidrug-resistance in the Belgian hospitals.