

Cystic fibrosis in Lithuania-  
longitudinal study of  
bacteriological courses

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# The aim of study

The aim of this study was to understand possible connection between severity of lung disease and bacteriological isolates with CF when disease was diagnosed late.

Prospective evaluation during the period of 5 years included history, physical examination, chest radiographs and sputum cultures for bacteria of 54 children with CF.

# General remarks

- In the Lithuania only about 50% of children CF is diagnosed before 5 years of age. Median age of patients with CF is about 15 years.
- Period of study was 5 years. It included history, physical examination, chest radiographs and sputum cultures for bacteria of 54 children with CF.
- All children with *P. aeruginosa* had previous isolates of *S. aureus* and *H. influenzae*.

# General remarks (2)

- Mean age was 4,9 years when disease was diagnosed first.
- In 6,6% cases cultures were negative during all period of observation.
- *S. aureus* and *H. influenzae* were isolates most frequently recovered.
- In 7,4% cases atypical isolates were recovered.

Fig.1

# Percentage of positive cultures for *S.aureus* as function of age in children with CF diagnosis

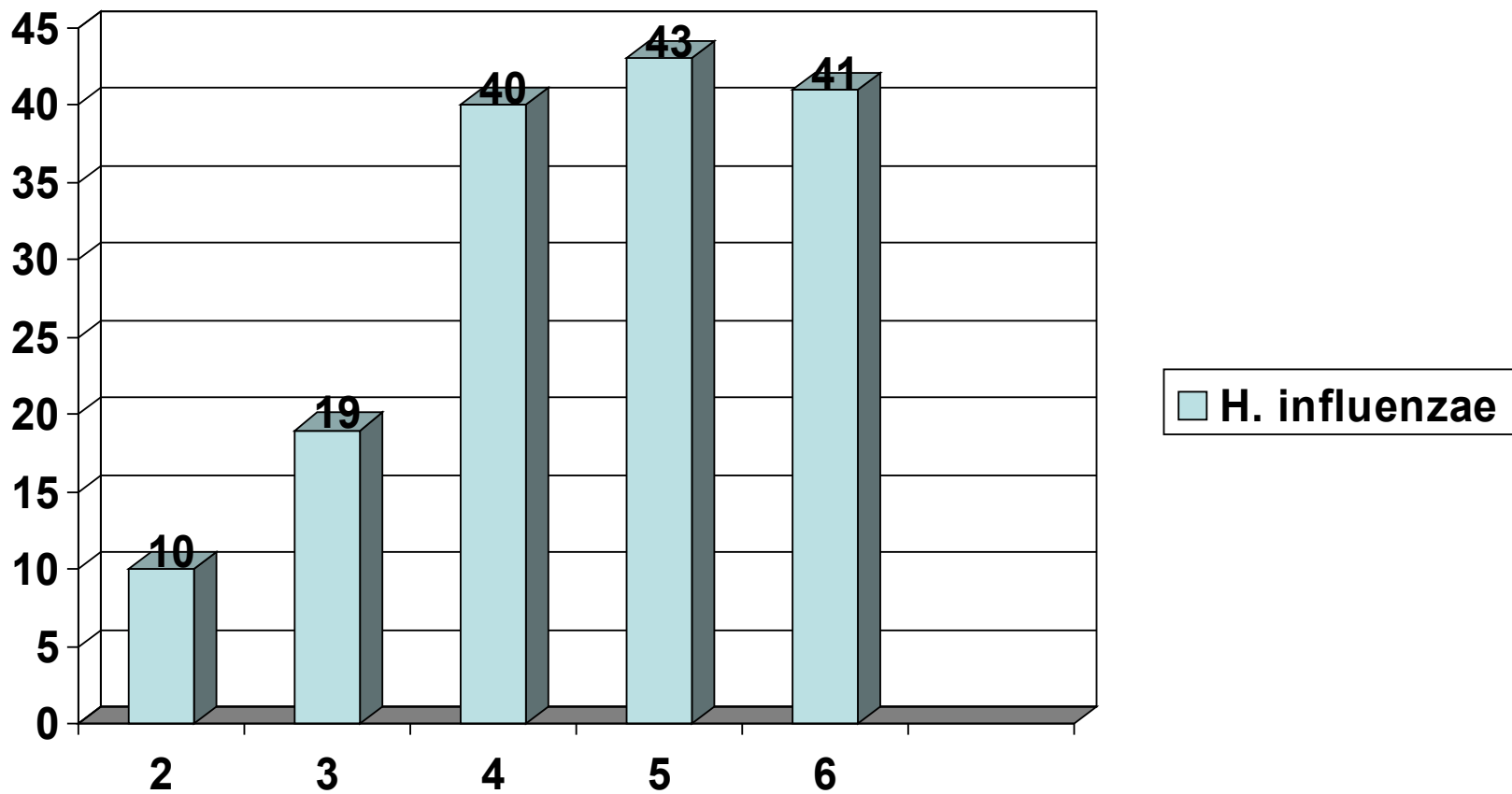


Fig.2

Percentage of positive cultures for *H. influenzae* as function of age in children with CF diagnosis

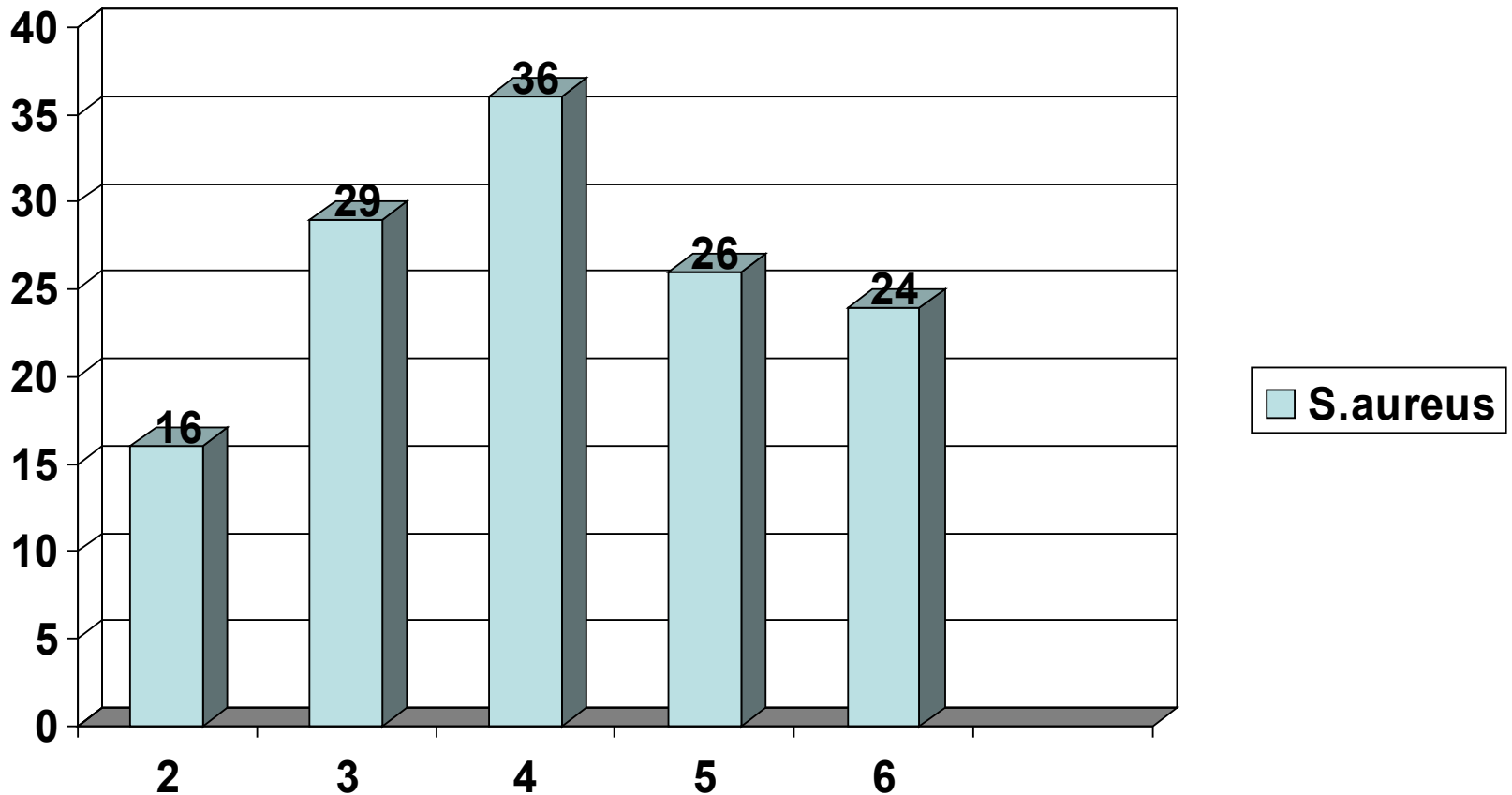
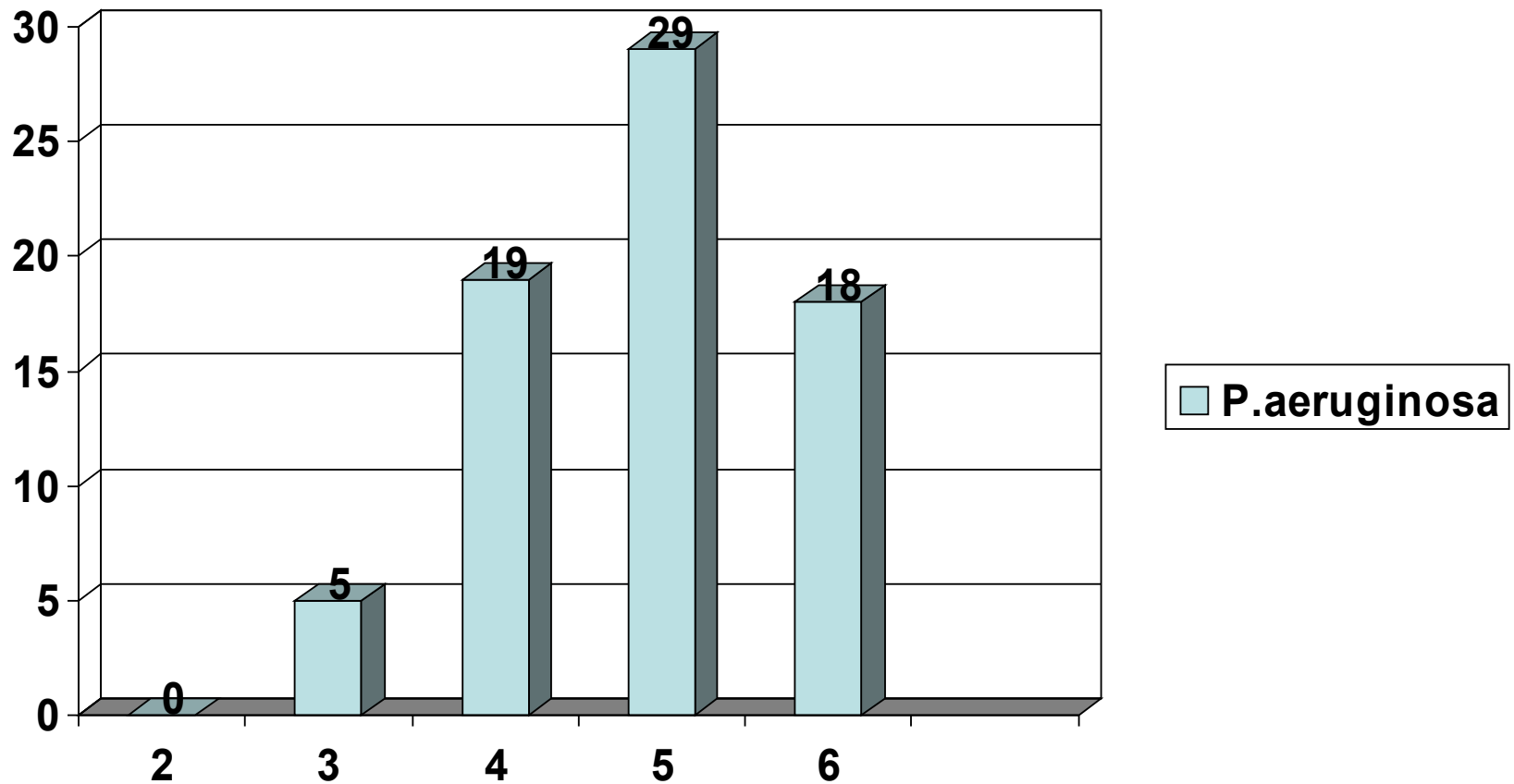


Fig.3

Percentage of positive cultures for *P.aeruginosa* as function of age in children with CF diagnosis



# Results

*Fig. 1-3*

- *P aeruginosa* was not recovered until the third year.
- Recovery of *P aeruginosa* specimens steadily increased at 4<sup>th</sup> and 5<sup>th</sup> years of age.
- *S aureus* and *H. influenzae* were more frequently found in the 2d and 3d years.
- Recovery of *H. influenzae* increased in the 4<sup>th</sup> year , but there was no apparent decline in the recovery of *S aureus* isolates.



Table 1

# Bacterial pathogens recovered during study

	Patients		Age at first positive culture
	No	%	
<i>H. influenzae</i>	17	31,5	3,8
<i>S. aureus</i>	22	40,7	4,1
<i>P aeruginosa</i>	9	16,7	5,3
<i>H. influenzae</i> + <i>S aureus</i>	21	38,9	3,9
Other	4	7,4	-
Negative	10	18,5	-

# Results

## Table 1

- *P. aeruginosa* was found in 17% of the group at mean age of 5,3 years. This was significantly later than initial appearance of *H. influenzae* isolates but not of *S aureus*.
- In two patients *P. aeruginosa* specimens was the first of the bacteria to be recovered.
- Overall 9 patients (17%) of the 54 children had at least two cultures that grew *P. aeruginosa* during the study period.
- *S aureus* was the initial bacterial isolate in 41% of children

Table 2

Comparison of clinical and laboratory data of children with CF colonized with *P aeruginosa* and age- matched noncolonized patients

	+PA (n=9)	-PA (n=18)	P
Age (years)	4,1	4,9	NS
Chronic cough	7/9 (77%)	4/18 (22%)	<0,05
Respiratory admissions per patient	3,10	0,82	<0,01
Chest radiograph score	16,2	14,7	NS
<i>S. aureus</i>	8/9	4/18	<0,05
<i>H. influenzae</i>	7/9	8/18	NS

# Results

## *Table 2*

Mean age, chest radiograph scores did not differ between groups.

- Body weights did not differ (data not shown).
- Children with *P. aeruginosa* more frequently had persistent daily cough ( $p < 0.05$ ), had higher rates of respiratory admissions ( $p < 0.01$ ), and more frequently had positive cultures for *S. aureus* but not for *H. influenzae*.

# Conclusions

- Initial recovery of *P. aeruginosa* is preceded by the onset of chronic respiratory signs, more frequent daily cough, lower chest radiograph scores and etc.
- *S. aureus* and *H.influenzae* are most frequently recovered from children with CF even if disease was diagnosed late.
- The diagnosis of CF is established late in Lithuania