

# Caries Prevalence in Cleft Patients from Lodz (Poland) and Erlangen (Germany)

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## Introduction

As stated in the Social Code of the Federal Republic of Germany (SGB V), the oral health in this country has improved considerably over the past years. Caries experience decreased in 12-year-old children from 7.0 in 1973 to 1.2 in the year 2000 and achieved the World Health Organization aim for the year 2000 (DMFT=2.0). Germany also can boast of one of the lowest DMFT indices in Europe. The results of caries decline in Germany compared with caries experience among Polish children are impressive. In spite of a slight decreasing tendency, the mean DMFT Index for Polish 12-year-olds in the year 2002 was 3.8, which cannot yet be taken as a success.

In Poland as well as in Germany the caries preventive procedures are similar but, according to the orders of each National Health Service, they are allowed to be performed more frequently in Erlangen than in Lodz.

## Aim of investigation

To assess and compare the oral and dental status as well as the level of oral health care among Polish and German patients with cleft lip and palate followed by assessing the level of realization of oral care procedures.

## Subjects and methods

37 patients treated in the Department of Dentistry of Developmental Age, Medical University in Lodz, Poland were examined between February and April 2004. 63 patients treated in the Department of Orthodontics, University of Erlangen, Germany were examined at the time between October 2004 until August 2005. Oral and dental status was assessed by the presence of dental plaque and caries lesions. Parents of each patient were asked to complete a questionnaire relating to frequency of tooth brushing; frequency of dental visits and the use of means with increased fluoride content.

## Results and discussion

There was a statistically significant difference in the number of decayed, missing, or filled deciduous teeth between Poland and Germany (Fig. 1). In Erlangen, there was on average 1.625 permanent teeth affected by caries and in Lodz there were 2.5 decayed teeth per person (Fig. 2). The mean DMFT for the Polish 6- to 12-year-olds was 4.1, whereas the dmft for the 13- to 18-year-olds was 7.125. The mean DMFT for German 6- to 12-year-olds was 1.6, whereas the dmft for the 13- to 18-year olds was 3.2.

Among the subjects with API<40%, DMFT-Index is significantly higher in Polish than in German patients. In the total population of patients a positive correlation between the value of API Index and caries intensity was recorded (Tab. 1).

In Erlangen and in Lodz, the majority of patients' tutors stated that their children brush the teeth minimum twice a day. The optimal oral hygiene was detected in 60% of patients from Erlangen whereas in Lodz only in 19% of patients. Caries experience differ significantly between the groups of 'fluoride consumers' and 'non-consumers' comparing patients from Erlangen and Lodz (Tab. 2).

The difference in dental caries experience in both examined groups is a reflection of caries in whole population of Poland and Germany. Beside structural defects of oral cavity existing in this anomaly, the high prevalence of dental erosion as well as high salivary levels of caries associated microflora in children with cleft palate are mentioned as possible factors responsible for higher caries incidence.

## Conclusions

In conclusion, results of this study indicate that caries prevalence is much higher among Polish than German cleft patients, but the caries experience in each group is much higher than in the general Polish and German population. The explanation of the dissimilarity in caries experience between German and Polish children with CLP lies in the different methods of dental caries prophylaxis and caries treatment of the cleft patients. Parents of younger Polish and German children with developmental disturbances such as clefts should be more motivated to perform routine oral health care for their children. Programs for cleft children promoting oral health, especially aimed at plaque control, are recommended in the early stages of the child's life.

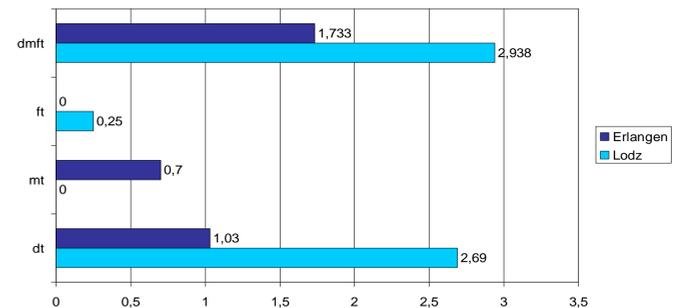


Figure 1. Comparison of caries intensity in deciduous dentition in two populations.

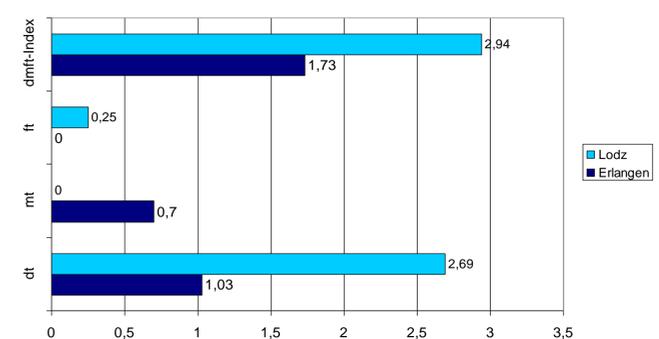


Figure 2. Comparison of caries intensity in permanent dentition in two populations.

API			n	Mean	Median	Minimum	Maximum	Standard Deviation
≤ 40%	Erlangen	dmf	10	1.500	0.00	0.00	9.00	2.915
		DMF	19	1.263 *	1.00	0.00	5.00	1.522
	Lodz	dmf	1	1.000	-	1.00	1.00	-
		DMF	7	7.143 *	6.00	3.00	14.00	3.716
	Erlangen + Lodz	dmf	18	1.500 #	0.00	0.00	9.00	2.640
		DMF	40	2.175 †, ‡	1.00	0.00	14.00	2.986
40% < API < 70%	Erlangen	dmf	0	-	-	-	-	-
		DMF	2	0.500	0.500	0.00	1.000	0.707
	Lodz	dmf	6	4.167	4.000	0.00	9.000	3.189
		DMF	9	4.667	5.000	0.00	7.000	2.598
	Erlangen + Lodz	dmf	7	4.000	3.000	0.00	9.000	2.944
		DMF	12	3.917 †	4.500	0.00	7.000	2.746
≥ 70%	Erlangen	dmf	2	1.000	1.000	0.00	2.000	1.414
		DMF	7	5.571	6.000	0.00	11.000	4.198
	Lodz	dmf	9	2.333	1.000	0.00	11.000	3.674
		DMF	18	5.444	5.000	0.00	14.000	4.179
	Erlangen + Lodz	dmf	16	2.063 #	1.000	0.00	11.000	3.255
		DMF	35	5.257 †	5.000	0.00	14.000	3.898

Table 1. Correlation between oral hygiene status (API Index) and caries experience in primary (dmft) and secondary (DMFT) teeth.

\*, #, †, ‡ - indicate statistically significant difference.

		Erlangen		Lodz		Total		Statistical results
		n	%	n	%	n	%	
Tooth brushing	Correct*	52	88.1	17	50	69	74.2	χ <sup>2</sup> =16.384 p=0.00005
	Incorrect	7	11.9	17	50	24	25.8	
	Total	59	100	34	100	93	100	
Fluoride intake	Yes	36	60	26	74	62	65.3	χ <sup>2</sup> =1.990 p>0.05
	No	24	40	9	25.7	33	34.7	
	Total	60	100	35	100	95	100	
Visits at the Dentist	Regular#	53	94.6	26	70.3	79	84.5	χ <sup>2</sup> =8.531 p=0.003491
	Irregular	3	5.4	11	29.7	14	15.5	
	Total	56	100	37	100	93	100	

Table 2. Comparison of dental care in Erlangen and Lodz declared by the patients' tutors. \* - answer was classified as proper when tooth brushing minimum twice a day (in the morning after breakfast and in the evening before sleeping) for minimum three minutes was declared. # - visits were classified as regular when the patient visited the dentist minimum once every six months.