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1: [Pediatr Infect Dis J.](#) 2004 Jun;23(6):504-10.

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## Vaccination of cystic fibrosis patients against *Pseudomonas aeruginosa* reduces the proportion of patients infected and delays time to infection.

[Lang AB](#), [Rudeberg A](#), [Schoni MH](#), [Que JU](#), [Furer E](#), [Schaad UB](#).

Research Immunology, Berna Biotech, Ltd., Bern, Switzerland.

**INTRODUCTION:** Cystic fibrosis (CF) almost always leads to chronic airway infection with *Pseudomonas aeruginosa*. Despite advances in antibiotic therapy, after chronic infection rapid deterioration in lung function occurs, increasing morbidity and mortality. Prevention of infection by vaccination is desirable, but earlier trials produced disappointing results. The promising short term immunogenicity and safety of a new *P. aeruginosa* vaccine prompted us to evaluate its long term efficacy. We conducted a 10-year retrospective analysis of outcomes in a group of vaccinated patients. **MATERIALS AND METHODS:** In 1989-1990, 30 young children with CF, mean age 7 years, with no prior history of infection with *P. aeruginosa*, were vaccinated against *P. aeruginosa* with a polyvalent conjugate vaccine. We report the follow-up of 26 of these patients from 1989 to 2001. The patients were given yearly vaccine boosters. Comparisons were made with a CF patient control group matched for gender, age and, where possible, genetic mutation. Vaccinated patients and controls were attending a single CF clinic and received the same clinical management throughout the study period. Main outcomes were time to infection, proportion of patients infected, development of *P. aeruginosa* mucoid phenotype, lung function and body weight. **RESULTS:** The time to infection with *P. aeruginosa* was longer in the vaccination group than in the control group, and fewer vaccinated patients than controls became chronically infected (32% versus 72%;  $P < 0.001$ ). The proportion of mucoid infections was higher in the control group (44%) than in the vaccinated group (25%). Patients  $\geq 18$  years of age at the end of the study had a lower mean forced expiratory volume at 1 s (FEV1) than did those 13-17 years of age, but this difference was small in the vaccinated group (73.6% versus 83.7%) compared with the controls (48.0% versus 78.7%). In the  $\geq 18$  year age category the mean FEV1% at 10 years was 73.6% (vaccinated) and 48.0% (controls) ( $P < 0.05$ ). In the vaccinated group only 11 (44%) of 25 patients were underweight at the 10-year follow-up compared with 18 (72%) of 25 at the beginning of the study. In the control group 17 (68%) of 25 patients were underweight at 10-year follow-up compared with 16 (64%) of 25 at the beginning of the study. **CONCLUSION:** Regular vaccination of young CF patients for a period

of 10 years with a polyvalent conjugate vaccine reduced the frequency of chronic infection with *P. aeruginosa*. This was associated with better preservation of lung function. Vaccinated patients gained more weight during the study period, a possible indication of an improved overall health status.

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