

were no deaths in the penicillin group, but three deaths from infection occurred in the placebo group. Researchers stressed the importance of screening children during the neonatal period and prescribing prophylactic penicillin to decrease the morbidity and mortality associated with pneumococcal infection ([Gaston, Verter, Woods, et al, 1986](#)).

- [Zarkowsky, Gallagher, Gill, et al \(1986\)](#) conducted a retrospective analysis of 178 episodes of bacteremia in children with sickle hemoglobinopathies that occurred during 13,771 patient-years of follow-up ($n = 3451$). The predominant pathogen in patients younger than 6 years old was *S. pneumoniae* (66%), and gram-negative organisms were responsible for 50% of the bacteremias in patients 6 years old and older. The incidence of pneumococcal bacteremia in children with SCA younger than 3 years old was 6.1 events per 100 patient-years. The results of this study supported prophylactic administration of penicillin for prevention of pneumococcal bacteremia in children younger than 3 years old.
- A cohort study of 315 patients with HgbSS who lived in Jamaica was conducted between June 1973 and December 1981. The patients were divided into three groups to determine whether interventions such as penicillin prophylaxis, parental education in early diagnosis of acute splenic sequestration, and close monitoring in a sickle cell clinic improved survival. A significant decline in deaths from acute splenic sequestration and pneumococcal septicemia and meningitis was found. The research indicated that early detection of SCD and prophylactic measures could significantly reduce deaths associated with HgbSS ([Lee, Thomas, Cupidore, et al, 1995](#)).
- [Riddington and Owusu-Ofori \(2002\)](#) conducted a systematic review of randomized controlled trials evaluating the effectiveness of prophylactic antibiotic administration in preventing pneumococcal infection in children with SCD. The review of published research found that penicillin prophylaxis significantly reduced the risk of pneumococcal infection in children with HgbSS with minimal adverse reactions.