AN UNUSUAL CAUSE OF PETECHIAE

To the Editor.—A few days ago I was called to see a 2-year-old child with a temperature of 40 C (104 F) and vomiting of three days' duration.

When I entered the examining room the child was lying on her stomach and multiple petechiae were noted on her back. As one would suspect the diagnosis of meningococcemia quickly entered my mind. However, when I turned the child over a localized area of petechiae and ecchymoses was observed around the sternum and another area over the left upper quadrant. Because of the more traumatic appearance of these lesions I questioned the mother thoroughly concerning their etiology. The mother was of Korean extraction and two days prior to evaluation she had taken this child to a Chinese acupuncturist. All the lesions previously described had been of iatrogenic origin.

With the increased interest and recent publicity associated with the technique of acupuncture, this may become a more common cause for traumatic petechiae. It seems another entity has been added into the differential diagnosis of a petechial rash.

The acupuncture did not cure this child's right middle lobe pneumonia, although the mother felt it brought down her fever originally.

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STAPHYLOCOCCUS 502A

To the Editor.—Houck et al[1] recently reported the complications of bacterial interference programs using *Staphylococcus aureus* 502A. Thirty-eight (5.9%) of the 644 deliberately colonized infants developed disease related to the 502A strain. One infant with an umbilical catheter developed a fatal septicemia. A second infant developed an abscess when a "superficial abrasion" of the left great toe became infected. And yet, the authors concluded from their study that *S aureus* 502A was a safe and effective means of aborting staphylococcal epidemics. They did mention the risk of using bacterial interference techniques for certain groups of infants—premature infants and those with umbilical catheters. As these and other infants at high risk for infection make up the usual population of an intensive care nursery (ICN), *S aureus* 502A may pose a considerable risk if used there.

Hexachlorophene bathing of the newborn and strict handwashing techniques have markedly decreased the incidence of *Staphylococcus* colonization and disease in the nursery.[2-4] Recently evidence of central nervous system toxicity was reported in animals chronically exposed to high levels of hexachlorophene (unpublished data, Winthrop Laboratories).[5] On the basis of these findings the American Academy of Pediatrics Committee on the Fetus and Newborn recommended that the use of hexachlorophene for bathing be stopped.[6] Past experience in this country and in England has shown that nursery *Staphylococcus* colonization increased greatly when hexachlorophene was stopped.[2] Thus we may see an increasing number of staphylococcal diseases as well as epidemics. Because of its highly susceptible population, the ICN may well be the first place for epidemics to occur.

The study by Houck et al[1] demonstrated the pathogenic capacity of *S aureus* 502A. Thus, in the event of an ICN *Staphylococcus* epidemic, reinstitution of hexachlorophene bathing may be more judicious than bacterial interference. Indeed, continued but limited hexachlorophene bathing, ie, not total body bathing, may be indicated to lower the possibility of an ICN epidemic.

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REPLY BY DRS. NELSON AND KAY

To the Editor.—To answer the points raised by Dr. Keidel's letter it is necessary to make a clear distinction between colonization with staphylococci and disease due to staphylococci in nursery infants. The newborn infant's skin is destined to become colonized with microorganisms. If one does nothing to interfere with this natural process, staphylococci will commonly establish residence. Coagulase positive staphylococci will be found on the skin of 40% to 50% of infants at the time of discharge from the hospital and approximately 10% of these are bacteriophage-typable. Hexachlorophene bathing can reduce the fre-

quency of staphylococcal *colonization* of the skin to a level of about 5%. It is much harder to establish that hexachlorophene bathing decreases the likelihood of *disease* due to staphylococci. When outbreaks of staphylococcal disease appear in a nursery, it has been common experience that hexachlorophene bathing does not break the epidemic. (It should be noted that gram-negative organisms tend to replace staphylococci on the skin of hexachlorophene-bathed babies. There is a parallel between the rising incidence of gram-negative infections in newborn nurseries and the routine use of hexachlorophene bathing although undoubtedly other factors may have been operative in this rise.)

We agree with Dr. Keidel's point that other measures should be employed before embarking upon a program of bacterial interference to halt an epidemic of staphylococcal disease. Hexachlorophene bathing might be one such procedure and this would be in accord with the recommendations from the Food and Drug Administration and from the American Academy of Pediatrics. Other epidemiologic control measures should be instituted also. It is only when these measures fail that one would consider a bacterial interference program. We did not mean to imply that one should rush headlong into a crash program of bacterial interference at the first sign of problems with staphylococcal infection in a newborn unit. However, when other measures have failed, we stand by our original statement that the demonstrated effectiveness of bacterial interference programs in breaking nursery epidemics of serious staphylococcal disease far outweighs the small risks involved.

There are no data currently available concerning the epidemiology of infections in newborn intensive care units. All of the studies have come from general newborn or premature nurseries or from adult intensive care units. In the absence of any data we are in no better position than Dr. Keidel to make any firm recommendations about newborn intensive care units.

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PNEUMOCOCCAL INFECTIONS IN SICKLE CELL ANEMIA

To the Editor.—This letter is prompted by the article of Seeler et al (AMER J DIS CHILD 123:8-10, 1972) and by the editorial of Lukens (123:6-7, 1972), both of which express a pessimistic outlook regarding the potential utility of pneumococcal vaccines for the prevention of pneumococcal infections in children with sickle cell anemia. A more optimistic view of prophylactic vaccination seems warranted, perhaps, although extrapolations based upon the small sample reported by Seeler et al must be guarded.

Study of pneumococcal infection in large numbers of both children and adults demonstrates clearly that the preponderance of such infections is caused by a limited number of the 82 pneumococcal capsular types, although there are some clear-cut differences in the types afflicting these two segments of the population. Among more than 2,000 pneumococcal bacteremias occurring in adults in the United States in the past five years, over half were caused by pneumococcal types 1, 3, 4, 7, 8, and 12. The predominant pneumococcal types in 100 bacteremic infections in the pediatric age group were types 1, 6, 14, 18, 19, and 23, which were responsible for 62. Among 300 pneumococcal isolates recovered by Dr. V. M. Howie from the middle ear of children with acute otitis media and typed in this laboratory, types 1, 3, 6, 14, 18, 19, and 23 accounted for 211 (70%). Eight of the 12 infections reported by Seeler et al were caused by one or another of the pneumococcal types predominating in the pediatric age group.

Although there is no epidemiologic evidence supporting the usefulness of polyvalent vaccines of pneumococcal capsular polysaccharides in children, their efficacy in preventing pneumococcal infection caused by specific serotypes in adults has been demonstrated clearly in two large scale field trials.[1,2] Additional limited studies of such vaccines have shown that most adults receiving polyvalent vaccines containing the capsular polysaccharides of six pneumococcal types manifested an antibody response to all six pneumococcal antigens,[3] and that half maximal levels of type-specific antibody persisted five to eight years following a single injection of 50μg of each of the polysaccharides.[4] In view of the common occurrence of pneumococcal otitis media in children and of more serious pneumococcal disease in certain segments of the pediatric population, the efficacy of pneumococcal vaccines in children merits testing.

Under the sponsorship of the Infectious Disease Branch of the National Institute of Allergy and Infectious Diseases, a program designed to lead to the relicensure of polyvalent pneumococcal vaccines is currently in progress. The polysaccharides of pneumococcal types 1, 2, 3, 4, 5, 6, 7, 8, 9, 12, 14, 18, 19, and 23 have been prepared and are in the process of undergoing initial clinical trials, both as monovalent preparations and as polyvalent vaccines. A polyvalent vaccine of types 1, 3, 4, 6, 12, 14, 18, and 23, if effective in children, might have prevented 11 of the 12 infections reported by Seeler et al. Whether or not effective prophylaxis of this kind would be followed by infections caused by other pneumococcal types in a highly susceptible segment of the population, such as those with sickle cell disease, cannot be determined at