In our study of the ecology and significance of the normal bacterial flora of the human pharynx we have noted in the cultures of 4 individuals an organism which elaborates a substance(s) producing wide clear zones in agar overlays containing staphylococci. Growth of the organism, a slow growing coccus (or coccobacillus), is inhibited *in vitro* by some ingredients of normal flora. The organism, which is sensitive to commonly used antibiotics such as penicillin, coexists in the pharynx with its inhibitors and with staphylococci and may play a role in maintaining the normal interrelationships between species. The antistaphylococcal substance(s) produced by it is filterable, heat stable and has a limited antibacterial spectrum. All staphylococci tested, including those resistant to methicillin, are highly sensitive (1/400 to 1/800 dilution of an autclaved broth supernatant incorporated in blood agar). Using the same preparation, enterococci are moderately sensitive (1/50 dil) and all other species examined are either weakly sensitive (1/10–1/25 dil) (Group B and C β-hemolytic streptococci, *N. catarrahalis* and some viridans streptococci) or resistant (Group A, β-streptococci, some viridans streptococci, other *Neisseria* and all gram-negative bacilli tested including *H. influenzae*). The antibacterial agent is bactericidal for staphylococci; persisters remain sensitive. No resistant mutants have been selected. The antibacterial capacity for the staphylococcus is not destroyed by exposure to trypsin, chymotrypsin or peptidase, or a range of pH from 9.4 to 4.3. This organism may play a significant ecological role in the pharynx; its antistaphylococcal substance is potentially useful.

112 *Local Infection and Bacteremia from Scalp Vein Needles and Polyethylene Catheters.* GEORGES PETER, FREDERICK H. LOVEJOY, Jr. and JOHN D. LLOYD-STILL, The Children's Hosp. Med. Center, Boston, Mass. (introduced by David H. Smith).

The risk of infectious complications is generally assumed to be less frequent with intravenous infusions given via scalp vein needles (SVN) than those administered by polyethylene catheters (PCT). To assess this assumption, the incidence of bacteremia and local infection (positive needle/catheter tip culture) from SVN and PCT was prospectively studied on 2 general medical wards. Bacteremia occurred only with PCT (2/25, 8%). The overall incidence of local infection with SVN (12/142, 8.5%) was significantly less ($p = 0.06$) than that with PCT (6/25, 24%). Although the incidence of SVN local infection increased with the duration of use, up to 120 h it was clearly lower than that with PCT in this study and previous reports. After 120 h of use, the incidence of local infection was similar in both groups (SVN, 3/11 vs. PCT, 4/14). However, pathogenic bacteria were recovered significantly less frequently and non-pathogenic bacteria ('skin contaminants') more frequently from the SVN tips than those with PCT ($p < 0.001$). This difference may explain the greater safety of SVN in comparison to PCT. This safety is borne out by the 2 cases of PCT-associated bacteremia during a 3-month study and 2 cases in the preceding 6 months in contrast to no cases associated with SVN. This study re-emphasizes the inherent risk of venous catheterization and documents that SVN are a relatively safe alternative.

113 *Fluorocarbon Emulsions as a Blood Substitute.* LELAND C. CLARK, Jr., SAMUEL KAPLAN and FERNANDO BECATTINI, Dept. of Ped., Coll. of Med., Univ. of Cincinnati, Cincinnati, Ohio.

In 1966 CLARK discovered that animals breathing certain perfluorinated liquids can transfer enough oxygen and carbon dioxide to sustain life [Science *152:* 1755, 1966]. This suggested that these liquids may serve as valuable intravascular gas transport agents. Inert organic compounds having a high oxygen and carbon dioxide solubility were emulsified by intense sonication in the presence of surfactants to produce opalescent liquids having metabolic gas transport capabilities resembling whole blood. During intravenous infusion and ventilation with O_2 the mixed venous pO_2 rose to between 150 and 300 mm Hg while the arterial pCO_2 and pH were normal. A fourfold increase in brain oxygen cathode current was demonstrable. The increase in mixed venous pO_2 was initially related to the fluorocarbon content of the circulating blood. Since dogs survived in apparent good health these preparations may ultimately be used as a blood substitute or for organ preservation. (Supported in part by NIH HE-12419.)

114 *Effect of Heparin on Mortality Rate in Septicemia with Associated Diffuse Intravascular Coagulation.* JAMES J. CORRIGAN, Jr. and CHARLES M. JORDAN, Dept. of Ped., Emory Univ. Sch. of Med., Atlanta, Ga.

That diffuse intravascular coagulation (DIC) occurs in septicemia has been well documented and reported to occur almost exclusively in patients with hypotension. Heparin has been shown to effectively correct this coagulation defect but the efficacy of this agent in changing the high mortality rate in this group of patients has not been reported. The purposes of this investigation were to determine the frequency of DIC and to evaluate the effect of anticoagulation on the mortality rate in this group. Twenty-six children with septicemia and systolic blood pressures below 80 mm Hg had detailed coagulation studies performed and 24 were anticoagulated with heparin. Therapy also consisted of antibiotics, plasma expanders, IV fluids, transfusions and Isuprel. Two patients were given corticosteroids. No complications secondary to heparin occurred. The studies showed that all patients had abnormally long partial thromboplastin and prothrombin times, and all but one had thrombocytopenia. Classical DIC (thrombocytopenia with reduced factors II, V, VIII and fibrinogen, positive fibrin split products and normal euglobulin lysis time) was clearly present in 40% and highly probable in 96% of the cases. The overall mortality rate was 62%. Although 72% of the fatal cases had severe hypofibrinogenemia as compared to 25% who eventually survived, no correlation could be shown between the severity of the DIC and the mortality rate. These data again suggest that most, if not all, patients with sepsis and low blood pressure have DIC. Even though anticoagulation could correct the coagulation defect in most of the cases, heparin did not appear to significantly affect the mortality rate.

115 *Functional Studies of Young Versus Old Platelets in a Patient with Chronic Thrombocytopenia.* CHRISTINE A. JOHNSON, CHARLES F. ABILDGAARD and IRVING SCHULMAN, Univ. of Illinois Coll. of Med., Dept. of Ped., Chicago, Ill. and Univ. of California Davis Sch. of Med., Dept. of Ped., Davis, Calif.

The reproducible platelet production cycle following infusion of fresh frozen plasma (FFP) in a girl with