

BUMED-721-SAB:vs

8 April 1958

REPORT

COMMISSION ON ACUTE RESPIRATORY DISEASES  
and  
COMMISSION ON STREPTOCOCCAL DISEASES  
ARMED FORCES EPIDEMIOLOGICAL BOARD

- a. Subject: Review of current status of projects and recommendations
- b. Place: Kenwood Country Club, Washington, D. C., 0930, 31 March - 1 and 2 April 1958
- c. Persons Attending: Members and Associates of Commissions, and Agency Liaison Officers

For the Navy: Capt H. K. Sessions MC USN - Code 72  
 Capt J. H. Kingston MC USN - Code 713  
 Capt G. L. Calvy MC USN - NavComp, St. Albans, NY  
 Capt S. A. Britten MC USN - Codes 721/722  
 Cdr L. F. Miller MC USN - Code 734  
 Lt I. Schultz MC USN - NAME-4, Great Lakes, Ill.

d. Discussions

1. Military Presentations:

- a. Each Service reported upon respiratory disease incidence. All plan to use adenovirus vaccine for recruits next fall.
- b. Lt Irvin Schultz MC USN, NAME-4, Great Lakes, Ill., stated that at a time when both influenza and adenovirus diseases were present, the effects of the two vaccines were virtually additive. He warned that serological data must be obtained from the regiments themselves when both diseases are epidemic because the influenza cases, being sicker, tend to monopolize the sick list.

2. Investigations in Acute Respiratory Diseases

a. Dr. Alton E. Fuller, Dept of Microbiology, Univ. of Virginia, Charlottesville, Virginia and Dr. Russell.--

Preliminary Report of Progress of Experiments to Culture the Common Cold Virus.-- To date changes have been noted in the Mela cells, but they are subtle. He is trying to step up the reaction by modifying the culture medium.

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b. Recommendation. That the Board take whatever steps may be necessary preliminary to redefining its position with regard to the use of material grown in human tissue cultures for human volunteers. Carried unanimously.

c. Doctor Harry F. Dowling and Doctor George G. Jackson, Univ. of Illinois College of Medicine, Chicago, Illinois.--

Studies on Transmission of the Common Cold.-- Gamma globulin appears to have neutralized the infectivity of nasal washings of patients with common colds. These are the first data that have been presented that such immune substances may be present.

d. Doctor William S. Jordan, Jr., Western Reserve Univ. School of Medicine, Cleveland, Ohio.--

Asian Influenza in the Cleveland Family Study.-- There seems to be a remarkable lack of ability of epidemics of respiratory diseases, including measles and mumps, to modify the curve for total respiratory disease in the Cleveland Family Study. No explanation.

e. Doctors Coombs and Hiji.-- Study of Fetal Cases of Asian Influenza. Studies of cultures taken from lungs of 27 patients at autopsy, who died of Asian influenza, showed 8 to be sterile, 7 to be mixed, 8 to be staphylococcus in pure culture, and 2 were pneumococcus in pure cultures.

f. Doctor George F. Hodger, Western Reserve Univ. School of Medicine, Cleveland, Ohio.--

Relationship of Tonsillectomy and Adenoidectomy to the Incidence of Several Classes of Illness; and, Incidence of Streptococcal Illness in the Family Study, 1948-57. (Two papers).-- One can conclude that tonsil-adenoidectomy is justified for children who have had repeated streptococcal infections but not for those who have had other respiratory infections.

In discussion, Doctor Charles C. Hamelkamp, Cleveland, noted that tonsillectomy brings about loss of an important "flag" of infection: lack of tonsils means fever systems, means no treatment, means rheumatic fever.

g. Doctor Harold S. Ginzburg, Dept of Preventive Medicine, Western Reserve Univ. School of Medicine, Cleveland, Ohio.--

Studies on the Nucleic Acids of Adenovirus Infected HeLa Cells.-- Reported on early stages of his current research on deoxyribonucleic acid content of type 4 adenovirus infected HeLa cells.

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h. Doctor Floyd W. Denny, Western Reserve Univ. School of Medicine, Cleveland.--

Characteristics of Adenoviruses.--By neutralization test procedures, adenovirus types 1, 2, 3, and 6 appear to form one group and types 4, 5 and 7 a second group.

i. Doctor Harold B. Houser, Upstate Medical Center, Syracuse, New York.--

Studies at Laboratory on Housing and Illness.--Further analysis of the Surgeon Study on Housing shows no differences in admissions for any respiratory disease between open and closed-bay barracks. However, men in open-bays had more square feet and cubic feet per man than did those in closed-bays.

j. Doctor Carl O. Harford, Division of Infectious Diseases, Washington Univ. School of Medicine, St. Louis, Missouri.--

Pathogenesis of Respiratory Infection.--Progress Report of Study of enzymes in infected cells which have been broken up and analyzed.

k. Discussion of Survival Problems in face of chronic low dose residual radiation.

Colonel R. P. Mason MC USA, Walter Reed Army Institute of Research, Washington, D. C., believes martial law will be imposed in event of disaster conditions following nuclear bombing.

l. Doctor Robert Conrad, Brookhaven Lab., Long Island, New York.

Effects of Radioactive Fallout.--Reported on the acute and delayed effects of radiation among residents of Rongelap Atoll. After 3-4 years of observation the only remaining adverse effect seems to be that children may have lagged slightly in growth and weight. He had no light to throw on the chronic radiation problem (did report that X-rays of bones of pigs left on atoll after residents had been removed showed radioactive deposits).

Discussion.--No specific or prophylactic treatment for radiation effects are available for humans as yet. Vigorous antibiotic therapy indicated if signs of infection occur during the acute early period, or if fever develops in the absence of signs of infection.

m. Dr Miller.--The Effect of Ionizing Radiation on Resistance to Infection.--

It is dose rate rather than total dosage which determines the appearance of leukopenia in irradiated mice. He warned against extrapolating results to man.

n. Colonel Baker MC USA, reported upon pathological findings in animals which were subjects in the Nevada tests.

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o. Doctor Charles E. Smith, Univ. of California School of Public Health, Berkeley, Calif.--

Coccidioidomycosis.--This disease continues as a chronic problem for all three Services. Serological specimens continue at an average of 6,000 per year. They provide the means by which evaluations of Amphotericin and other antibiotics can be made. Amphotericin B is recommended for trial in cases of disseminated disease and also if there is strong evidence of impending dissemination; drainage of any accumulations of Coccidioides--containing pus and surgical excision seem desirable. Evidently the drug does not kill the fungus and unless the body's immunity gets the upper hand, the fungus will multiply when the drug is stopped.

p. Doctor Ralph J. Wedgwood, Babies and Childrens' Hospital, Cleveland, Ohio.--

Bactericidal Studies in Human serum.--Discussed the effect of the properdin system on S. typhi, S. paratyphi, and Sh. sonnei. Also reported upon another factor found in all animals examined to date which kills Sh. sonnei. It is found only after heating plasma to 50-55° C, and is more stable, to effects of heat, in plasma than in serum. It is bacteriolytic as well as bacteriocidal, and is temperature and pH dependent. It is adsorbed by barium sulphate. Thus far, it is effective only against rough strains, not smooth.

q. Doctor Colin M. MacLeod, Univ. of Pennsylvania Hospital, Philadelphia, Pa.--

Studies on Immunity.--Progress Report on effects of silicate polymers on bacteria and the red blood cell system.

r. Doctor Lawrence.--The attempt to transfer sensitivity to Coccidioides by leucocytes from coccidioidin-sensitive donors was successful. The sensitivity produced is temporary.

s. Doctor Shonick.--New Myxoviruses from Children with Respiratory Illnesses.

The new myxoviruses (among which are influenza, mumps, Sendai, Newcastle and others) were described: Hemadsorption Virus Type 1 and Type 2. Antiserum can be prepared in rabbits. An outbreak of respiratory disease in Washington, D. C., in November 1957 was due to Type 1; the patients were mildly ill with 2 or 3 days of fever of 100.6 - 103° F, and rales and rhonchi. He has evidence in childrens' Hospital that Type 2 is associated with acute respiratory illness; also, there is a strong association of this type with infantile croup. Volunteer studies with Type 2 virus at Patuxent Institute were carried out, indicating the incubation period to be 3-6 days in the transmission subjects and 6-8 days in secondary clinical cases.

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3. Investigations In Streptococcal Diseases.

a. Doctor Floyd W. Denny--Report on Indocrination Course on Streptococcal Prophylaxis at Camp Carson and Follow-up.

Gave a brief report of the 21 October 1957 Camp Carson Course on the military aspects, diagnosis and prophylaxis of streptococcal diseases. He recommended that the course be continued. The Service representatives concurred in the recommendation. However, the Navy Representative indicated that travel funds for conference purposes have been so limited that it is most unlikely that the Navy could send representatives from all recruit training centers and thereby set a precedent which might encourage other disciplines to set-up similar conferences. The counter suggestion was made that visits of experts to the stations might be a more practicable arrangement.

Navy and Marine Corps recruit training centers in San Diego, California and Great Lakes, Illinois, have access to consultation and assistance from a Preventive Medicine Unit and a Research Unit. There remains only one other activity with a large recruit population, Parris Island, South Carolina. A visit of a consultant to that Marine Corps Recruit Depot would be useful both in establishing a surveillance program and in devising a plan of study to attempt to disclose the reasons behind the usually comparatively low incidence of respiratory diseases there.

b. Lieutenant Irvin Schultz MC USNR, Naval Medical Research Unit No. 4, Great Lakes, Illinois.--Described the Streptococcus Prophylaxis Program at Naval Training Center, Great Lakes, during the past winter.

c. History of Reactions to Penicillin.--Estimates of the percentage of populace which respond to medical questioning with information that suggests prior sensitivity reactions to penicillin varied from 0.7 per cent in Air Force recruits at Sampson, to less than 1.0 per cent in the general population of Syracuse, New York, to 3.5 per cent in a military group, to about 10 per cent of the general population (and 10 per cent of the recruits at Great Lakes this past winter).

d. Recommendation. At the Executive Session it was decided to have another course at Camp Carson, Colorado, next fall.

e. Doctor Gene H. Stallman and Doctor Ernest, Northwestern Univ., Medical School, Chicago, Illinois.--

Long Chain Growth of Group A Streptococci in the Presence of Antibody to M Protein.--Chain length is longer when streptococci are grown in homologous antiserum broth than in normal or heterologous serum broth. This is a type-specific phenomenon, a simple test to perform, and may find general application if certain enigmatic non-conforming results can be worked out.

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f. Doctors Schultz (Lt MG USMC-RAMM-4) and Stollenman.--  
Serum Properdin Levels in Recruits and Medical Students During Immunization  
Procedures.

Properdin levels are apt to be low in recruits during the first few weeks of training. Conclusion: host-factors are worth considering in the problem of respiratory diseases among recruits.

g. Doctor Hayashi and Doctor Sam S. Barkulis, Univ. of Illinois  
College of Medicine, Chicago, Illinois.--

Studies with Streptococcal Cell Walls.--Progress report on streptococcal cell walls. They feel they have made a good start but that they are far from a complete elucidation.

h. Doctor Lewis Thomas, New York Univ School of Medicine, New  
York.--

Crystalline papain causes collapse of the rabbit ear when injected into the cartilage. The cartilage of mice joints are similarly affected; also, of chicken and guinea pigs. The event seems to be associated with loss of matrix and metachromatic staining substance. Idenocetamide, and low temperatures, seem to interfere with the event.

i. Doctor Moody.--Rapid Grouping of Streptococci with Fluorescent  
Antibody.--

Group A streptococci homologous to a fluorescent antibody serum fluoresce when the serum is applied to dried smears from throat cultures or other sources. This reaction could be of value in speeding up diagnosis. It is not ready to replace current routine methods but is ready for evaluation in comparison with current methods by other laboratories.

j. Doctor Willard C. Schmidt, Research Laboratories, Cleveland  
City Hospital, Cleveland, Ohio.--

Further Studies on M Protein.--Type 19 M protein turned out to be not a suitable agent for immunizing man.

k. Doctor Martinez.--Effect of Penicillin Treatment of Acute  
Rheumatic Fever on Valvular Heart Disease.--

Penicillin treatment had no demonstrable effect in the acute phase of rheumatic fever. No significant reduction in heart disease (significant numbers) was noted after 12-16 months of observation (small numbers). If only patients were considered who had at least 1 negative heart examination in the first 48 hours of hospitalization (eliminating one-third of the total series), then it appears that some significant reduction in development of heart disease took place ( $p = 0.03$ ). He recommended that the study be repeated (Santiago, Chile) and he is ready to do so.

4. Investigations in Staphylococcus

a. Staphylococcal Problems in the Armed Services.

(1) The Army and Air Force had no problems to present.

(2) Captain George L. Galvy MC USN, Chief of Medicine, U. S. Naval Hospital, St. Albans, Long Island, New York, related the experience of that hospital with staphylococcal pneumonia. The talk was well received and publication was urged by several persons at the Meeting.

Doctor Elaine Udryke, Communicable Disease Center, Chamblee, Georgia, commented that this was a fine example of how well staphylococcal infections can be controlled in a general hospital without recourse to bacteriophage typing.

b. Comments.

Bacteriophage typing is an epidemiological tool which is used because it is the only tool available. A better tool is needed. Non-typability of organisms does not mean nonpathogenicity. The relating of phage types between cities and countries is fraught with danger because of lack of standard reagents and techniques. There is need for central production of reagents and central laboratories for the performance of tests. (The American Public Health Association is working to this end.)

More basic research is needed. No one is attempting serological testing in efforts to clarify classification of types. Perhaps if we could find a way of keeping staphylococci out of leucocytes we could prevent infections.

There is some work being done in England on the antigenic structure of staphylococci.

Doctor Charles C. Rasmussen, Cleveland City Hospital, Cleveland, Ohio, has worked with anticagulases to see if they could modify infections. "But how many coagulases are there," he asks, "and can you get anticagulases for them?"

Is there any difference in an abscess in an agranulocytic patient than in patients with leucocytes?

Gene-free animals have not been used.

By and large, according to Doctor William S. Tillett, New York University College of Medicine, New York, staphylococcal endocarditis patients do not have abscesses. So, it is quite possible that there is a

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primary pathogenicity in some cases, and it would be very important to establish this as a fact. But the "staph has you licked if you depend upon antibiotics for control for he will get used to your antibiotics practically overnight as fast as you can bring them along."

Doctor Updyke mentioned that mothers are getting infections from their infants after they go home from the hospital. Then the infection goes around the family and can stay in the family and cause trouble for three or four years. Yet, the troublesome strain will not be generally prevalent in the community at large.

The encouraging note was that hospitals can go far toward controlling existing problems through time proved surgical techniques and good housekeeping programs.

Final Note.--Probably several new members will be appointed to the Commission on Streptococcal Diseases, who have had experience in the field of Staphylococcal Infections.

e. The Meeting Adjourned at 2200 on 2 April 1958.

SIDNEY A. BRITEN