

Iowa Serum Center

By Dr. Ronald Eckoff

One of the presenters at the Eleventh Annual Meeting of the Iowa Public Health Association on April 28, 1936 was Sidney Levinson, M.D., Director of the Samuel Deutsch Serum Center at Michael Reese Hospital in Chicago. He described how they were using convalescent measles serum to treat contacts during outbreaks.

The May 20, 1937 Iowa Public Health Association meeting (also labeled the eleventh annual meeting) was titled "Syphilis Symposium and Convalescent Serum Symposium". Most of the papers were about syphilis, but three were regarding serum. Carl Jordan, M.D., Director of the Division of Preventable Diseases, Iowa State Department of Health described the development of a serum center in Iowa. In January 1935, Dr. Barnes, director of the State Hygienic Laboratory suggested the way be opened for Dr. Levinson to obtain serum from persons in Iowa. The department and the State Hygienic Laboratory arranged for Dr. Levinson to hold a serum clinic in Waterloo. In cooperation with J.E. Ridenour, M.D. city physician of Waterloo, and with municipal and school officials, physicians and nurses, about 8 ounces of blood was collected from each of 32 donors. The collection was done in the offices of the Visiting Nursing Association of Waterloo and each donor was paid \$5.00 by the Deutsch Center. The serum was processed in Chicago and twenty percent returned to the Iowa State Department of Health. Nearly 1800 cc of measles convalescent serum was distributed to physicians in Iowa to help prevent serious complications during a widespread outbreak of measles.

Scarlet fever was unduly prevalent and serum clinics were held in Boone, Council Bluffs, Davenport, Des Moines, and Waterloo. Convalescent spotted fever serum was also obtained from Iowans who had recovered from Rocky Mountain Spotted Fever since 1933. In the summer of 1936 over 2600 cc of convalescent poliomyelitis serum was obtained from former victims in Sioux City and Waterloo.

In July 1936, Dr. Walter Bierring, State Health Commissioner obtained funds from the Social Security Act to establish a serum center in Iowa. A small new structure next to the administration building of the department on Des Moines Street was built and equipped. On February 20, 1937 the processing

of convalescent serum was begun in the new center. Collection clinics were held in Sioux City, Waterloo, Decorah and Des Moines. The blood was taken to the serum center where specimens were withdrawn and forwarded to the State Hygienic Laboratory for Wassermann testing. The blood was centrifugalized, the serum was withdrawn and tested for sterility. The serum from 30 to 40 donors was pooled, retested to assure sterility, drawn through a Berkefeld filter and refrigerated in vials. Between February and May, 1937, more than 10,000 cc of convalescent serum was distributed to Iowa physicians. The use of convalescent serum was shown to be of definite value in preventing the injurious effects of measles and scarlet fever and of possible value in preventing infantile paralysis.

The general recommendation regarding measles was to give the serum before the fourth day after exposure to children who were ill or malnourished to prevent the attack. In children who are healthy, it is usually preferable to give serum between the fourth and eighth day after exposure, in order to produce a mild or attenuated attack and thereby confer permanent immunity. Serum given after the eighth day following exposure may be of little or no value.

There was also a paper by Jack Treynor, M.D. of Council Bluffs regarding the value of convalescent scarlet fever serum and a paper by Lee F. Hill, M.D. of Des Moines regarding polio.

By July 1, 1938 the center was processing serum for measles, poliomyelitis, Rocky Mountain spotted fever, scarlet fever, and tularemia. Whooping cough was added in April, 1939. In December, 1939 serum was processed for the porcine strain of undulant fever. On September 28, 1939 the center was granted a license for the preparation and distribution of human immune serum. Beginning August 1, 1940 the center began distributing normal human serum to combat shock. With the United States entrance into the war the serum center was designated "The Civilian Defense Serum or Plasma Bank". It worked in cooperation with the Emergency Medical Service for Civilian Defense, State and County Medical Societies, District, County, and Local Health Services, The United States Public Health Service, The American Red Cross, The Armed Forces and Allied or Voluntary Agencies. The processed normal serum was returned to the community where the blood was

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obtained. The 1944 Biennial Report lists additional organizations that assisted in arranging donor meetings, including: United Service Women, Chambers of Commerce, Kiwanis, Lions and Rotary Clubs, Business and Professional Women's Clubs, American Legion and Legion Auxiliary.

In December, 1945, announcement was made by the American Red Cross, that dried plasma had been declared surplus by the Armed Forces and would be available for distribution through state health agencies. 4,176 pint units of dried plasma were received in February 1946. In June, an additional 3600 units were received through the American Red Cross.

The table below shows the data for pooled convalescent serum for measles, scarlet fever, and whooping cough as processed and distributed by the Serum-Plasma Center of the Iowa State Department of Health from 1937 through the first six month of 1948.

In February, 1946 the center began distribution of hyper-immune pertussis serum. Volunteers from Drake University, Grandview College, Still College of Osteopathy, and the Training School at Eldora received a series of seven treatments with pertussis antigen for the development of hyper-immune

serum. Beginning in April 1945 the serum center had a supply of immune serum globulin from the American Red Cross for the prevention and control of measles.

I believe the Serum Center ceased to exist sometime in 1950 or 1951.

	Clinics	Donors	Processed (cc)	Distributed (cc)
Measles	111	906	108,405	93,391
Scarlet Fever	347	2,890	341,512	299,425
Pertussis (through '46)	78	421	49,425	44,725

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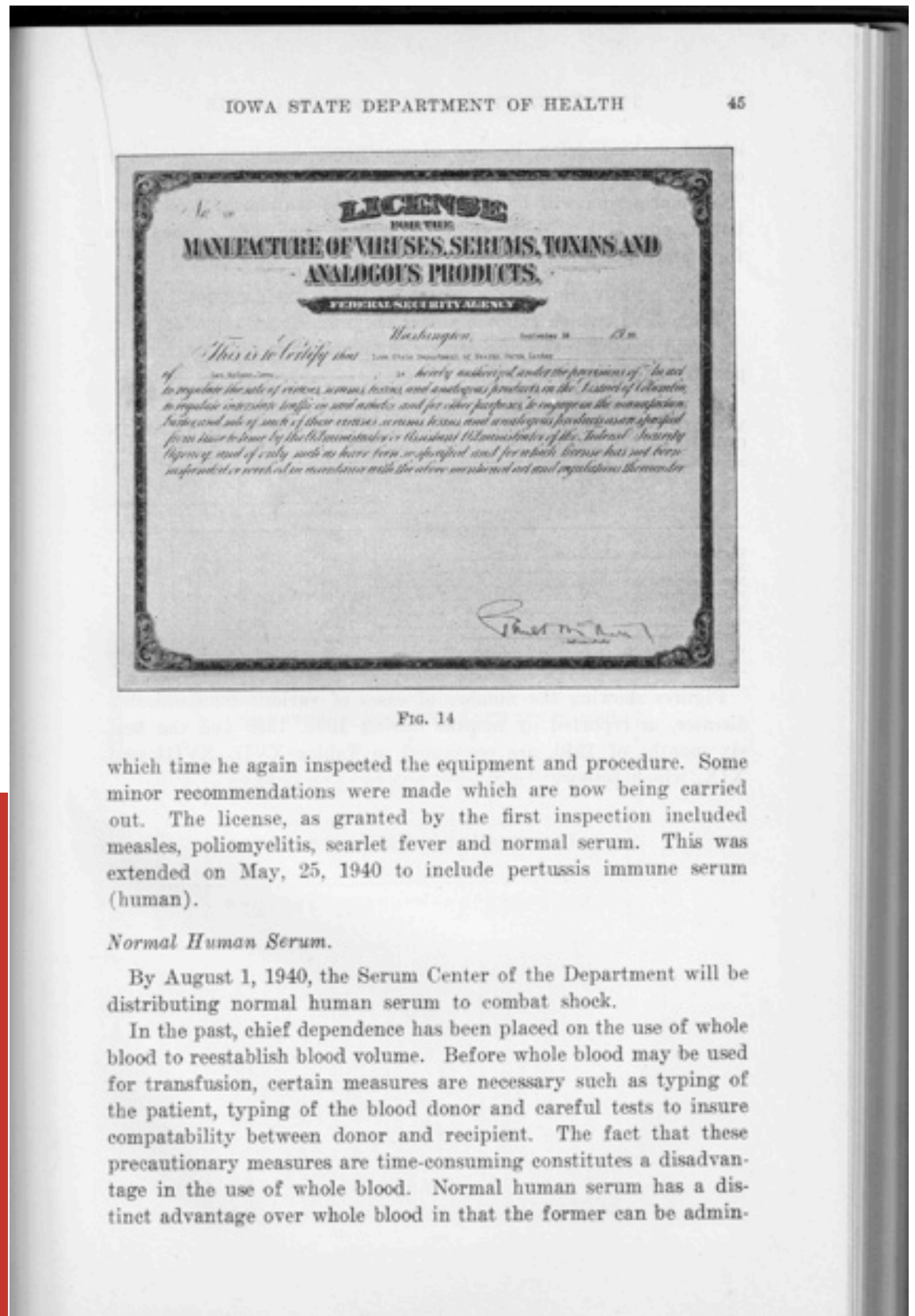


FIG. 14

which time he again inspected the equipment and procedure. Some minor recommendations were made which are now being carried out. The license, as granted by the first inspection included measles, poliomyelitis, scarlet fever and normal serum. This was extended on May, 25, 1940 to include pertussis immune serum (human).

Normal Human Serum.

By August 1, 1940, the Serum Center of the Department will be distributing normal human serum to combat shock.

In the past, chief dependence has been placed on the use of whole blood to reestablish blood volume. Before whole blood may be used for transfusion, certain measures are necessary such as typing of the patient, typing of the blood donor and careful tests to insure compatibility between donor and recipient. The fact that these precautionary measures are time-consuming constitutes a disadvantage in the use of whole blood. Normal human serum has a distinct advantage over whole blood in that the former can be admin-