

# CONFERENCES

## MEDICAL AND NURSING, RECENTLY HELD IN MADISON AT THE UNIVERSITY OF WISCONSIN

Following are abstracts of some of the subjects covered:

### THE RESPIRATOR AND ITS CARE

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The normal mechanism of respiration is dependent upon changes in the pressure in relationship to atmospheric pressure. A respirator attempts to simulate the normal mechanism of respiration by producing pressure changes around the body of the individual. The body type of respirator with the patient's head and neck protruding has proved satisfactory. It functions by alternately producing negative and positive pressure or negative pressure alone. When the pressure surrounding the body is reduced below that of atmospheric pressure, air flows into the lungs and distends them. Negative pressure varies. The minimum negative pressure is employed which makes the patient feel comfortable nights. Patients like to have more negative pressure as it seems to make them feel more secure. Children ten years and under should be started with a negative pressure of 10 and never allowed to go over 14. Adults can be started at a pressure of 12 to 14 and never allowed to go above 20.

Negative pressure in the machine may be lost by the collar not fitting snugly around the neck, portholes not being closed tightly, head end of respirator not secure and diaphragm worn.

A respirator must be capable of producing both positive and negative pressures. Port holes must be adequate in number, size and so placed that care may be given without removing the patient from the respirator.

Because a respirator may be called upon at any time, it must be kept in good repair; the hospital engineer should be charged with its care. Port holes should be inspected, rubber collars on port holes must fit properly and contain no tears. The covers should fit snugly and both the positive pressure valve and the negative pressure valve must function properly. The pressure gauges must also be checked for accuracy. The diaphragm should be inspected for tears or holes and moving parts of the respirator should be oiled frequently.

The electrical system should be inspected for short circuits which may give shocks to personnel or patient. Before making electrical connections make sure that the line is properly fused and not overloaded with other electrical equipment. In case of power failure the respirator may be operated by hand. The Emerson has a lever in the back with a small release lever at the lower part which when released, makes it possible to operate by hand. The Drinker Collins has a hand operated handle fastened to

side of machine which when connected to a box shaped clamp with the hand wheel makes it possible to operate by hand.

The respirator should be cleaned with soap and water being careful not to get the water into the bellows chamber or into the control valve tubing. Do not use alcohol since it will harm the finish and cause the windows to cloud.

The alarm should function properly. Trial runs should be held periodically to be certain the respirator is in good mechanical repair.

### ADMINISTRATION AND HELP OF CHAPTERS OF THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS, INC.

Mr. Norman E. Weaver  
Northern Wisconsin State Representative,  
The National Foundation for  
Infantile Paralysis, Inc.

The National Foundation for Infantile Paralysis, founded in 1938 by the late President Roosevelt and now effectively administering a program encompassing 48 States and servicing 140 million people, depends for its successful operation on the voluntary administrative assistance of over 3000 County Chapters.

The structure of the County Chapter greatly resembles that of any small business concern, but what the Chapter itself and the general public is most interested in is the Chapter's Medical Care Program, financed in its entirety by funds derived through the annual nation-wide March of Dimes Campaign. Under this program the poliomyelitis patient will receive aid in proportion to his financial need from the time of diagnosis until the time of discharge. Such aid includes hospitalization, physicians' and surgeons' fees, physical therapy and nursing services, orthopedic appliances, transportation to and from places of treatment, and convalescent care.

However, the Medical Care Program is only one phase of Chapter service work. There is a general fear of infantile paralysis on the part of the general public. To allay these fears the County Chapters with the aid of the National Headquarters of the National Foundation for Infantile Paralysis have set up a comprehensive and informative publicity campaign, utilizing the press, screen, and radio, and each year volumes of printed literature are distributed to the American public by the National Foundation.

During an epidemic season the County Chapter recruits Volunteer workers such as aides and orderlies for hospitals and secretarial help who will work with the doctors and nurses in keeping records and medical data. Respirators and hot pack heaters must be immediately available to epidemic areas and it is the duty

of the Chapter to keep such information as will facilitate prompt borrowing or loaning of equipment.

Membership in the County Chapters of the National Foundation for Infantile Paralysis is open to all, and anyone wishing to participate in its activities is urged to do so.

### CARE OF THE PATIENT IN THE RESPIRATOR

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Poliomyelitis is not the only disease in which a respirator may be used. Other reasons for respiratory aid may be asthma, brain injury, severe respiratory infections and others. A patient is placed in a respirator for the first time only on a specific order from the doctor; later it may be a R.R.N. procedure as determined by the nurse.

The function of the respirator may be as an aid to voluntary respiration or as a complete substitute for voluntary respiration. The doctor and nurse use every effort to adjust the machine to the patient's rate of breathing rather than vice versa; however when a patient is completely dependent on the machine, the doctor will decide the respiratory rate necessary. Again the doctor is the one to determine the amount of positive and negative pressure needed by the patient and usually to make the initial adjustment, but the nurse must understand the regulation of pressures in order to maintain the machine on those pressures in the doctor's absence. Usual positive pressure is 0 to 5 cm. of water, negative pressure (vacuum) is from 15 to 20 cm. of water for adults, 10 to 15 cm. of water for children.

Most nursing procedures are possible through the openings in the respirator. Sometimes a patient may tolerate several minutes or even hours out of the respirator during which more complicated nursing procedures may be carried out with more ease and in a shorter period of time.

Psychological preparation of the patient for the respirator is a most important duty of both doctor and nurse.

Demonstration of a "patient" in the respirator including:

- Opening and closing of machine.
- Putting patient in machine.
- Adjusting position of patient, head elevation, shoulder elevation, Trendelenberg.
- Adjusting rate of respiration.
- Adjusting positive-negative pressures.
- Removing patient from the machine.

Practice for one hour in groups of five with members of the group as patients.

References:

- Wilson, "The Use of the Respirator in Poliomyelitis". Publication No. 23. National Foundation for Infantile Paralysis, Inc.
- Calderwood, "The Nursing Care of the Patient in the Respirator". Publication No. 49. National Foundation for Infantile Paralysis, Inc.