RESPIRATORS USED IN POLIOMYELITIS

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TYPES AVAILABLE:

1. Tank ("Iron Lung") negative pressure respirator.
2. Cuirass or shell negative pressure respirator.
3. Intermittent positive pressure respirator, used with tracheotomy.
4. Rocking bed.
5. Electrophrenic respirator.

CHOICE OF RESPIRATOR FOR A PARTICULAR CASE:

This depends on a number of factors, all of which have to be considered. Patients requiring respiratory aid fall into two classes: *wet* or *dry*.

Wet Cases:

(a) Purely bulbar, with only paralysis of pharyngeal muscles preventing swallowing of secretions.

Such a patient should be treated with positioning and suction alone, without mechanical respitratory aid.

(b) Purely bulbar, but with paralysis of abductors of vocal cords as well. This patient requires tracheotomy, with or without mechanical respiratory aid.

(c) Bulbospinal, involving muscles of the pharynx and also intercostals or diaphragm. This patient requires tracheotomy and mechanical aid. The respirator used may be either tank or positive pressure applied to tracheotomy tube.

Dry Cases:

Bulbar region of brain not affected to the extent of paralysing pharynx or abductors of larynx; and the intercostal myscles or diaphragm are chiefly affected. Such a patient does not require tracheotomy and can be treated in a tank, cuirass, or rocking bed, depending on the degree of respiratory distress.

USES OF EACH TYPE OF RESPIRATOR:

1. **Tank:**

This is very efficient, and is most widely used in the United States. Models are also available for children under 2 years of age. Wet and dry cases can be treated in the tank, but the management of a tracheotomy opening close to a collar requires special skill.

Modern types have a positive pressure dome for temporary use over the head when the tank is opened.

The overall results when tank respirators are used for wet cases equal those obtained when positive pressure machines are used, but the cost of a tank is about three times that of a positive pressure machine.

2. **Cuirass:**

Fits over the chest and upper abdomen. Is only 60—70% as efficient as a tank, but is suitable when extreme efficiency is not required: e.g. for a moderate degree of respiratory failure, or for a patient recovering and due for weaning from a tank.

Light models are made which permit the patient to sit up and be moved from room to room. These are most suitable for patients able to go home, but who require some form of respiratory aid.

3. **Intermittent Positive Pressure Respirators:**

These were developed in 1952 in Denmark and have remained the more common type in use in Scandinavia. Air is supplied through a tracheotomy opening. Some types have a negative pressure phase to draw the air from the lungs, as well as the positive pressure phase to push it into the lungs.

Nursing problems are eased by this method, as the patient's body is not enclosed; but careful supervision is necessary. The machine is usually cheaper than the tank, and can be more readily manufactured if an epidemic involving a high proportion of respiratory cases occurs.

4. **Rocking Bed:**

This is based on Eve's method of artificial respiration. the weight of the viscera moving the diaphragm as the patient is rocked. This method is suitable for dry patients with slight respiratory distress, and is much used in the United States for weaning patients from a tank; or for use at night when the patient is able consciously to breathe during the day, but requires assistance when asleep. It is also of use in preventing urinary and circulatory stasis.

5. **Electrophrenic Respirator:**

Electrical stimulation to the phrenic nerve causes the diaphragm to contract. This is not suitable for prolonged use, but is occasionally of value when a patient who retains some power to breathe has difficulty in synchronizing his own efforts with the tank in which he has been placed. This respirator is used as a temporary measure only.

PHYSIOTHERAPY

The physiotherapist has an important part to play in keeping the lungs clear ,the circulation moving, and the muscles in condition. In the wet type of case, all depends upon maintaining a clear airway, and correct physiotherapy is essential for patients in or out of the respirator. In dry cases, most machines in use to-day allow full access to the body and the physiotherapist's task is considerably lightened and consequently increased in importance, as more can be achieved to prevent deformities and other sequelae in respirator patients.

SITUATION

LOCUM PHYSIOTHERAPIST required to assist in Private Practice as from October or November, 1955 for the summer months. Direct enquiries to: 13, Bright Street, Somerset West, Cape.

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BRANCH NEWS

SOUTHERN TRANSVAAL

The Annual General Meeting of the Southern Transvaal branch took place on August 16th, 1955, at the General Hospital, Johannesburg.

The following Office Bearers were elected for the year 1955–56. *President:* Miss J. Blair; *Vice-President:* Miss L. Dyer; *Treasurer:* Miss E. Alberts; *Secretary:* Miss C. Baker; additional members: Mr. A. Rothberg, Miss F. Hossy, Mrs. M. Levy. Mr. E. Kruger, Miss S. Levitt, Mrs. M. Shand and Mrs. Whittington.

Delegates elected to represent the Branch at Conference are: Miss L. Dyer, Mr. A. Rothberg, Miss E. Alberts, Mrs. M. Levy, Mrs. E. Kruger, Miss F. Hossy, Miss E. Botting, Miss C. Whiting, Miss A. Zuithoff, Miss S. Levitt, Miss C. Baker, Miss P. Paton and Mrs. M. Horsley.

UPLANDS ORTHOPAEDIC HOME FOR CRIPPLED CHILDREN.

PHYSIOTHERAPIST required. Non-residential post. Salary scale £450 by £30 to £690, plus Uniform Allowance £20 per annum. Commencing salary according to experience. Provident Fund. Application forms from the Secretary, Natal Provincial Cripples Care Association, P.O. Swartkopskloof, Natal.