NEW CHARTS FOR PATIENTS TREATED BY INTERMITTENT POSITIVE PRESSURE VENTILATION

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DESPITE the decreased incidence of paralytic poliomyelitis, intermittent positive pressure ventilation is being used more and more in Military Hospitals. Chest injuries, tetanus, head injuries, encephalitis and a variety of other conditions may require this method of treatment. However, the technique is highly sophisticated, and scrupulous attention to detail is necessary if management is to be successful and complications are to be avoided.

One essential to good management is careful documentation, and Spalding and Crampton Smith (1963) have described a Chart and a Treatment Sheet used in the Respiration Unit at the United Oxford Hospitals. These are shown in Figures 1 & 2 respectively. On the Treatment Sheet, the doctor in charge of the case writes his daily instructions for the frequency of the various procedures, and in the case of items such as minute volume, the values to be maintained. Observations ordered on the Treatment Sheet are recorded on the Chart, which is self-explanatory. Apart from these special forms, conventional fluid and temperature charts are required to complete documentation.

The Army Medical Services have no such forms of their own, so that treatment instructions are generally written in the case notes, or on loose pieces of paper, while charting is carried out on the ordinary temperature chart (F. Med 13). This is not a very satisfactory arrangement, and at British Military Hospital, Singapore, typewritten stencils of the Oxford Chart and Treatment Sheet have been prepared, and the duplicated proforma so produced have been in successful use for some time.

The authors intended to make similar stencils to use in the Cambridge Military Hospital, but decided that modification of the forms would be more useful in the special circumstances of military medicine. Compared with the Respiration Unit for which the Oxford forms were designed, Military Hospitals see very few of these cases. Consequently the medical and nursing staff may have had no recent experience of the technique, and this is particularly likely in the more remote overseas stations. For example, one of us treated only one patient with intermittent positive pressure ventilation in two years in Malaya. It is essential, despite this, that a meticulous regime should be established early, before evacuation or the arrival of more experienced help.

The Treatment Sheet has therefore been modified to include a column detailing the usual intervals at which procedures should be carried out, and giving a few reminders on technique. A further modification is the incorporation of columns in which the procedures may be ticked off as they are performed, making supervision easier. The Sheet thus becomes, not merely a list of instructions, but also an aide-memoire and a record of treatment given. Described now as "Artificial Ventilation Instruction and Record Sheet", it is illustrated in Figure 3. Diet and biochemistry have been omitted largely through considerations of space, as it was thought desirable to limit the size of

RADCLIFFE ARTIFICIAL RESPIRATION TREATMENT SHEET						
Name	VERA WEAK		Ward	RESPIRATION UNIT		
				Sheet No. 1		
It is the duty of each Nurse to bring the contents of this sheet to the attention of the Nurse succeeding her and to make sure that she knows what to do in case of an electrical or mechanical failure.						
Date	13 December	14 December	23 December			
Diet	Milk 100 ml. Water 100 ml. Glucose 12 G.	Milk 150 ml. Water 75 ml. Physiological saline 75 ml. Glucose 20 G.	Complan 200 calories Physiological saline 75 ml. Water 200 ml.	2 HOURLY 2 HOURLY 2 HOURLY		
Respiration	U N C H A N G E D					
Minute volume			8-9 l/min			
Resp. rate			16			
Turnings			2 hourly			
Physiotherapy			x 3 daily			
X-Ray			daily			
Unassisted resp.			No			
Tracheal tube			Size 10, Set 2			
Stomach tube			Polyethylene 27"			
Chart Entries			U N C H A N G E D			
Blood pressure	4 hourly					
Minute volume	hourly					
Resp. pressure	"					
Resp. rate	"					
Pulse	half hourly					
Temperature	4 hourly					
Vital capacity	-					
Bladder	U N C H A N G E D					
Catheterised					4 hourly	
Biochemistry	U N C H A N G E D					
			Blood urea Plasma electrolytes			
	U N C H A N G E D					
			Blood urea Plasma electrolytes			

Fig. 2. The Oxford Treatment Sheet. Actual size 8" x 10".
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the sheet to that of hospital case notes (Fs. Med 10 & 11). Unlike its original, which would last at least four days, it is intended to last only 24 hours.

The Artificial Ventilation Chart, illustrated in Figure 4, differs little, and only in detail from its original. The number of squares across has been reduced to 24, one for each hour, instead of the rather arbitrary 38 of the Oxford Chart. An indication has been given that the lower parts of the blood pressure section may be used for recording pulse rate and carbon dioxide tension. Spaces have been left between the sections as visual aids.

ARTIFICIAL VENTILATION INSTRUCTION & RECORD SHEET.

Name..... Maxwell.. SMART..... Ward..... 8..... Date 14-15 Jan.

(As each procedure is carried out, place a tick in the appropriate time column.)

Procedure	Standard Instruction	Modification of Standard Instruction	0080	0090	0100	0110	0120	0130	0140	0150	0160	0170	0180	0190	0200	0210	0220	0230	0240	0250	0260	0270	0280	0290	0300
Aspirate trachea and bronchi	As necessary		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Release cuff for 2 minutes	2 hourly. Aspirate pharynx first.		✓	✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓	
Turn and treat pressure areas	2 hourly. Percuss chest and aspirate trachea before and after.		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓		✓
Physiotherapist to chest & limbs	6 hourly		✓						✓					✓											
Oral toilet	p.r.n.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Eyes		N/A																							
Release catheter	4 hourly	N/A																							
Aspirate gastric tube.		N/A																							
Temperature	Hourly	4-Hourly		✓				✓				✓				✓						✓			✓
B.P.	Hourly	4-Hourly		✓				✓				✓				✓						✓			✓
Pulse	Hourly		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Respiratory rate	Hourly. Maintain at 20./min.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ventilator pressure	Hourly		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Respiratory minute volume	Hourly. Maintain 8 L/min	10 L/min from 1500	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
X-ray chest today							✓																		

Fig. 3. The modified Treatment Sheet. Actual size 7½" x 9½".

Fig. 4. The modified Chart. Actual size 7 $\frac{1}{4}$ " x 9 $\frac{1}{4}$ ".

These documents are presented in the hope that they may be helpful to other Army anaesthetists. It is appreciated that their layout and appearance are not ideal, due to the deliberate limitation of size, together with the fact that they have of necessity been typewritten.

REFERENCE

SPALDING, J. M. K. and CRAMPTON SMITH, A. (1963). *Clinical Practice and Physiology of Artificial Respiration*. Oxford: Blackwell.