Binet-Simon test. It was interesting to note that the results obtained in this way after ten to fifteen minutes were almost identical with the results obtained in the Moray House test, in those children who had taken the latter. After the interview, the teacher was advised how to deal with the child's particular problem, and occasionally an interview had to be requested with the parents. Some interesting clinical material was discovered at these school interviews, including two cases of crossed laterals, both in the same class at the same school, both producing problems to their teachers and parents.

SUMMARY

A survey of service psychiatry during 1951, in the Far East theatre, has been attempted.

Facts and figures have been produced, and ætiology, diagnosis and treatment of service men, their wives and children have been discussed.

The article has been confined to discussion of clinical rather than preventive psychiatry.

AN INSULIN COMA THERAPY UNIT IN A MILITARY PSYCHIATRIC DIVISION

BY

Lieut.-Colonel J. F. D. MURPHY, M.B., D.P.M.

Royal Army Medical Corps

The unit described is at the Royal Victoria Hospital, Netley, and the period reviewed is the year 1951. The unit, in a somewhat similar form, was in operation for almost two years in Banstead Military Wing prior to its move to Netley. It is hoped that this account will be of some assistance to any medical officer in the Services who may in the future be given the task of setting up such a unit.

Lay-out of Unit

The accommodation occupied is part of the psychotic wing of the Psychiatric Division and is itself "closed" accommodation. It consists of a ward of 16 beds which serves as a dormitory at night and a treatment ward during the day, a day room, a sister's room, a sterilizing room, a food preparation room, annexes, three side wards with single beds, a padded cell and a medical officer's consulting room. Certain modifications are near completion which will greatly facilitate treatment, by converting a space just off the treatment room into a sterilizing room.
The unit is in charge of the medical officer, who should have at least six months' experience before assuming full responsibility. Working with him is a second medical officer earmarked to take charge eventually. There are two nursing officers, one trained and one under training. The minimum experience of insulin training required for a nursing officer is six months. The other rank nursing staff are twelve, including a N.C.O. This gives a ratio of staff to patients of 1:1 (total staff) or 1:1.3 (for other rank nursing staff only). This apparently lavish scale of staff is adequately justified by experience.

During full treatment hours, Mondays to Fridays inclusive, all the staff, medical and nursing, are present. One nursing officer is always on duty and one medical officer within easy call. The other rank nursing staff (less one detailed for night duty and another on leave) work in two teams of five, each in charge of a N.C.O. or a senior orderly. Five nursing orderlies remain on duty in the afternoons and four work on the ward at week-ends (Saturdays and Sundays).

At night the nursing officer on duty in the psychotic wing supervises the unit. The insulin-trained orderly on night duty is supported by a mental nursing orderly from the general pool. Sometimes, owing to the presence of very disturbed patients, a third orderly is required at night.

**Staff Replacement**

The replacement of medical officers is subject to the usual service conditions, but every effort is made to retain officers employed in the unit for the minimum period of twelve months. Authority has been given for the "freezing" of trained nursing officers for twelve months and for the trained nursing orderlies for a period of nine months. Trainee nursing orderlies after two weeks' trial are given a further ten weeks' training. They then work three months as trained insulin orderlies and a further three months as senior orderlies. After nine months on the insulin ward the orderly is released to the general pool and his place taken by a trainee, thus building up a reserve of insulin-trained mental nursing orderlies. At any one time there are usually four orderlies under training.

The relief for the trained nursing officer when on leave or during other absences should be on the unit for at least two weeks before taking over. It is not sufficient that the relieving sister should have insulin experience; it is most important that she should have first-hand experience of the reactions of each patient undergoing treatment.

**Special Considerations of Staff**

It has been said that the good results of insulin treatment vary proportionately with the morale of the medical and nursing staff working on the unit.

The staff are volunteers and selected. They work long hours, often in difficult circumstances, in heightened tension and often with very disturbed patients. The job will be well done and smoothly only if the morale among the staff is high.
An Insulin Coma Therapy Unit

It is most important to establish the principle that all other military duties must be subordinated to the duties of the unit. The hours of active treatment, especially the critical hours of 0900 hours to 1100 hours, require the attendance of all staff, just as an operating theatre should have the full attendance of its staff during operations.

Besides the routine duties of nursing on a psychotic ward, there are the duties involved in the morning treatment, the cleaning, sterilization and the preparation for the next day's work. In addition, very careful observation is needed in the afternoons and evenings to ensure that there is adequate food intake, that "reactions" due to insulin are treated quickly, and that careful notes are made of the patient's behaviour. These observations will determine the dosage of insulin for the following day. Since all the staff must be on duty in the mornings, only half the staff is retained on duty in the afternoons and evenings so that adequate off-duty time is given.

The Nursing Officer in Charge, Insulin Unit.—The nursing officer is responsible for the over-all running of the unit in the absence of the medical officer. She pays particular attention to the cleaning and sterilization of instruments, to the maintenance of equipment, and to the standard of nursing. She decides what to refer to the medical officer in his absence and what measures to take in an emergency. Hers is the responsibility that the trainee orderlies have adequate instructions in their nursing duties. She personally issues parole passes to suitable patients and sees that they are adequately equipped with sucrose prior to leaving the ward. The nursing officer also maintains the day-to-day reports on treatment. She keeps a vigilant eye on the diets and on the food intake of all patients. All this is in addition to her routine duties as Nursing Officer in charge of a ward.

The Nursing Officer on Night Duty.—This officer gives the insulin injections and can decide to withhold treatment if the patient's condition during the night or early morning warrants this. She ensures that the sterilization of instruments and equipment and other morning preparations for treatment are up to schedule before she hands over the ward.

The N.C.O. Insulin Unit.—His particular duty is the detailed supervision of the nursing orderlies on duty, the collection and correctness of equipment and drugs from the dispensary, the upkeep of the blackboard during treatment, the cleanliness of the unit and the maintenance of a roster for off-duty time and leave for other rank staff. He keeps a particularly watchful eye on the trainees and on their handling of the patients both during and after treatment.

Other special duties performed by the nursing orderlies are:

Orderly in charge of Instruments.—He is responsible for the cleanliness, good order, sterilization and availability of instruments.

Dispensary Runner.—This orderly deals with the collection of items from the dispensary, diet sheets, diet trays, and "breakage and destruction" certificates.

Laundry Runner.—In addition to his laundry duties, he attends to fires and the disposal of rubbish (it is hoped to replace fires with central heating).
Kitchen Orderly.—He collects and serves meals and helps to feed patients who on gaining consciousness find difficulty in starting breakfast. He is responsible for the maintenance of crockery and cutlery.

Annexe Orderly.—This orderly superintends the bathing and shaving of patients after treatment and is responsible for the cleanliness of annexes.

Orderly in charge of Feed Trays.—He prepares the trays for feeds during treatment and is responsible for the cleaning, sterilization and maintenance of all the equipment connected with feed trays.

Orderlies on Night Duty in Clinic.—In addition to the routine duties on a psychotic ward, these orderlies start the sterilization of the equipment needed for the morning treatment, take and record patients’ temperature, pulse and respiration, and help the night sister to check and to give insulin and sodium amytal.

Equipment

The numbers after each item in the text below correspond with those in Appendix “A.”

There is at present no authorized scale of equipment for a military insulin unit. The scale detailed in Appendix “A” to this paper has been adopted after two years of trial and error. The guiding principles in the selection of this equipment have been that it must be capable of effecting the rapid intravenous injection of large quantities of viscous solutions to approximately fifteen patients in the space of about one hour, and that it must be capable of standing up to the rapid and daily sterilization.

The task of ending, in a short time and in a darkened clinic, insulin-induced comas in patients, some very restless and excited, is one that demands that every single member of the staff knows his job and works closely to a set drill. This procedure can be compared to series of well-rehearsed operations performed at speed in a dimly lit theatre. The apparatus and instruments used in the clinic are of necessity laid out in a set place and pattern, and are described in detail in Appendix “B” to this paper.

Transfusion Apparatus

Twenty-c.c. syringes are not a satisfactory way of giving large quantities of dextrose or sucrose solutions. They are found to be cumbersome and, furthermore, the speed at which the injection must be carried out is incompatible with the degree of care necessary to ensure adequate sterility. Standard 540-c.c. screw-top transfusion bottles in which the sterile intravenous fluids are issued are used instead. A number of special metal screw caps have been made to fit the transfusion bottles. These caps have two hollow metal tubes soldered into the cap and project 1 inch inside. The tubes are bent at right angles outside to facilitate attachment to tubing (61). The cap has a milled edge so that it can be screwed tightly into place, thus obviating the necessity of putting pressure on the metal tubes when securing the cap. A bellows (23) is connected to one outer limb of the screw cap for forcing the solution out under pressure. To the inside
An Insulin Coma Therapy Unit

of the other tube is connected about 9 inches of thick rubber tubing (60) so that it is just clear of the bottom of the bottle. To the outer limb of the same tube is connected one yard of transfusion tubing (61), the other end being attached to a 3-inch piece of glass tubing (62), which is in turn connected with a syringe by about 4 inches of transfusion tubing. The syringe (19) is a Kaufmann gravity pattern, consisting of 2-c.c. metal and glass barrel with a glass tube built in at right angles at the side near the needle end of the syringe. The rubber is attached to the glass tube. A 18G × 1½-inch needle (65) completes the assembly.

Needles

Narrow bore and long needles offer great resistance to the passage of such viscous solutions as those of 33 per cent. glucose and 50 per cent. sucrose. 18G × 1⅛-inch needles were chosen because of their comparatively wide bore and short length. A still wider bore needle would, of course, offer less resistance to the injection, but would be unduly difficult to insert into the vein of a collapsed patient. In an emergency either the 19G or even the 26G needles can be used on a Kaufmann syringe by means of an adaptor, but in the latter case the pressure bulb is insufficient to inject the solution and direct digital pressure on the piston would have to be employed. The use of an adaptor is generally to be avoided as it increases the danger of impaired sterility and of air injection.

For intramuscular injections, 19G × 2-inch needles are chosen because they are easily available and their length facilitates muscular penetration. They are also used for the intravenous injection of cardiazol or coramine.

Needles (64) for subcutaneous injections are of narrow gauge (26G) and very short (½ inch). These are selected to avoid the likelihood of intramuscular penetration and to prevent the too rapid injection of any solution.

The importance of the provision of really sharp needles cannot be overstressed. The wear and tear on the morale of both staff and patients caused by blunt needles is something that can never, it seems, be adequately appreciated by those that supply them.

Syringes

The six 20-c.c. syringes (18) can be used to tide a patient over the crisis in coma when all the Kaufmann syringes are used and not yet re-sterilized. They are also useful for aspirating gastric juice, if there is a shortage of urethral syringes. It is interesting to speculate if the choice of the latter item for this particular function has been influenced by the psychiatrist's training in psychopathology!

Equipment for Tube Feeding

Tube feeding is normally carried out by the nasal route, using small bore œsophageal tubes (29). These require daily boiling and since, when soft, they are more likely to enter the trachea, one should be replaced each week when ten tubes are in use for eighteen patients. The sugar solution should be heated to 100° F. before being fed. If, however, nasal feeding is impossible due to extreme restlessness or spasms, and if intravenous interruption is inadvisable, a tube is
passed by the œsophageal route. The conditions necessitating an œsophageal feed almost invariably call for the use of a gag (3 and 4). The ideal instrument to open the clenched jaw is the ordinary tablespoon. The handle is just the correct shape for inserting (curved upwards) under and up between the front teeth. A little manipulation, in which the handle is rotated until its edges are horizontal, separates the jaws sufficiently to enable the blades of the gag to be inserted. It is almost impossible by any means forcibly to open the jaw without the risk of damage to the front teeth. The metallic constitution of an ordinary cheap tablespoon offers an almost ideal compromise between strength and malleability.

Other items
Other items such as oxygen, tongue forceps, instruments for cutting down on a collapsed vein, tracheotomy set, etc., though rarely required, must be instantly available and ready for use.

Sterility precautions
A large (43) and a smaller (42) sterilizer are used for the instruments. The former takes the more bulky equipment, whereas the latter, which heats up more quickly, is used mainly for syringes and needles. Sodium bicarbonate, which destroys insulin, is not used as a preservative in the small sterilizer. Chestie’s forceps (10) are required for removing articles when sterile, and cellophane masks are used by the staff in the sterilizing room. Sterility is maintained by the liberal use of swabs dipped in methylated spirit soaking the operator’s hands and the patient’s skin.

All rubber tubing used in the assembly of the intravenous apparatus is, of course, boiled daily. It is essential to change all such tubing once a week because of the rapid deterioration in the rubber surface caused by the constant exposure to glucose solutions. It is impossible to sterilize satisfactorily rubber which has developed crevices below the surface. If particles or cloudiness appear rapidly in glucose solutions, the rubber tubing should be the first suspect.

Syringes are sterilized and stored individually in metal boxes, the metal containers for 20-c.c. syringes being a very suitable size. A number of these syringes in their containers, sealed in cellophane, are kept in readiness for emergency use during the day and night.

“Cutting down” and tracheotomy sets are re-sterilized at intervals and drums of sterile dressings (44) are maintained.

Selection of Patients
The majority of patients referred for treatment are from the admission ward and officers’ ward of the psychotic wing, but some are selected directly from the psychoneurotic wing. Selection for treatment is made on the good prognostic points in relation to previous personality, duration of illness, type of illness, age, stress factors, intelligence, status, and response to modified insulin therapy. Most of the patients treated are schizophrenics, of good previous personality but
with paranoid symptoms. Experience in this unit indicates that, in soldiers, schizophrenia of the paranoid type responds best to insulin coma therapy.

Most patients selected for insulin coma treatment have a course of modified insulin treatment in a special ward. Occasionally, however, when a vacancy in the insulin coma unit exists at the time of referral, and should delay in initiating treatment be considered inadvisable, the patient short circuits the modified insulin therapy ward.

Glucose tolerance tests are not carried out prior to treatment as the great majority of patients treated in the unit are young physically fit service personnel. In any case unsuitability on the grounds that would be indicated by such a test would be revealed in the initial modified insulin course.

**Treatment Procedures**

The night sister coming on duty ensures that the morning doses of insulin are entered in insulin dosage book, takes evening temperatures and ensures that patients have no access to food after the night drink at 2100 hours. The injections of insulin (80 units per c.c.) are given intramuscularly at 0600 hours together with sodium amytal by mouth for most patients. Refusals on the part of the patient of sodium amytal or of insulin are always accepted. The night sister also ensures that sterilization procedure is well on the way when the day staff mount duty at 0730 hours.

The clinic is kept darkened but with sufficient light to enable the handling and assembly of instruments with the dark-adapted eye. A shaded bulb lights the treatment board on which are entered patients' names, particulars of treatment, times and duration of sopor and coma, times for termination of treatment, method of interruption and quantity and type of sugar solutions used. The patients are nursed on beds. The medical officer decides on the time and on the method of termination of each patient's coma. Nursing orderlies usually carry out nasal interruptions, the nursing officer oesophageal interruptions, but intravenous injections are performed only by the medical officer, using a head torch as an aid.

Six months ago a trial was made using ordinary cane sugar to end comas by the nasal and oesophageal routes. Formerly glucose, a much more expensive substance, was used for this purpose. Ordinary (cane) sugar has been used ever since with no apparent disadvantages but with considerable saving in expenditure. The sugar is supplied to the wards weekly in five-gallon drums in a 60 per cent. syrup. It is coloured red to discourage unauthorized users! The 60 per cent. cane sugar syrup has additional advantages over a solution of dextrose in that it discourages bacterial and fungoid growth and will therefore keep well. The dextrose solution has the additional disadvantage that it must be prepared daily.

**The Hypoglycaemic Period**

The object of treatment is the production of a coma free from complications and of gradually lengthening duration from a few minutes to half an hour. It is
not practically possible to induce coma every day with safety owing to the unpredictable factors of a patient's varying resistance to insulin, the variations in his mental state and intake of diet, the occurrence of minor infections, etc.

The determination of the existence and depth of sopor or coma is somewhat arbitrary. A lack of purposive reactions to stimuli, especially painful stimuli, is usually taken to indicate the onset of coma. Neurological reflexes vary too much to indicate adequately the onset of coma, but they help in determining its depth.

The onset of the following reactions, however, is regarded as requiring the termination of the coma by intravenous interruption:

- Shock or exhaustion from excessive depth of coma or from excessive movements over a long period. This is indicated by cold or cyanosed extremities, a fast or weakening pulse, respiratory irregularities or a sudden drop in blood pressure.
- Extensor spasms or respiratory stridor unrelieved by keeping the air-way clear. Waves of extensor tonus unrelieved by a clear airway and oxygen and which last for more than a minute. Generalized tremors and spasticity in a warm patient.
- Epileptic fit.
- Excessive secretions, i.e., "bubbling" in chest, or excessive saliva.
- Failure of patient to recover twenty minutes after nasal or oesophageal interruption.
- Any unusual reaction in the "coma pattern" of a patient.

The above signs are regarded as dangerous, requiring intravenous interruption irrespective of the neurological signs present. Nursing orderlies are taught that it is not necessary for plantar responses to be extensor or corneal reflexes absent to assess a patient as being in a coma. If the latter signs are present, deep coma exists and the patient must be closely watched for the "danger signs."

The efficacy of insulin treatment depends on the number and depth of comas that can be produced in a patient in the shortest period of time. This is a treatment that demands a careful assessment of the patient, meticulous attention to detail in sterilization procedures, constant checking of equipment, the utmost vigilance of staff during treatment periods and skilful, patient nursing at all times. Any serious lowering of these high standards will surely end in catastrophe or will at best be shown in a poor recovery rate, with an accompanying deterioration in the morale of the staff and of the patients.

**Special Nursing Points**

Many of the patients selected for insulin therapy are in the early stages of their illness and, were they not having this treatment, they would not be nursed in a closed ward. Such patients may find the restrictions of a closed ward very irksome. The staff must make every effort to minimize ward restrictions for this group.

The majority of patients are of higher intelligence than many of the nursing staff and may contain a high proportion of officers and non-commissioned
officers. It is very easy, even unintentionally, for nursing orderlies to adopt a superior or condescending attitude and this may have a harmful effect, especially on the more intelligent patients.

Since the paranoid type of schizophrenia appears to have the best prognosis with insulin therapy, compared with other service schizophrenics, paranoid reactions are very frequently met with in the clinic. It is, therefore, very important to avoid whispered conversations, which may be interpreted by the patient as referring to him, or laughing in the presence of patients where the cause of amusement is not generally apparent to all present. Paranoid patients are extremely sensitive and may take deep offence at what appears to be harmless “leg pulling.”

The management of catatonic patients will require both skilful and tactful handling. Nursing orderlies must be taught to regard acts of aggressiveness not as personal attacks on themselves but as signs of the patient’s illness. To overcome extremely negativistic attitudes of patients may require the greatest tact and perseverance on the part of the staff.

Very excited, violent or noisy cases likely to disturb the other patients at night are segregated in one of the side rooms away from the general ward. If required, difficult patients can be treated in one of the side rooms; not a very satisfactory arrangement, since it is a big drain on staff.

Officer patients are seldom less than one-fifth of the total numbers undergoing treatment. Apart from the morning’s treatment, officers remain in the closed officers’ ward and are looked after by the staff of this ward.

Insulin treatment in the majority of cases will cause a very considerable increase in weight. This, together with the feeling of “sleepy relaxation” which follows treatment, inclines patients to “vegetate” in armchairs in front of the sitting-room fire. It is important to discourage this by getting patients out of doors in the afternoons either with escorts or by giving parole to the more stabilized. Much importance is placed in encouraging the better patients to re-establish contacts with the “world outside.” Patients given parole are instructed in recognizing “insulin reactions” in both themselves and their companions. Their parole passes are reviewed daily by the medical officer, the parole time is rigidly adhered to and they are sent off in pairs or in larger groups well equipped with glucose, in the form of sweets and in solution. They are readily recognized outside the wards by their dress (hospital blues without tie) and by the large bottle of pink fluid in the pocket of their blue jacket.

Rehabilitation

The British Red Cross and Order of St. John workers do a great deal of essential work in the rehabilitation of these patients by organizing occupational therapy, concerts, library, social evenings, card games, outings and invitations for tea to local families. The Psychiatric Social Worker, as well as assisting the medical staff in the initial assessment of the patient, does a great deal in sorting out the patient’s domestic troubles and in smoothing the path of his return to his home and to a job.
Diet

Patients on insulin coma treatment require an increased diet as insulin causes a marked increase in metabolism, especially in carbohydrates. The total requirement for these patients is approximately 5,000 calories. The following items are supplied in addition to the scale laid down in "Appendix 'A,' Scale for Ordinary Diet for Men and for Boys over fourteen years of age in Military Hospitals, Military Hospital Dietary, 1951."

In addition to ordinary diet (expressed as quantities per patient per day):

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bread</td>
<td>8 ozs.</td>
</tr>
<tr>
<td>Potatoes</td>
<td>10 ozs.</td>
</tr>
<tr>
<td>Tea</td>
<td>1½ ozs.</td>
</tr>
<tr>
<td>Sugar</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Butter</td>
<td>1½ ozs.</td>
</tr>
<tr>
<td>Fruit juice</td>
<td>2½ fl. ozs.</td>
</tr>
<tr>
<td>Ovaltine</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Boiled Sweets</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Eggs</td>
<td>3½ ozs.</td>
</tr>
<tr>
<td>Milk (tinned)</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Milk (fresh)</td>
<td>½ pt.</td>
</tr>
<tr>
<td>Soup</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Coffee</td>
<td>1 oz.</td>
</tr>
<tr>
<td>Ovaltine</td>
<td>1½ ozs.</td>
</tr>
<tr>
<td>Biscuits</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Milk (tinned)</td>
<td>1½ ozs.</td>
</tr>
<tr>
<td>Jelly</td>
<td>2 ozs.</td>
</tr>
<tr>
<td>Syrup</td>
<td>2½ ozs.</td>
</tr>
</tbody>
</table>

Results

These are the results for the year 1951. Records for 1950 are unfortunately not available.

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>No. of Patients</th>
<th>Result</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia with V.D. Phobia</td>
<td>3</td>
<td>Poor</td>
<td>R.T.U.</td>
</tr>
<tr>
<td>Schizophrenia, Paranoïd</td>
<td>19</td>
<td>Poor</td>
<td>C.M.H.*</td>
</tr>
<tr>
<td>Schizophrenia, Hebephrenic</td>
<td>5</td>
<td>Poor</td>
<td>Own Care</td>
</tr>
<tr>
<td>Schizophrenia, Catatonic</td>
<td>7</td>
<td>Poor</td>
<td>N.O.K.*</td>
</tr>
<tr>
<td>Schizophrenia, Simplex</td>
<td>2</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Schizophrenia, Early Catatonic</td>
<td>3</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Hypomania</td>
<td>2</td>
<td>Moderate</td>
<td></td>
</tr>
<tr>
<td>Schizophrenic personality with depression</td>
<td>1</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Psychopathic Personality</td>
<td>2</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Paranoid state</td>
<td>1</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Depressive state</td>
<td>1</td>
<td>Good</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* C.M.H.—Civil Mental Hospital.
† N.O.K.—Next of Kin.

Average number of weeks under treatment: 10.3. Average number of courses: 33.3.

Records and Research

Daily treatment charts are maintained for each patient. These include details of temperature, pulse and respiration rates, drugs given, insulin doses, interruption, diet taken, and general behaviour in ward both by day and night. Weight and urine tests are recorded weekly. A weekly summary of progress is also recorded.

"Follow-ups" are carried out on every patient discharged at six-monthly intervals by means of a personal letter and an attached proforma. These are sent both to the patient himself and to a relative. These "follow-ups" are carried out by the Psychiatric Social Worker. In this way a large amount of data is being collected and is providing valuable material for research.
An Insulin Coma Therapy Unit

SUMMARY

The organization and operation of an Insulin Coma Treatment Unit in a military hospital is described.

A scale of equipment and a diet for this type of unit are presented in detail.

ACKNOWLEDGMENT

I am indebted to Colonel J. T. Robinson, O.B.E., Officer Commanding, Royal Victoria Hospital, for his kind permission to publish this paper. I wish to place on record my appreciation of the enthusiasm, hard work and professional skill of Captain G. R. Duffes, R.A.M.C. (now released), whose efforts built up this Insulin Unit and whose notes I have freely used in this account.

APPENDIX "A"

SCALE OF EQUIPMENT FOR MILITARY INSULIN UNIT

SECTION 3A

1. Airway, anaesthetic, Water's medium 1
2. Case, Ward dressing, case, metal, empty 2
3. Gags, mouth, Doyen 2
4. Gag, mouth, Ferguson 1
5. Forceps, artery, S.W., 5-inch 2
6. Forceps, artery, S.W., 5-inch, box joint 1
7. Forceps, dissecting, ordinary, 5-inch 2
8. Forceps, dissecting, 1/2 teeth, 5-inch 1
9. Forceps, sinus, 6-inch 1
10. Forceps, sterilizer, Cheatle, 10½-inch 3
11. Holder, needle, Mayo, 7½-inch 1
12. Forceps, tongue, Corbould 2
13. Needle, aneurysm, left 1
14. Scissors, surgical, S.P., 5-inch 1
15. Syringes, hypodermic, R.P., 2-c.c. 4
16. Syringes, serum, R.P., 5-c.c. 2
17. Syringes, serum, 10-c.c. 3
18. Syringes, serum, 20-c.c. 6
19. Syringes, Kaufmann, gravity 4
20. Syringes, serum, 20-c.c., cases, metal for 19
21. Syringes, hypodermic, adaptor for (SIMA Cone to SIMA) 3
22. Scepal, 1½-inch blade 1
23. Bellows, I.R. 4
24. Sphygmomanometer, mercurial, complete 1
25. Lamp, head, electric, Ever Ready 1
26. Lamp, head, electric, condenser for 1

SECTION 3B

27. Instruments, Emergency Tracheotomy, in tin box, complete set 1

SECTION 4A

28. Tubes, esophageal, Jacques, size 24 4
29. Tubes, esophageal, Jacques, size 10 10
30. Cylinders, gas, keys, universal for 2
30a. Connections, glass, 3-inch 10
31. Screw tops for 540-c.c. bottles, metal 4

SECTION 4D

32. Basin, dressing, E.I.K.S., 8-inch 1
33. Basins, dressing, S.S.K.S., 10-inch 12
34. Bowl, E.I., round, 6-inch 1
35. Bowls, E.I., round, 6-inch of sorts 6
36. Bowl, E.I., round, 8-inch 1
37. Bowls, E.I., round, 10-inch 2
38. Brush, nail, ward 1
39. Jugs, dressing, E.I., 10×7 inches, complete 3
40. Jugs, graduated, E.I., 1-pint 3
41. Jugs, graduated, E.I., 2-pint 2
42. Sterilizer, electric, 11×5×3 inches, complete 1
43. Sterilizer, electric, 20×10×7 inches, complete 1
44. Sterilizer, H.P., drums dressing, deep 3
45. Stand, urine test, complete 1
46. Trays, dressing, E.I., 11×9×2 inches 3
47. Trays, dressing, E.I., 13×10×2 inches 5
48. Tray, dressing, E.I., 14×11×2 inches 1
49. Tray, catheter, E.I., with lid 1
50. Thermometers, clinical 4
51. Thermometer, lotion 1
52. Syringes, urethral, glass, 4-oz. 6
EXPENDABLE ITEMS
(Inventory of Medical Equipment)
60. Tubing, I.R. anaesthetic per week, yd. 1
61. Tubing, I.R. transfusion per week, yds. 3
62. Tubing, glass, to fit transfusion tubing I.R. cut into 3-inch lengths, ends smoothed . . . to be held on ward 6
63. Needles, hypodermic, SIMA fitting, 19G x 2 inches per week 48
64. Needles, hypodermic, SIMA fitting, 26G x ½ inch per week 24
65. Needles, hypodermic, SIMA fitting, 18G x ⅛ inches per week 12
66. Gallipots ... ... ... 12

NOTES
Items requiring frequent replacement
23. Bellows, I.R.—one every 4 to 8 weeks.
28. Tubes, oesophageal, Jacques, size 24—1 per month.
29. Tubes, oesophageal, Jacques, size 10—1 per week.
31. Screw tops for 540-c.c. bottles, metal—reserve of 2 should be maintained.
52. Syringes, urethral, glass—the circumstances in which these are used inevitably entail high breakage rate; reserve of 6 should be maintained if possible.

Articles such as syringes which normally meet with rather frequent accidents in any department are even more vulnerable owing to the frequent necessity of using them on excited and restless patients.

APPENDIX "B"

SCHEME OF SETTING UP INSTRUMENTS IN CLINIC

A. TROLLEY
Top Shelf:
3 Kaufmann syringes, with 4 inches transfusion type rubber tubing and glass connection attached and 3 18G x ⅛-inch needles, with adaptor if necessary, each set contained in metal syringe box with lid
2 bottles I.V. dextrose (glucose), pressure tops, bulbs
1 spare bottle I.V. dextrose
1 bottle I.V. 50 per cent. sucrose, pressure top, bulb
Gallipot containing spirit
Enamel bowl containing swabs
Jar with dissecting forceps in Dettol 1 part to water 3 parts
Mackintosh

Lower Shelf:
Receiver for used swabs
Receiver for used syringes and needles
Sphygmomanometer
2 mouth gags
6 rubber airways
Tongue depressor
Tongue forceps
Tablespoon

Gallipot with spirit
Bowl of swabs
Jar with forceps in Dettol 1 part to water 3 parts
Bowl for used swabs
Receiver for used needles

B. CORAMINE TRAY
Enamel tray, separate from A and C, with the following: 12 ampoules Coramine (variously labelled Nikethamide or Anacardone, but NOT Nicotinamide)

Files
1 2-c.c. syringe and 1 5-c.c. syringe, each in metal box with lid, with 6 19G x 2-inch needles

Gallipot with spirit
Bowl of swabs
Jar with forceps in Dettol 1 part to water 3 parts
Bowl for used swabs
Receiver for used needles

C. ATROPINE TRAY
Enamel tray separate from A and B with the following: Atropine Sulphate, at least 24 x 1/100 grain or equivalent quantity of bulk solution

Files
2 2-c.c. syringes, each in metal box with lid and 12 26G x ½ inch needles
Gallipot with spirit
Bowl of swabs
Jar with forceps in Dettol 1 part to water 3 parts
Bowl for used swabs
Receiver for used needles

D. CARDIAZOL TRAY (if instructed that it may be required)
Enamel tray (smaller than B or C and placed so as to avoid confusion)
Ampoules Cardiazol (also labelled Leptazol, Phrenazol) to total of 20 c.cs. 10 per cent. solution
1 10-c.c. syringe with 6 19G x 2-inch needles in metal box with lid (Coramine tray (B) swabs and receptacles, etc., to be used)
An Insulin Coma Therapy Unit in a Military Psychiatric Division
J. F. D. Murphy

*J R Army Med Corps* 1953 99: 232-243
doi: 10.1136/jramc-99-05-06

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