Staff Meeting Bulletin
Hospitals of the » » »
University of Minnesota

# Current Trends

Volume XIII | Friday, June 12, 1942 | Number 29

STAFF MEETING BULLETIN
HOSPITALS OF THE . . .
UNIVERSITY OF MINNESOTA

Volume XIII | Friday, June 12, 1942 | Number 29

# INDEX



Published for the General Staff Meeting each week during the school year, October to June, inclusive.

Financed by the Citizens Aid Society, Alumni and Friends.

William A. O'Brien, M.D.

## I. LAST WEEK

Date: June 5, 1942

Place: Recreation Room
Powell Hall

Time: 12:15 to 1:15 p.m.

Program: "Analysis of Prolonged Anesthesia"
John Grimm

Discussion
W. T. Peyton
John Grimm

Present: 107

Gertrude Gunn,
Record Librarian

- - -

## II. ANNOUNCEMENTS

### 1. ANNUAL MEETING

Eighty-Ninth Annual Session of the Minnesota State Medical Association will be held in the armory at Duluth June 29, 30, and July 1, 1942. The following University of Minnesota faculty members will participate:

Scientific Committee - W. H. Hengstler

Scientific Cinema

Electric Shock Therapy - G. R. Kamman
Technique of Removing Skin for Skin Grafting with the Padget Dermatone - R. I. Stewart
Non-convulsive Electric Shock Therapy in the Treatment of Psychoses Associated with Alcohol, Drug Intoxication and Syphilis - - N. J. Berkwitz

- - -

Demonstrations

X-ray Films of the Gastro-intestinal Tract - - - - R. W. Morse
X-ray Films of the Chest - J.P.Medelman

Symposium on Obstetrics

Toxemias of Pregnancy - - J. A. Haugen
Use of Sulfonamides in Pregnancy - - - M. B. Sinykin
Episiotomy - - - - J. J. Swendson
An Evaluation of the Kenny Technique of Treatment for Poliomyelitis, Lectures and Demonstrations - - M. E. Knapp, J. F. Pohl, Lillian A. Hubmer
Motion Pictures of the Kenny Method - - J. F. Pohl, Lillian A. Hubmer

- - -

Symposium on Virus Diseases

A. E. Cardle, Chairman

Variations in Phytopathogenic Viruses and Fungi - - - - - E. C. Stakman
Virus Diseases of Animals - W. L. Boyd
Virus Diseases of Man - - R. G. Green

- - -

Symposium on Newer Therapeutic Measures

Moses Barron, Chairman

Use and Abuse of Sulfonamide Compounds - - - W. W. Spink
Use and Abuse of Intravenous Solutions - - O. H. Wangensteen - H. L. Ulrich
Use and Abuse of Digitalis - Moses Barron

- - -

Round Table Luncheons

Chemotherapy in Treatment of Wounds - - W. W. Spink
Management of Ulcers - O. H. Wangensteen
Urinary Infections - P. F. Donohue
Use of Newer Insulins - Moses Barron

- - -

Symposium on Anesthesia

Neurological Complications Associated with Spinal Anesthesia - E. M. Hammes
Spinal Anesthesia: General Principles - - R. T. Knight

- - -

Symposium on the Use of Blood Substitutes

- P. F. Dwan, Chairman

Diagnosis of Shock - E. S. Platou
Indications for Intravenous Therapy - - Irvine McQuarrie

Motion Pictures Showing Preparation of Human Serum - Human Serum Laboratory, University of Minnesota - P. F. Dwan

- - -

Nutrition Conference

Production and Storage of Food at Home - P. E. Miller
Food Preparation and Preservation - - Eva Donelson
Nutrition in Normal Adults - - J. J. Boehrer

- - -

## III. CLINICAL CHEMISTRY

### A Review of CURRENT TRENDS in the University of Minnesota Hospitals

- - -

G. T. Evans and E. B. Flink

In recent years the steady increase in the number of chemistries requested has been striking.

Table I

| Year | *Monthly Chemistries | Yearly Chemistries |
|---|---|---|
| 1933-34 | 257 | - |
| 1936-37 | 567 | - |
| 1937-38 | 998 | - |
| 1938-39 | 1137 | - |
| 1939-40 | 1789 | 26,994 |
| 1940-41 | 2699 | 33,146 |
| 1941-42 | 3026 | in excess of 37,000 |

*Based on four months for which records are complete throughout the 9-year period.

The decision to review the mounting load of laboratory work was made as a result of the well-founded request from the administration that every possibility of economy be explored in order that drastic reduction in undesirable directions might not be necessary. It is a common remark in times of stringency that, when the issue is faced and retrenchments decided upon, there is a saving amount of good in the new arrangement; a healthy re-evaluation takes place. It is hoped that this comment will have application to these considerations.

In 1935 the total number of laboratory procedures per patient was 6.5; today it is 13.3, the number of procedures for each in-patient being approximately 18. The value in teaching of the well worked-up case is not to be denied. Nevertheless, private practice does not proceed on such an extensive laboratory basis, and for added training it might be well that the habit of scrutinizing the need for a contemplated laboratory procedure be more extensively cultivated.

Without analysis, it might be supposed that the increase in chemistries as tabulated above was largely due to the new procedures which have been added in the time under review. That this is not the case is shown in Table II.

Table II

4-year increases

Procedures for 1940-41 shown as per cent of those for 1936-37

| | | |
|---|---|---|
| BUN + NPN | - | 287% |
| Bld. Chlorides | - | 1263% |
| Bld. Glucose | - | 346% |
| Urinalysis, Hemoglobin, Differential Count | | 5% |

Analysis of Blood Urea Nitrogen Requests

A. For the last two years the BUN requests have been 66 for each 100 hospital admissions. Since the in-patient BUN's outnumber the out-patient BUN's 10 to 1, it follows that for each 100 in-patients there are 60 in-patient BUN's.

B. Of 432 recent BUN requests 21% showed some rise over accepted normal level, but of these well over half showed the minor rise characteristic of such conditions as acidosis, severe infections, starvation or mild vomiting with moderate fluid restriction, anesthesia, hemorrhage into the G-I tract, and the non-fasting state.

C. The apparent indication for requesting BUN in a random selection of 112 patients has been reviewed.

1. Obvious adequate indication - 40% Borderline and questionable indications are included. Indications in this group have included: emergencies, coma, drowsiness, dehydration of shock consistent with significant extrarenal uremia, surgical conditions of the

urinary tract, extreme chronic passive congestion with scanty urine, acute nephritis, chronic nephritis or other kidney conditions reasonably likely to have nitrogenous retention, toxemias of pregnancy, thyrotoxicosis, liver disease, depressed P.S.P. excretion, regardless of cause, urine volume and specific gravity consistent with nitrogenous retention.

2. Cases with recorded P.S.P. and/or volume and specific gravity of urine of such values as to preclude nitrogenous retention. Normal values found - - - 17%

3. Urinalysis obtained but it and urine volume not yet recorded at time BUN reported 11%

4. Non-emergencies in which BUN requested without first obtaining urine volume and specific gravity or P.S.P. - 9%

5. Frequent (more than 2) repetitions in cases with only minor disturbance of BUN - and without significant change in clinical course or urine volume - - - - - - 19%

6. Miscellaneous, including determinations on non-fasting patients or those with bleeding into G-I tract - - 4%

It is not intended to imply that a given determination listed in groups 2 to 6 is necessarily superfluous; the classification does, however, direct attention to the circumstances in which critical judgment should be exercised, and is intended to be constructive. Less extensive analyses will be given in connection with other chemistries. In case that they do not make out a sufficiently strong case favoring a stock-taking of laboratory practice, it might be well to re-inforce them with the following two observations:

1. In a period of under three weeks during which not every day's laboratory work was examined it was possible to find 38 patients on each of whom from 4 to 10 chemistries were requested, and all of which were found to be normal.

2. In the same period 72 initial determinations were made on 8 patients. Two of these values on one patient were abnormal; the total of repeats on the group was 27.

The questions raised by these observations are two: Should voluntary economy be practiced and would clinical practice suffer as a consequence?

Limitations of time prevent a thorough examination of the second question but it is perhaps appropriate that certain familiar points in pathological chemistry involving blood urea be recalled in this connection.

1. Normal values
Although the great majority of fasting BUN values fall between 8 and 18 mg. % the limits of normal must be taken as 5-23 mg.%.

2. Nitrogen retention a late feature in nephritis
The essential functional capacity of the kidney may be very seriously depressed before nitrogenous retention makes its appearance. The data of Van Slyke, McIntosh, Moller, Hannon and Johnston, (J.Clin.Invest. 8:357, '30), and which is plotted in Figure 37 of Vol. I. Peters and Van Slyke, make this clear. When urea clearance has dropped to 40% of normal three-quarters of the cases do not show nitrogen retention; at 20% of normal kidney function as judged by urea clearance one-quarter of the case still do not have elevated values for blood urea nitrogen.

It follows that if too much reliance is placed upon the deter-

mination of BUN that serious kidney impairment may be missed. A corollary of this is that once nitrogen retention is established in kidney disease, continued observation of BUN becomes one of the best methods of following the case from a practical standpoint.

3. Factors involved in extra-renal uremia

On the other hand a definite increase in BUN may, and often does not, mean that kidney function is impaired; in order for it to have this meaning it is necessary that the urine volume and the rate of protein catabolism be known. The outstanding examples of extrarenal uremia occur in dehydrated states such as vomiting and diarrhoea; shock and other conditions with critical drops in blood pressure constitute another type. The uremia in these conditions is most frequently explained on the basis of the critical reduction in glomerular filtrate; but the element of increased protein catabolism also plays a large role. This is particularly the case in vomiting due to obstruction but occurs to some extent in vomiting from other causes and also in diarrhoea. Hemorrhage (or plasma protein loss) is also a powerful stimulus to increase protein catabolism; if the hemorrhage is into the gastro-intestinal tract the added factor of protein digestion and absorption will join with the catabolic and vascular factors to give in some instances a phenomenal rise of BUN. In diabetic acidosis also the catabolic factor adds its effect to the dehydration. In infections toxic destruction of protein has long been recognized and is not readily reversed by adequate protein and high caloric feeding; outstanding examples which have been studied are peritonitis, pneumonia, tuberculosis, erysipelas, rheumatic fever.

The catabolic factor is not a small one and it follows that many cases with mild elevation of BUN occur on the basis of a moderate reduction of urine volume plus the added factor of hemorrhage, or infection, or vomiting. It is recognized that these latter conditions need not be severe to result in increased BUN; its determination adds but little to the information already possessed but most certainly can not be counted on as a reliable indication of kidney function.

Since creatinine formation is relatively uninfluenced by the catabolic process which produces urea, and since failure of renal excretory ability affects urea and creatinine in a similar manner, it follows that the simultaneous determination of urea and of creatinine will aid in separating the excretory and metabolic elements in extrarenal uremia.

4. The fractional P.S.P. excretion test is superior to the one-and-two-hour test and for many purposes approaches the value of the urea clearance test; it also frequently calls attention to urine retention in the bladder or kidney pelvis which might otherwise not be diagnosed. It was discussed in the Bulletin of May 23rd of last year and is again recommended for your consideration. It is simple and easily applied even to office practice.

5. Urine volume and specific gravity

The patient with fixed urine specific gravity (1.008-1.012) will not under usual circumstances exhibit nitrogen retention until the urine volume falls below 1500 cc. daily. On the other hand the kidney which can concentrate to 1.030 need produce only 500 cc. of urine a day to excrete the usual amount of nitrogen. These rules have been drawn from the work of Lashmet and Newburgh (J.Clin.Invest. II, 1003, 1932); they depend for their

reliability upon the "usual" amount of waste products being produced by the body. Despite this limitation they are very useful bedside guides and are reproduced in tabular form for convenience.

Table III

Rough bedside rule for urine specific gravity and daily volume which will predict normal nitrogen excretion in the absence of excessive protein catabolism

| Sp.Gr. | Vol. |
|---|---|
| 1.030 | 500 cc. |
| 1.020 | 750 cc. |
| 1.010 | 1500 cc. |

(It will be noticed that the product of the volume and the last two figures of the specific gravity is 15,000)

Summarizing, it can be said that attention to urine volume and specific gravity plus the more frequent employment of the fractional P.S.P. excretion test constitute a bedside attack that will frequently make the determination of BUN unnecessary; the information thus obtained will in some instances exceed that obtained from the BUN. The extrarenal factors discussed under (3) frequently explain the mild elevations of BUN so often obtained; the correction of extrarenal uremia depends upon abolishing the causative factors which were known before the BUN was requested.

It is recognized that this brief treatment does not give consideration to other factors which enter into medical and surgical practice but it is nevertheless offered as the expression of an attitude for your thought and criticism.

## Blood Sugar

The increased number of glucose determinations is explained by an expanding tendency to order fasting glucose "routinely" and by the increasing use of the glucose tolerance test as a filtering device. The first of these practices has undoubted merits but carries with it also the danger that other methods of diagnosis may receive too slight attention; the examination for post-prandial glycosuria has equal if not superior value and is in line with accepted office and clinic practice. In 1940-41 the laboratory performed 1790 glucose tolerance tests; during the calendar year 1940 a diagnosis of diabetes mellitus of all grades was made on 128 patients admitted to the hospital.

Many writers on the subject have questioned the reliability of the glucose tolerance test, some even going so far as to proclaim it undependable for diagnosis in borderline cases. Many clinicians, however, find that when used with discrimination it has distinct value and explains the more outspoken criticisms of it as a failure to recognize and accept the limitations and pitfalls that are involved. Among its shortcomings are the divergent results obtained in repeated tests on the same individual. Rate of gastric emptying time and variations in absorption often affect it strikingly; even mild nausea will be accompanied by a decided flattening of the curve. Even in healthy young men the blood sugar may not have returned to fasting value by the end of two hours; in elderly non-diabetics the curve may not have returned entirely to normal at the end of three hours. Antecedent diet has a decided effect, high carbohydrate diets tending to make the curve low and fat-protein diets the reverse. Non-diabetic conditions which can give abnormal curves include arthritis, hyperthyroidism, pregnancy, hypertension, infections, liver disease; even in hyperinsulinism and in renal glycosuria high curves are obtained not infrequently. Other pitfalls might be cited. Obviously the results must be evaluated critically, with due consideration to possible sources of error and in the light of other evidence. For these reasons the

employment of glucose tolerance as a routine procedure is not without risks.

The Exton-Rose one-hour two-dose test minimizes some of the aberrations of interpretation, and because borderline cases demand repeated tests, it was recommended for adoption in the Bulletin of May 23 last. It is again called to attention. As practiced at the Mayo Clinic it involves only two venepunctures and in that form resembles the a.c.-p.c. blood sugar test which is employed by some diabetic practitioners.

Regardless of which test is employed the urine tests should not be omitted; review of a number of cases revealed the fact that the Benedict tests were not recorded on the laboratory data sheet.

Plasma proteins

In 1940-41 a total of 1903 plasma proteins were determined; this does not appear as excessive. However, a fractionation was requested on 43% of these. In such conditions as multiple myeloma, Boeck's sarcoid, carcinomatosis, tropical diseases, lymphogranuloma inguinale, and anaphylaxis the globulin fraction may undergo a striking absolute increase. But in the majority of conditions for which fractionation is ordered, the total plasma protein level, if not lowered, supplies all the practical information which is necessary. It is suggested therefore that in many cases requests for fractionation might be made to read "fractional if total under 6%." Such a procedure would reduce fractionations by about 50%.

Serum Calcium

Only 40% of those ordered are accompanied by a request for phosphorus and plasma protein without which the determination is devoid of much of its value.

Blood Chlorides and $CO_2$ Capacity

The 12½-fold increase in chlorides which has occurred in the 4-year period from 1937 to 1941 has been accompanied by an 8-fold increase in determinations of $CO_2$ Capacity. Within the last 2 years the $CO_2$ requests have doubled. In reviewing 83 cases in which both chlorides and $CO_2$ were requested, it was found that almost two-thirds were patients without abnormal loss of body fluids and without obvious indication of acidosis or alkalosis; they have been construed as control data which are not necessary for safe practice.

Of those patients with abnormal fluid and electrolyte loss the determinations of $CO_2$ and chlorides were repeated three or more times weekly in over half. It is difficult for an outside observer to determine to what extent these frequent repetitions are necessary. Certainly in aggravated cases with vomiting, fistulous loss, or gastric suction, and undergoing complicated procedures involving anesthesia, alterations of blood pressure, febrile reactions, transfusions and other intravenous therapy, the clinician or operator is compelled to check progress by a direct examination of the blood rather than relying on the slower methods of establishing fluid and electrolyte balance.

But a familiarity with the approximate principles of fluid and electrolyte balance will obviate the necessity of blood chemistries in the simpler cases and will prevent confusion and despair in the complicated ones. These principles have been set forth by such workers as Gamble and Darrow in pediatrics, and Peters, Newburgh and Van Slyke in internal medicine. Unfortunately their presentations have been so precise and painstaking that the busy clinician has found it difficult to apply them in a ready workaday fashion. Surgical groups such as Coller and Maddock (SGO 70:340, '40), Drew, Scudder and Papps (SGO 70: 859, '40), and Elkington, Gilmour and

Wolff (Ann. of Surg. 110:1050, '39), have drawn on the work of these others and have enunciated simpler though rougher clinical rules which are well worthy of consideration.

If these simple rules are to be put to work, it is necessary that they should be agreed upon by all personnel who direct diagnosis and therapy. To this end it is our purpose to draw attention to them by giving a very abbreviated and incomplete summary together with comment derived from our own observation and study. The mechanism chosen for doing this is to suppose that we have only to consider the vomiting patient who will not tolerate food or fluid by mouth; although the principles apply equally well to diabetic acidosis, diarrhoea, or other conditions in which the normal fluid balance is disturbed, a consideration of these is omitted. Other omissions include (1) the safe rate of fluid administration and the choice of routes, (2) the special considerations which apply to the young and to the aged, or to the patient with kidney failure, hypoproteinemia or circulatory limitations, (3) a consideration of more elegant repair solutions than those consisting of NaCl, water and glucose.

1. With but rare exceptions the patient who is eating, drinking and voiding normally is in fluid and electrolyte balance.

2. Weight. Despite the contribution of malnutrition to weight loss, the main loss in the dehydrated patient is related to fluid; the weight before dehydration is often not known but at least the restitution phase may be followed. Frequently, as in operations, the normal weight is known in advance and both phases may be followed or obviated by attention to weight. It can not be too strongly emphasized that bye and large, abnormal fluid loss is electrolyte loss and that abnormal electrolyte loss is fluid loss. Unfortunately the measurement of weight has not received as much attention from the clinician as it deserves; in the next cases in which it is most needed it is most difficult to obtain. Dr. Wangensteen has devised means by which with some pains it can be measured in immobilized patients and has reaped the benefit thereof; it is the fault of the medical profession that more facile devices for weighing the patient in bed are not commercially available. In the seriously ill surgical patient, in dehydration, in edematous conditions, in the unconscious patient whether from head injury or from diabetic coma, in hyperthyroidism and in many other conditions observations of weight may be as important as observations of pulse and temperature.

3. Criteria of dehydration. The clinical picture of dehydration such as may be seen with vomiting, (consisting of dry tongue, lustreless or sunken eye, dry mucous membranes and turgid skin, scanty urine) occurs when 6 to 8% of body weight has been lost as fluid; it is usually accompanied by a 30% increase in hemoglobin (or hematocrit) and plasma protein. The loss has been due to fluid and electrolyte and the replacement should be 7% of body weight as normal saline (or equivalent and more elegant electrolyte repair solution). When under 5% of body weight is lost as fluid one can not count upon seeing either the clinical picture or the hemoconcentration since the extracellular reservoir can still supply fluid; replacement can be made on judgment, it being inconsequential if the error in this first adjustment be 500 or 1000 cc. for a person of standard weight. In high vomiting, since the fluid lost is qualitatively quite unlike that of plasma, abnormal chlorides and $CO_2$ may appear considerably before 5% of body weight has been lost; when the fluid lost is more neutral, abnormal electrolytes will only slightly antedate the hemoconcentration.

The fluid replacement rules suggested by Coller and Maddock for surgical patients are shown in

Table IV.

Table IV

Rules for Saline Replacement in Clinical Dehydration

(e.g. vomiting, diarrhea, diabetic coma, etc.)

1. Give 7% of Body Weight
   e.g. 50 kg. patient
   needs 50x.07 = 3500 cc. saline
   70 kg. patient
   needs 70x.07 = 5000 cc. saline

2. For each 100 mg. % Drop in Plasma NaCL give 0.5 gm. NaCl per Kilo Body Weight

   e.g. Plasma chloride deficit,
   600 - 480 =
   120 mg.% NaCl
   50 kg. patient needs 1.2 x .5
   x 50 = 30 gm. NaCl
   = 3500 cc. saline
   70 kg. patient needs 1.2 x .5
   x 70 = 42 gm. NaCl
   = 5000 cc. saline

4. Fluid Balance
   Since dehydration is not manifest until more than 5% of body weight has been lost, and since edema may not appear until body weight has been increased 10% and will occur only rarely at 5% increase in body weight, it follows that better rules are needed if proper fluid balance is to be maintained.

   A. The fluid balance in health is shown in Table V.

Table V

Fluid Balance in Health

| In | | Out | |
|---|---|---|---|
| Fluids | 1400 | Urine | 1200 |
| | | Stool | 100 |
| Food | | Vaporiz'n | |
| Content | 800 | Skin | 700 |
| Oxid'n. | 300 | Lung | 500 |
| | 1100 | | 1200 |
| | 2500 | | 2500 |

**Salt Requirement** about 4 gm. = 500 cc. N.S.

These values and those of subsequent tables assume a standard weight of 70 kg. The values are slightly exaggerated so that they will be adequate for the uncomplicated case admitted to hospital. It is to be noticed that although the fluid is placed at 2500 the charted intake would be 1400 cc. and the charted output 1200 cc.; neglect of the other parts of the fluid balance can be made only in health. The 4 grams of salt is adequate for health and represents the usual amount contained in a hospital diet cooked with salt but without added salt from the shaker at meal time.

B. The fluid balance in a patient with a few degrees of fever and not eating or drinking is shown in Table VI.

Table VI

Fluid Balance

Patient with Fever and Not Eating or Drinking

| | | | |
|---|---|---|---|
| Fluids | 2800 | Urine | 1200 |
| Food | | Vaporiz'n | 2300 |
| (Body substance) | 700 | | |
| | 3500 | | 3500 |

Appropriate fluids -
1000 cc. saline (glucose)
2000 cc. water (glucose)

It will now be noticed that the charted intake must read 2800 cc. if one wishes to be sure of 1200 cc. of urine. This becomes important in connection with clearance of normal and abnormal waste products and in the correction at the kidney of an acidotic tendency. For various reasons, not excluding the prevention of sulfonilamide nephritis, it may be wise to provide for a larger urine volume. If all of the fluid, saline and otherwise, contained 5% glucose it would provide only 600 calories. 10% glucose providing 1200 calories may be more desirable. Salt loss is very little increased over the balance shown for health but for the provision of adequate electrolyte to

enable the kidney to maintain normal acid-base relationships it is wise to increase the intake; even so, it is to be noted that the main provision of fluid is water without electrolytes, largely to provide for the inexorable non-saline loss from skin and lungs.

A moist skin but not frank rolling sweat is provided for in the balance shown. Extreme continuous sweating may amount to as much as 3 liters fluid loss in a day; it is usually much less and may safely be replaced for a day or two by two-thirds water and one-third saline fluid.

C. The fluid balance for the first treatment day of a patient with vomiting and alkalosis is shown in Table VII.

Table VII

Fluid Balance

Vomiting and Alkalosis - Clinical Dehydration

| | | | |
|---|---|---|---|
| Fluids | 6500 | Body Fluid Loss (60 Kg. patient) | 4000 cc. |
| Body | 700 | | |
| | | Urine | 1200 cc. |
| | | Skin and lung | 2000 cc. |
| | 7200 | | 7200 cc. |

Appropriate fluids -
5000 cc. saline (glucose)
1500 cc. water (glucose)

It is now noticed that saline fluids exceed non-saline fluids. 5% glucose will now provide 1300 calories. The saline shown provides only for replacement and more will be needed to pass the kidney before the alkalosis will be entirely corrected; if with this in mind one replaces the 1500 cc. of non-saline solution with saline solution the risk of not securing a diuresis is increased. The total amount shown is so large that complete replacement in one day is often not wise and particularly so if complicating factors are present. The fluid requirement in subsequent days without vomiting will be much like that shown in Table VI except that if the urine response is good, somewhat more salt may be provided to permit correction of the alkalosis. On the other hand, if the patient remains oliguric, salt may be restricted and glucose solutions substituted. If kidney function is poor the alkalosis may not be corrected until several days have elapsed. Cases such as that assumed by the table, particularly if further complicated by continued vomiting, constitute an example of those which call for ready recourse to blood chemistries.

The material which has been offered on fluid and electrolyte balance has been illustrative and partial only; it dodges many difficult points which arise at the bedside. It is intended as a constructive suggestion as to the manner in which practice may be conducted without unlimited laboratory facilities.

## Summary and Closing Comment

A partial analysis has been given of the rather remarkable increase in chemistries in recent years. Suggestions for reducing them without impairing efficiency have been offered for comment and criticism. The provocation for the discussion has been the suggestion from the administration that possible economies be surveyed in order that war-time stringency might not result in blanket budgetary shut-down.

- - -

Symposium on Emergency Surgery

O. J. Campbell, Chairman

Chest Injuries - - T. J. Kinsella
Shock Therapy - - C. E. Rea
Treatment of Burns - N. L. Leven
Management of Fractures Under War Conditions - - H. B. Hall

- - -

Round Table Luncheons

Common Skin Diseases - F. W. Lynch
Encephalitis in Minnesota - C. M. Eklund
Obstruction of the Vesical Neck - E. L. Meland
Office Gynecology - C.J.Ehrenberg

- - -

Industrial Health and Safety Conference

Minnesota's Industrial Health Program - - L. W. Foker
Diet and Fatigue - - Austin Henschel

- - -

Symposium on Tuberculosis

W. A. O'Brien, Chairman

Diagnosis and Treatment of Tuberculosis of the Trachea and Major Bronchi - - S. S. Cohen
Fallacy of Exclusive Dependence Upon X-ray in the Diagnosis of Active Pulmonary Tuberculosis - E. K. Geer

- - -

Symposium on Tuberculosis Control

J. A. Myers, Chairman

Diagnosis of Early Tuberculosis Among University Students - Ruth Boynton

- - -

Symposium on
Eye, Ear, Nose and Throat

Acute Suppurative Otitis Media - A Reconsideration - C. E. Connor

- - -

2. TODAY

This is the last regularly scheduled meeting of the general staff of the University of Minnesota Hospitals. Next week there will be no meeting, but the index for the year will be issued and sent to those whose names appear on our list. We will also send the missing copy contributed by the division of orthopedics. The next meeting will be held October 2, 1942.

- - -

IV. GOSSIP

A splendid letter from Don McCarthy from the navy censored as usual brought interesting news of his assignment. Included in the letter was a picture of a group of navy nurses dressed in their safety clothes. When on duty these contrivances are worn for eating and sleeping and what have you. Mac suggests that the nurses here should note what the well dressed young lady in the navy wears these days. He tells of the interest which the staff on his ship has in our staff meeting bulletin. Thanks, and the best of luck to you, Mac, and all the others!....The following letter was received by yours truly during the past week. It is getting to be a regular feature to get this offer. Again, do not feel that I can qualify. Anyone who feels qualified should communicate with me at once. "Cody, Wyoming, June 1, 1942 Dr. Wm. A. O'Brien, University of Minnesota. - No doubt you have heard of me and my great work in the cause of temperance. For several years, I have been traveling about the country appearing on the lecture platform. Perhaps you are familiar with some of my better known talks such as 'Down with the Drink Evil' 'Rum and Rebellion' and 'There is no Booze in Christianity.' - For the past several years I have had as my constant companion a true and faithful friend, one Herman Fortesque, who used to sit with me on the platform and whom I would point out t the audience as a horrible example of the ravages of drink. Herman originally had a splendid background and was a man of fine education and family connections. During the years when he should have given thought to the moulding of his character, he developed an insatiable thirst for rum whiskey and other strong drink. There were times when Herman's condition was quite pitiful. Here was a splendid man who had become a wreck of his former self. He would sit on the platform with me, drooling at the mouth and staring into the audience with bloodshot eyes. - Unfortunately during the winter dear Herman passed away. A mutual friend has given me your name. I wonder if you would consent to accompany me on a spring tour to take Herman's place?

Very respectfully yours,

Peter W. Hannibal, D.D. "