



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

Gastric Cancer

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

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INDEX

	<u>PAGE</u>
I. CALENDAR OF EVENTS	152 - 154
II. GASTRIC CANCER	155 - 164
. David State, Richard L. Varco, Owen H. Wangensteen	
III. GOSSIP	165
IV. IN MEMORIAM	166

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William A. O'Brien, M.D.

I. UNIVERSITY OF MINNESOTA MEDICAL SCHOOL
CALENDAR OF EVENTS
 January 11 - January 17, 1947

No. 140

Saturday, January 11

- 7:45 - 8:50 Orthopedics Conference; Wallace H. Cole and Staff; Station 21, U. H.
- 9:00 - 9:50 Surgery-Roentgenology Conference; O. H. Wangensteen, L. G. Rigler, and Staff; Todd Amphitheater, U. H.
- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; M-515 U. H.
- 10:00 - 12:00 Medicine Ward Rounds; C. J. Watson and Staff; E-221 U. H.
- 10:00 - 12:50 Obstetrics and Gynecology Grand Rounds; J. L. McKelvey and Staff; Station 44, U. H.
- 11:00 - Anatomy Seminar; Effects of Urethane in the Treatment of a Chronic Myelogenous Mouse Leukemia; Ruth M. Engstroem; 226 I. A.

Monday, January 13

- 9:00 - 9:50 Roentgenology-Medicine Conference; L. G. Rigler, C. J. Watson and Staff; Todd Amphitheater, U. H.
- 9:00 - 10:50 Obstetrics and Gynecology Conference; J. L. McKelvey and Staff; Interns Quarters, U. H.
- 12:15 - 1:15 Obstetrics and Gynecology Journal Club; M-435, U. H.
- 12:30 - 1:20 Pathology Seminar; Regional Ileitis; James Clark; 104 I. A.
- 12:15 - 1:30 Pediatrics Seminar; Irvine McQuarrie and Staff; 6th Floor Seminar Room, Eustis, U. H.
- 12:00 - 1:00 Physiology Seminar; Electron Microscopic Studies on Liver Parenchymal Cells; Robert A. Huseby; 214 M. H.
- 4:00 - School of Public Health Seminar.
- 8:00 - Clinical Research Club; Speakers - Robert Tarail, John Haserick, Ernst Simonson and Austin Henschel; Eustis Amphitheater, U. H.

Tuesday, January 14

- 9:00 - 9:50 Roentgenology-Pediatrics Conference; L. G. Rigler, I. McQuarrie and Staff; Eustis Amphitheater, U. H.
- 12:30 - 1:20 Pathology Conference; Autopsies; Pathology Staff; 102 I. A.
- 2:00 - 2:50 Dermatology and Syphilology; H. E. Michelson and Staff; Veterans' Hospital, Bldg. III.
- 3:15 - 4:15 Gynecology Chart Conference; J. L. McKelvey and Staff; Station 54, U.H.

- 3:45 - 5:00 Pediatrics Staff Rounds; I. McQuarrie and Staff; W-205 U. H.
- 4:00 - 4:50 Surgery-Physiology Conference;
- 5:00 - 5:50 Roentgenology Diagnosis Conference; M-515 U. H.
- 8:15 - Annual Jackson Lecture; Chemotherapy in Tuberculosis; H. C. Hinshaw, Mayo Foundation; Museum of Natural History Amphitheater. Open to the public.

Wednesday, January 15

- 8:00 - 8:50 Surgery Journal Club; O. H. Wangensteen and Staff; M-515, U. H.
- 8:30 - 10:00 Psychiatry and Neurology Seminar; Staff; Station 60 Lounge, U. H.
- 11:00 - 11:50 Pathology-Medicine-Surgery Conference; Carcinoma of the Pancreas; E. T. Bell, C. J. Watson, O. H. Wangensteen and Staff; Todd Amphitheater, U. H.
- 12:00 - 1:00 Physiological Chemistry Journal Club; Staff; 116 M. H.
- 4:00 - 6:00 Medicine and Pediatrics Infectious Disease Rounds; W-205, U. H.

Thursday, January 16

- 9:00 - 9:50 Medicine Case Presentation; C. J. Watson and Staff; Todd Amphitheater, U. H.
- 10:00 - 12:00 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 12:00 - 1:00 Physiological Chemistry Seminar; Flame Photometry and Partition Chromatography; Wallace D. Armstrong; 214 M. H.
- 4:30 - 5:20 Ophthalmology Ward Rounds; Erling Hansen and Staff; E-534, U. H.
- 4:30 - 5:20 Bacteriology Seminar; 214 M. H.
- 5:00 - 5:50 Roentgenology Seminar; Review of Gastric Cancer Conference; Leo G. Rigler; M-515 U. H.

Friday, January 17

- 9:00 - 9:50 Medicine Grand Rounds; C. J. Watson and Staff; Todd Amphitheater, U. H.
- 9:00 - 10:00 Pediatric Grand Rounds; I. McQuarrie and Staff; Eustis Amphitheater.
- 10:00 - 11:50 Medicine Ward Rounds; C. J. Watson and Staff; E-221, U. H.
- 10:30 - 12:20 Otolaryngology Case Studies; L. R. Boies and Staff; Out-Patient Otolaryngology Department; U. H.
- 11:30 - 1:00 University of Minnesota Hospitals General Staff Meeting; Folic Acid; Marcus J. Keil; New Powell Hall Amphitheater.

- 1:00 - 2:00 Dermatology and Syphilology; Presentation of Selected Cases of the Week; H. E. Michelson and Staff; W-312, U. H.
- 1:00 - Roentgenology-Neurosurgery Conference; H. O. Peterson, W. T. Peyton and Staff; Todd Amphitheater, U. H.

II. A STUDY TO DETERMINE LIKELY PRECURSORS OF GASTRIC CANCER

David State
Richard L. Varco
Owen H. Wangenstein

Cardiovascular disease and cancer are the two greatest causes of death in this country, and of the malignancies, carcinoma of the stomach occurs most frequently. Of the 150,000 annual deaths from cancer in the United States, approximately 40,000 are due to gastric carcinoma. It is estimated that by 1980, 40 per cent of the population of the United States will be over 45, so that the incidence of cancer of the stomach will undoubtedly continue to rise, as the number of people in the older age group increases further.¹

Although the overall picture of the results of surgery in the treatment of gastric cancer as described by Livingston and Pack² is not a happy one (2 per cent five-year "cures"), still if a gastric resection is done when the carcinoma is confined entirely to the stomach the five-year "cures" reach 60 per cent.³ Gastric resection for malignancy can now be done with a mortality rate of approximately five per cent,⁴ so that it is evident that great strides have been made in the surgical treatment of this disease. Relatively little further improvement can be expected in the end results, unless the diagnosis of gastric carcinoma is made at an earlier period than it has been in the past.

Ketsh⁵ divides the symptoms of gastric cancer into three periods: (1) the period of absolute latency, (2) the period of relative latency, and (3) the period of apparent disease. It should be the aim of all interested in the clinical problem of gastric carcinoma to diagnose the condition in the period of absolute latency, and preferably individuals who might develop gastric cancer should be sought out, studied and observed.

In the spring of 1945, a cooperative clinical study group was set up in the University Hospitals embracing the Department of Pathology, Radiology and Surgery,

in an attempt to define some of the likely precursors of gastric cancer. It was thought that individuals with (1) achlorhydria, (2) gastric polyp, and (3) pernicious anemia, and also (4) relatives of patients with proven gastric cancer would be more liable to develop carcinoma of the stomach than those individuals who do not fall into these categories. Accordingly on July 1, 1945, this study was started.*

METHODS OF STUDY:

At the onset of this study, it was planned to subject all male patients 55 years of age or older, and females 65 years or older, registering for the first time at the out-patient clinic of the University Hospitals, to a gastric analysis, employing three successive doses of 0.5 milligrams of histamine as a stimulant to gastric secretion. Free hydrochloric acid was tested for with Topfer's reagent and quantitative estimations were made using 0.1 N NAOH and Topfer's reagent and phenolphthalein as indicators. Those patients showing achlorhydria then had their stomachs examined gastroscopically and roentgenographically. The latter customarily consisted of fluoroscopic examination after the ingestion of barium, and an appropriate number of routine and spot films were taken for permanent records or to facilitate the diagnosis of obscure lesions. In a number of instances the patients, for one reason or another, were not given the three conventional doses of histamine. Accordingly, these patients have been dealt with as a separate group, the number of histamine injections given being indicated in those patients found to be achlorhydric. If no gastric lesions were found, each achlorhydric patient was given a reappointment slip for a repeat examination in six months.

*Grants from the following sources lent the endeavor the necessary momentum to put the study in motion:

1. The Jane Coffin Childs Fund for Medical Research
2. The Flora L. Rosenblatt Fund for Cancer Research
3. The National Cancer Institute.

In a previous study, Wetherby⁶ of this institution reported upon a group of patients who were observed to be achlorhydric after a single injection of 0.5 milligrams of histamine for the year 1940. It was possible to recall 84 of these patients for repeat gastric analysis and roentgenograms of the stomach.

The number of new patients available for the purpose of this study fell somewhat behind the predicted quantity, so that after January 1, 1946, the age level for inclusion in this study was lowered for both male and female patients to 50 years or over.

During the evaluation of this program, it became apparent from the data of Hebel and Gavisser (Table 2) that it would be profitable to study patients with histamine hypochlorhydria as well. Therefore at present, for all out-patient clinic registrants 50 years or older, with either a histamine achlorhydria or hypochlorhydria (less than 20 degrees of free acid), a roentgen examination of the stomach is planned. The fact that patients have been reluctant to have repeat gastroscopic examinations has resulted at present in limiting the use of this procedure to cases where there is a significant doubt as to the presence or absence of a lesion after a roentgenogram of the stomach.

From the hospital records, it was possible to contact and reexamine a number of known and suspected pernicious anemia patients. These patients have had roentgenograms of their stomachs during the period of this study, for they constituted, in part, the series under surveillance by Drs. Rigler, Kaplan and Fink⁷. All new patients found to have pernicious anemia are also to receive roentgenograms of their stomach and to be submitted to gastroscopic examinations whenever feasible.

Detailed information on the family histories of patients with gastric carcinoma has been obtained, using a form sheet specifically designed for this purpose. As controls, similar factual data have been obtained on patients with non-cancerous gallbladder disease, carcinoma of the rectum and/or colon, hernia and hemorrhoids. The families of 220 patients

with gastric carcinoma have been contacted either by letter or interview. All members over the age of 40 were requested to come into the precursor gastric cancer clinic for gastric analysis and roentgenograms of the stomach.

Starting July 1, 1946 it was planned to widen the scope of the project, so as to include more individuals potentially harboring gastric cancer, by adding to the precursor group all out-patient registrants with occult blood in the stool (guaiac) and/or a hemoglobin value on admission of 11.0 grams or less (Sahli). This study was temporarily suspended about October 1, 1946 but will be resumed again when x-ray films are more plentiful.

OBSERVATIONS: (Tables 1A & 1B) From July 1, 1945 to November 1, 1946, 2225 out-patient clinic registrants fell in the age group that was to be studied. Gastric analyses were done on 1253 (770 males, 483 females). Two hundred and thirty-eight (164 males, 74 females) were achlorhydric to three successive 0.5 milligram doses of histamine. Two hundred forty-five radiographic examinations have been performed on this group. Sixty-seven patients (31 males, 36 females) were achlorhydric to two consecutive 0.5 milligram doses of histamine. Forty-six of this group had x-ray examinations of the stomach. There have been 45 instances (19 males, 26 females) in which the patient was achlorhydric to a single 0.5 milligram dose of histamine, and 19 of these have had their stomachs examined roentgenographically. Twenty patients (11 males, 9 females) were hypochlorhydric (less than 20 degrees of free hydrochloric acid after three consecutive 0.5 milligram doses of histamine) and 18 have had roentgenograms of the stomach. Thus in all, 310 x-ray examinations of the stomach have been made in a group of 350 patients with histamine achlorhydria. To date, in this series, two individuals with unsuspected carcinoma of the stomach have been found. Both patients were subjected to laparotomy and the diagnosis of gastric cancer was confirmed. Unfortunately in both cases the lesion was far advanced. Three additional patients with carcinoma of the stomach have been

missed in the course of this study by purely fortuitous circumstances, but it is our belief that by closer scrutiny of patients eligible for inclusion in this study that similar errors will be less frequent hereafter. Finally, one additional patient was examined by roentgenography, and a small carcinoma of the stomach overlooked, although re-examination of these films strongly suggested the presence of such a lesion. This carcinoma was recognized at the time of an operation performed upon this patient for another unrelated condition.

In addition to the above in the 310 achlorhydric patients having roentgenograms of the stomach, 10 instances of polyp of the stomach were found.

No carcinomas or polyps of the stomach have been found in the 18 hypochlorhydric individuals who had x-ray examinations of the stomach.

All of the 84 patients obtained from Dr. W. Therby's⁶ list had gastric x-ray examinations. No gastric carcinomas but five gastric polyps were discovered in this group.

Seventy-nine patients with pernicious anemia had roentgenograms of the stomach but no unusual lesions were found.

Two hundred and nineteen patients have had their stools examined for occult blood. Forty patients had positive stools, and of these, thirty-four had x-ray examinations of their stomach. No unsuspected polyps or carcinomas of the stomach were found.*

Twenty-one patients (19 over 50 years, 2 under 50) were included in this study because they had hemoglobin levels of less than 11.0 grams. Ten of these patients had roentgenograms of the stomach, but no unsuspected gastric carcinomas or polyp were uncovered.*

*Two patients with gastric carcinoma were encountered in each of these groups but in each instance the diagnosis was made provisionally from the symptoms presented by the patient.

Of the families of 220 patients with gastric carcinoma contacted, only 40 individuals of 20 families appeared for gastric analysis and roentgenograms. In this group there were 9 patients achlorhydric to triple histamine and 12 patients achlorhydric to a single injection of histamine. No gastric cancers or polyps were found in this group.

DISCUSSION:

Achlorhydria: The well recognized frequent association of achlorhydria with cancer of the stomach suggested the acceptance of such a criterion as achlorhydria in this precursor study. From the data of Hebbel and Gavisser, Table 2, it is apparent that two thirds of the patients with gastric carcinomas, are histamine achlorhydric, and if those cases with less than twenty degrees of free acid are included nearly 90% of the carcinomas fall into these two groups. Too, a preliminary survey in this clinic of the relationship between histamine achlorhydria or hypochlorhydria, and other malignancies (breast and colon) shows that the incidence of achlorhydria and hypochlorhydria with these malignancies is much less than with gastric cancer.

The need for developing some workable plan for filtering off those cases most likely to harbor a gastric malignancy was additionally substantiated by the studies of St. John, Swenson and Harvey (1944)⁸ and of Dailey and Miller (1945).⁹ (Table 4). The former Group subjected 2,413 patients over the age of 50 without gastric complaints to a brief fluoroscopic examination of the stomach after the ingestion of barium. In this group of patients, two silent gastric cancers and one lymphosarcoma were found, an incidence of unsuspected gastric malignancy of 1.24 per thousand patients. No gastric polyps were encountered by the Columbia group. Dailey and Miller reported a series of 500 patients subjected to barium examinations of the stomach. These examinations were performed on presumably normal men over the age of 45 years, free from digestive complaints. Three gastric lesions were

found: a benign gastric ulcer, a polyp, and antral gastritis in a third patient. It can thus be seen that employing achlorhydria as a screen in this precursor gastric cancer study has permitted the discovery of greater numbers of unsuspected gastric malignancies for a given number of x-ray examinations of the stomach than in the studies described above; for, of the 412 roentgenograms of the stomach in achlorhydric and hypochlorhydric patients, two unsuspected carcinomas of the stomach and fifteen polyps were found. In addition, one additional carcinoma was not recognized because the x-ray examination of the stomach was interpreted as negative, and three other cases were missed through organizational errors.

GASTRIC POLYPS: Fifteen polyps have been uncovered in this study, probably the most fruitful observation to date. Although many authors (Borrmann,¹⁰ Schindler,¹¹ Rigler¹²) have indicted polyps of the stomach as precancerous lesions, their actual fate is difficult to evaluate in any given instance as Spriggs and Marxer¹³ have indicated. It is one of the purposes of this study to attempt to secure a more satisfactory answer to the problem of whether or not gastric polyps become malignant. To this end, in addition to the 15 polyps discovered in this study, 58 gastric polyps culled from our hospital records from January 1, 1938 to November 1, 1946 are to be placed under careful scrutiny by means of repeat roentgen and gastroscopic examinations. To date 12 patients with polyps have been operated upon; in three instances, local excision was performed; in the remaining nine partial gastric resection was done. It may be significant that one patient, after a subtotal gastric resection for a benign polyp of the stomach, returned four years later with an inoperable carcinoma arising from the residual pouch.

PERNICIOUS ANEMIA: The relationship between pernicious anemia and gastric carcinoma has been noted by a number of observers (Rhoads,¹⁴ and Kaplan and Rigler¹⁵). The latter authors believe they have shown that the incidence of carcinoma of the stomach in living patients with pernicious anemia is approximately twenty times that of the general popula-

tion, and the incidence of gastric cancer in patients dying of pernicious anemia is 12.3 per cent or three times the expected autopsy incidence of gastric cancer in patients of the same age group. Atrophic gastritis involving all layers of the stomach is uniformly seen in patients with pernicious anemia (Magnus and Ungley--1938¹⁶), and that atrophic gastritis is a precursor of gastric cancer has been strongly contended by Konjetzny¹⁷ (1938) and Schindler¹¹ (1941).

The fact that no gastric carcinoma or polyps were found in the 79 patients with pernicious anemia examined in this study, would seem to be at variance with the previous report of Rigler, Kaplan and Fink⁷, and suggests that an explanation is in order. The most likely reason for this difference would appear to be that, Rigler, Kaplan and Fink's⁷ series represented a group previously unstudied, whereas this series is constituted largely by hold-overs from that same series of Rigler, Kaplan, and Fink⁷, these patients exhibiting no polyps or carcinomas at the time of their report and again none now. There were 15 new patients with pernicious anemia in this series. Whether time will erase this apparent striking difference in incidence of carcinomas and polyps of the stomach in patients with pernicious anemia remains to be seen. On the basis of previous reports such as those of Rhoads¹⁴, Kaplan and Rigler¹⁷ and Rigler, Kaplan and Fink⁷ one would be justified in believing that some polyps and carcinomas will eventually be demonstrated in our patients with pernicious anemia now under observation.

RELATIVES OF PATIENTS WITH GASTRIC CARCINOMA:

From the data obtained on family histories of patients with carcinoma of the stomach (Table 3), it is to be noted that the incidence of carcinoma of the stomach in families of patients with gastric carcinoma is approximately 15.6 per cent; in patients with non-cancerous gall bladder disease it is 10 per cent; in patients with carcinoma of the colon and rectum it is

9.4 per cent; in patients with hemorrhoids it is 12 per cent. The incidence in families of carcinoma of portions of the body other than stomach has also been obtained, and has been found to be between 16 and 21.33 per cent for each of the groups.

It was felt after compiling the above data that there might be some question as to the validity of using as controls, patients with hemorrhoids and carcinoma of the colon and rectum, so that the new control group studied included the families of patients over the age of 45 with non-cancerous gallbladder disease, and the families of patients coming in for the repair of a hernia. Too, it was deemed important to ascertain the total number of relatives over 45, of each of the groups studied. The results are given in Table 3A. Although the number of families and relatives is not great, it is to be noted that the incidence of carcinoma of the stomach in the relatives over the age of 45 with gastric carcinoma is 1.9 per cent; in relatives of patients with gallbladder disease it is 0.89 per cent, and in relatives of patients with hernia it is 0.79 per cent.

A statistical analysis of the above results reveals that, although carcinoma of the stomach occurs more frequently in the families of patients with carcinoma of the stomach, than in the controls, still the difference is less than twice the standard deviation of the difference, and hence is not statistically significant. However, if these small differences continue to appear, consistently, in the series to be studied, they may be of significance, bearing in mind, that patients with cancer of the stomach are probably more likely to be aware of the same disease in other members of the family, than would patients who have been admitted to the hospital for other diseases. Denk¹⁸ has also shown that gastric cancer appears to be more frequent in the relatives of patients with gastric cancer than in relatives of individuals of similar age groups not having gastric carcinoma.

The response we obtained from requesting relatives of patients with gastric carcinoma to appear for examination, even

though we volunteered to carry out these studies without cost to the individual, was disappointing, for only 40 relatives of 20 patients have taken advantage of this service. Why so few people have appeared for this study is difficult to understand. It may be due to (1) lack of appreciation of the significance of the disease, or (2) to mortal fear of having cancer discovered. Certainly, further intensive education of the public concerning the importance of the problem of gastric cancer, is a crying need.

OCCULT BLOOD IN THE STOOLS AND "UNSUSPECTED" ANEMIA: No definite conclusions can be drawn from this study to date as to the value of using the presence of occult blood in the stool and/or a hemoglobin level of 11.0 grams or less as indicators of unsuspected gastric cancers. The former would appear, rationally to afford more hope than the latter, for there are many pathological states other than gastric cancer that are capable of producing an "unexplained" anemia.

In addition to continuing the studies described above it is planned to investigate patients with atrophy of the lingual mucosa and/or severe pyorrhea alveolaris as potential developers of gastric carcinoma. The former group was proposed for study because of the well known association of lingual atrophy and pernicious anemia, and it was felt that information should be obtained on the character of lingual mucosa in cases of gastric carcinoma.

SUMMARY AND CONCLUSIONS: Further improvement in the end results of gastric carcinoma can only be expected from earlier diagnosis of this lesion. To this end, an attempt is being made to determine likely precursors of gastric cancer. They include (1) patients over 50* with histaming achlorhydria and hypochlorhydria, (2) patients with gastric polyp, (3) patients with pernicious anemia, and (4) relatives of patients with gastric carcinoma.

*Prior to January 1, 1946, the age level for male patients was 55 years, and for female patients, 65 years.

From 7-1-45 to 11-1-46, 1253 patients over the age of 50 have had gastric analyses. Two hundred thirty-eight were achlorhydric to three successive 0.5 milligram doses of histamine; 67 were achlorhydric to two consecutive 0.5 milligram doses of histamine; and 45 were achlorhydric to one 0.5 milligram dose of histamine. An additional 20 patients were found to be hypochlorhydric (less than 20 degrees of free acid) after three consecutive 0.5 milligram doses of histamine. In these groups two unsuspected carcinoma of the stomach, confirmed at operation, and 10 patients with gastric polyps were discovered. A third carcinoma of the stomach failed to be identified through a misinterpretation of the roentgenograms of the stomach.

In a group of eighty-four achlorhydric individuals obtained from a previous study by Wetherby⁶, five additional patients with gastric polyps were found.

In addition to the 15 patients with gastric polyp, discovered during the study, an additional 58 obtained from the hospital records (1938 to November, 1946) have been placed under observation. To date, in 12 instances the polyp has been excised either locally (3 times) or by gastric resection (9 times).

Seventy-nine patients with pernicious anemia have been examined roentgenographically, but no gastric carcinomas were found in this group.

Gastric carcinoma appears to occur more frequently in the relatives of patients with gastric carcinoma than in relatives of patients with non-cancerous gallbladder disease, hemorrhoids, rectal carcinoma, and hernia, although these differences are not sufficiently great to be statistically significant. Forty relatives of 20 patients have been examined. No gastric lesions were found. The unsatisfactory response of relatives to our request for examinations indicates that an active program of cancer education for the public is urgently needed.

Out of 40 patients observed in the clinic since July 1, 1946 with occult blood in the stool, 34 were submitted to x-ray examinations with no unsuspected gastric cancer being found. Of 20 patients with hemoglobin values below 11.0 grams, 10 had roentgenograms of the stomach, but none of these had unsuspected gastric carcinoma.

TABLE 1A

Incidence of Achlorhydria and Hypochlorhydria in Patients of Age Groups
Eligible for Precursor Gastric Cancer Study

NO.	GASTRIC EXPRESSION	ACHLORHYDRICS (histamine)				HYPOCHLORHYDRICS			
		Triple	G.I.Series	Double	G.I.Series	Single	G.I.Series	No.	G.I.Series
OUT-PATIENT REGISTRA- TIONS	2225 1253 (770 male) (483 female)	238 (164 male) (74 female)	245	67 (31 male) (36 female)	46	45 (19 male) (26 female)	19	20 (11 male) (9 female)	18

TABLE 1B

Incidence of Gastric Polyps and Cancers in Precursor Groups

	ACHLORHYDRICS	G.I. SERIES	FINDINGS	
			Polyp	Cancer
OUT-PATIENT REGISTRATIONS		310	10	2*, **
OUT-PATIENT REGISTRATIONS	HYPOCHLORHYDRICS	18	-	-
WETHERBY LIST		84	5	-
PERNICIOUS ANEMIA LIST		79	-	-
RELATIVES OF PATIENTS WITH GASTRIC CANCER		40	-	-
PATIENTS WITH OCCULT BLOOD IN THE FECES		34	-	-
PATIENTS WITH HEMOGLOBIN LEVEL OF 11.0 GRAMS OR LESS		10	-	-
	TOTAL	575	15	2

* One additional case not recognized in X-ray films, diagnosed during operation for unrelated condition.

** Three cancers missed through organizational errors.

TABLE II

Gastric Acidity in Carcinoma of the Stomach
As Related to Type of Lesions (Hebbel and Gavisser)

Type*	Number of Cases	Acid Determination	Known Histamine	Achlor-hydric	Free Acid	Acid 20°	Acid 20°
Polypoid (1)	12	8	7	7	0	0	0
Adenocarcinoma (2)	86	63	48	29	19	6	13
(3)	120	116	73	49	24	11	13
Scirrhus (4)	<u>75</u>	<u>57</u>	<u>47</u>	<u>25</u>	<u>22</u>	<u>12</u>	<u>10</u>
	293	244	175	110	65	29	36

*Borrmann Classification

TABLE 3

Incidence of Cancer in Families of Patients with Gastric Cancer

	Number of Families	Incomplete Information	Number of Families with Carcinoma of the Stomach	Number of Families with Carcinoma Elsewhere
Carcinoma of Stomach	200	13	29 (15.6%) (36 individuals)	30 (16%) (43 individuals)
Gallbladder Disease (non-cancerous)	200	12	20 (10%) (22 individuals)	31 (16%) (39 individuals)
Carcinoma of Colon and Rectum	200	31	16 (9.4%) (19 individuals)	36 (21.3%) (64 individuals) 8% with ca. of colon
Hemorrhoids	200	13	22 (12%) (24 individuals)	33 (17.6%) (39 individuals)

TABLE 3A

	Number of Relatives		Number of Relatives with Ca. Stomach (% Relatives over 45)
	Under 45	Over 45	
Carcinoma of the Stomach	888	827	16 (1.90%)
Gallbladder Disease (Non-cancerous)	318	337	3 (0.89%)
Hernia	467	281	2 (0.79%)

TABLE 4

Studies for Determining Unsuspected Gastric Cancer

<u>Investigators</u>	<u>Number of Individuals Having X-ray Examinations of the Stomach</u>	<u>Type of Individuals Studied</u>	<u>Findings</u>
St. John, Swenson and Harvey (New York, 1944)	2,413	Presumably healthy individuals over the age of 50 free from digestive complaints	2 gastric carcinomas 1 lympho-sarcoma
Dailey and Miller (San Francisco, 1945)	500	Presumably healthy males over 45 years presumably free of digestive complaints	1 benign gastric ulcer 1 polyp 1 antral gastritis
Present Study (Minneapolis, 1945-46)	412	Outpatient clinic registrants, over the age of 50, free of digestive complaints, and with histamine achlorhydria or hypochlorhydria	2 gastric carcinomas 1,2 15 polyps

1. - One additional case not recognized in x-ray films, diagnosed during operation for unrelated condition.
2. - Three gastric cancers missed through organizational errors.

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The problem of gastric cancer.
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Pernicious anemia and the early diagnosis of tumors of the stomach.
J.A.M.A., 128:426-432, June 9, '45.

8. St. John, F. B., Swenson, P. C. and Harvey, H. D.
Experiments in early diagnosis of gastric carcinoma.
Ann.Surg., 119:225, '44.
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Gastroenterology 5:1, '45.
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Geschwülste des Magens in Henke-Lubarsch Handb.den Spenz Path. Anat. W. hist., Berlin, J. Springen, '26.
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Early diagnosis of cancer of the stomach; gastroscopy and gastric biopsies, gastro-photography, and x-rays.
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III. GOSSIP

The holiday season has come and gone and it was a most enjoyable affair. School was out for the veterans at the Center and I am certain they enjoyed their vacation. They are back in school for the winter quarter and the first three weeks will be spent in Neurology. Dr. Percival Bailey, distinguished brain tumor student from Illinois and H. Houston Merritt, Professor of Clinical Neurology, Columbia are guest teachers this week. The unit of instruction was organized by A. B. Baker who is one of our best teachers....During the holidays we had two special courses at the Center. A 2-day program for public health nurses on the "Follow-Up Care of Patients with Poliomyelitis," December 30 and 31, and a "Continuation Course in Cancer Control for Physicians," January 2, 3, and 4. One hundred and twenty-five representatives of the medical profession from Minnesota, North and South Dakota attended. Ashley W. Oughterson, Medical and Scientific Director, American Cancer Society, New York City, was an observer and participant. The outstanding representation was from Duluth, and it was headed by no other than E. L. Tuohy himself. The presence of this delegation always assures us a critical, attentive audience. Doctor Tuohy was best in his role of objector to the theory of diagnostic detection centers, but he was among the first to agree that the experiment should be tried on its own merits before it can be recommended to the profession. The current issue of the Hennepin County Medical Society Bulletin has a statement by E. Vernon Hahn, President, Indianapolis Medical Society. "We must not allow our public health specialists to wander into alien territory where we cannot follow. We must not permit academic medicine to isolate itself from medical practice, and we should see to it that teachers of medicine are especially invited into our meetings and encouraged to take an active part in our business. We must not sit idly by while any group of specialists makes arrangements contrary to the broad interests of organized medicine. And, most pressing at all times, we must be on guard against a distinction in Society activities between

an older conservative group and a young progressive group of physicians." It appears to me that during the war years we have been so occupied with other affairs that we have allowed academic medicine to isolate itself from medical practice and now would be a good time to re-establish a series of visits by the profession to the University to learn first hand of our interests and activities....The December issue of Minnesota Medicine has reprinted O. J. Campbell's splendid article from the Hennepin County Medical Society Bulletin on "The Relationship Between General Practitioner and Specialist." This should be read by everyone... The annual Clarence Jackson Lecture, sponsored by Xi Chapter of Phi Beta Pi, will be given by Dr. H. C. Hinshaw, Mayo Foundation, on "Chemotherapy in Tuberculosis", Tuesday, January 14, 1947 at 8:15 p.m. Doctor Jackson, who has retired, is ill at his home but he still finds time to evidence an active interest in University affairs. He should be most appreciative of the young men in this fraternity who have been stimulated by him to strive for better scholarship...Francis W. Lynch, M.D. announces the association of Orville E. Ockuly, M.D. in the practice of Dermatology. Offices have been moved to 1466 Lowry Medical Arts Building....I never cease to be entertained by these fancy ice bases for punch bowls in which roses or grapes are frozen. The ice in my drink melts so rapidly that I wonder how these affairs survive a warm room and the hot air of an open house....Everyone was kind and hospitable to our family during the holidays. The present I appreciated most was an electric train which I had purchased for my sons. Our old train had long outlived its usefulness and the new one is a beauty....Calls from Medical Societies for speakers are received daily. If any one is interested in going out to some of these meetings, I would be pleased to supply you with the necessary information. Special cancer teams are being organized for medical society programs from support received from the Minnesota Cancer Society and the Minnesota Department of Health....

IV. IN MEMORIAMFRANCES M. MONEY

Frances M. Money, Associate Professor and Director of Medical Social Service, University of Minnesota Hospitals, died Friday, December 13, at the University Hospitals, where she had been a patient for some time. She had been director of medical social service at the hospitals for the past seventeen years.

Before coming to Minneapolis she had worked at the Boston City Hospital for a number of years. She was a graduate of Pembroke College, Brown University, and of the school of social work at Simmons College, Boston.

Miss Money was a member of the American Association of Medical Social Workers and a former president of Minnesota District. She was also a member of the American Association of Social Workers.

Her mother and two brothers survive her. Funeral services were held at 3 o'clock Sunday afternoon, December 15. Burial was in Rhode Island.

Miss Money was a conscientious, faithful, tireless worker. At all times the patients came first and the service she rendered the people of this community during the past 17 years will not be forgotten. She built her staff wisely and well, and she worked with the other agencies in this community so effectively that our Medical Social Service Unit has grown to be one of our outstanding divisions. Her group was the first to be invited to participate in the regular meetings of the general staff. She was pleased to know at the last meeting that we regarded her work with favor and she hoped that our good relations would continue.

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WINFORD P. LARSON

Winford P. Larson, Professor of Bacteriology and Immunology and Head of the Department died New Year's Day at the age of 66 after a short illness. Bacteriology was at one time a unit in the Department of Pathology, but when it received a status of its own, Doctor Larson was put in charge. He was a great organizer and approached his problems in a business-like way. Called on to teach classes for all colleges of the University, the department functioned smoothly under great stress. He gathered around him outstanding men and women to carry on and said many times that on his passing his "faculty" would remain intact and one of its non-essential members would be gone. In a survey by the American Medical Association, a confidential report indicated that Bacteriology at Minnesota received a high rating because of his philosophy. He had a sense of humor that many did not know about until recent years. He was in constant demand as a speaker before student organizations because of the entertaining manner in which he poked fun at his associates. He did it in a kindly way and never gave offense. He was interested in the farm in Wisconsin where he grew up as a boy and hoped some day to retire to it and become a gentleman farmer.

His family had first claim on him at all times and there were few better family men on our staff. He was not easy to know until you got inside his gruff exterior. Then you found him to be a kind and knowing person. Few departments have turned out more investigation than his, and with the passing of time his presence will be missed more and more. "Buck" was a good friend and it is unfortunate that he was not able to enjoy his full life expectancy.