P. septica, an organism sensitive to penicillin in normal therapeutic doses, was cultured from 12 (17%) wounds. Ten of these became infected, accounting for 50% of infected lesions. Only five other local infections with *P. septica* following dog-bites have been reported in this country. Routine bacteriological examination of these bites might show that this type of infection is fairly common.

Infected bites are characterized by prolonged treatment and unsightly scars. Since many children are bitten by dogs and the bite is commonly received on the face, it is obviously desirable to ensure healing with minimal scarring.

There is evidence here to suggest that prophylactic penicillin therapy should be given to all patients with serious dog-bites and particularly to those whose bites have been sutured.

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HAEMATEMESIS AND/OR MELAENA FROM PEPTIC ULCER

SHORTER CONSERVATIVE MANAGEMENT

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The ideal duration of hospital treatment after haematemesis or melaena from peptic ulcer once massive bleeding has stopped is undecided. Most authorities have disregarded what the necessary length of bed rest should be, but it is often suggested that four to six weeks' bed rest is required, as for active chronic peptic ulcer.

The records from the Central Middlesex Hospital for 1956 show that after haematemesis or melaena 63 males and 40 females were treated conservatively as in-patients for an average of 21 days (males 22; females 19.5). The same average stay of 21 days was found for 34 patients treated at the Middlesex Hospital between

August, 1957, and June, 1958. In the Portsmouth Group of Hospitals, however, they are kept in longer: an average of 34 days for 44 patients admitted between January and November, 1958. Many factors may be involved in this difference, but among them must be a difference of policy respecting bed rest. This is borne out by the variation found if the figures are analysed for each physician separately.

In view of the obvious social and economic benefits from early discharge from hospital it is important to establish whether there is any medical contraindication to early mobilization. We have therefore compared two groups of patients, one mobilized immediately major bleeding ceased and the other kept in bed, and therefore also in hospital, for one week longer.

Material and Methods

85 male patients were admitted to the department of gastro-enterology, Central Middlesex Hospital, between October 15, 1957, and September 1, 1958, with major gastro-duodenal bleeding assumed to be due to peptic ulcer. For administrative convenience, and because a review of earlier records showed no difference with regard to sex in customary management, only males were studied. Nineteen patients were excluded for the following reasons: emergency surgery for haemorrhage (16), death from cerebral hypoxia shortly after admission (1), mediastinal emphysema after oesophagoscopy (1), and complicating pneumonia and cerebral thrombosis (1). There thus remained 66 patients.

Patients were allocated to one of two groups, "Up" and "Bed," by drawing lots as soon as bleeding had ceased ("D day"). This was judged particularly by the cessation of haematemesis or loose melaena stools, and by a stable pulse and blood-pressure. The haemoglobin level was above 7.4 g./100 ml. (50%) at this time, and blood transfusions were given where necessary to ensure this.

The up group was then mobilized as follows:

Day D+1—Sitting out for three hours and one visit to toilet.
 Day D+2—Walking for two hours and visiting toilet at will.
 Day D+3 and thereafter—Ambulant all day.

The bed group was kept at rest for a further week and then mobilized in the same way.

All patients received a standard convalescent gastric diet with antacids as desired. Blood transfusion was used to treat shock and to keep the haemoglobin at a satisfactory level (Avery Jones, 1952). Oral iron (ferrous gluconate tablets, B.P., 300 mg. t.d.s., or ferrous sulphate tablets, B.P., 200 mg. t.d.s.) was given to all anaemic patients from D day onwards. Barium-meal examination was performed in all except two patients as soon as practicable after mobilization. Gastroscopy was carried out in 38 patients. When no lesion was seen by either radiology or gastroscopy, and bleeding appeared on clinical grounds to be due to peptic ulceration, an acute ulcer was presumed responsible. Haemoglobin levels were estimated daily before D day and at least twice a week thereafter, using a standard procedure. On leaving hospital, patients were fully ambulant, free from anaemia, and without significant dyspepsia. They were seen in the out-patient department at three weeks and six weeks after D day, when symptoms were reassessed and the

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haemoglobin was estimated. Ten patients failed to attend the follow-up at six weeks. Of these, eight were contacted by letter, but two (one from each group) had left the district and were untraceable.

Results

Each group contained 33 patients and was comparable to the other in age distribution (Table I), diagnosis (Table II), and the severity of bleeding (Table III). This last was judged by the greatest degree of anaemia (see Chart), the volume of blood transfused, and the interval between admission and D day. Possible precipitating factors of haemorrhage were salicylate consumption (28 patients), alcoholic excess (6), and infections (3, all of whom also took salicylates). These factors were also equally common in the two groups.

The progress of the two groups was compared for symptoms and complications, the length of hospital stay

TABLE I.—Age Distribution

	20-29	30-39	40-49	50-59	60-69	70-79	80+	Average
Up group ..	3	3	7	13	2	4	1	54 years
Bed group ..	5	3	7	6	7	4	1	51 years

TABLE II.—Diagnosis

	Duodenal Ulcer	Gastric Ulcer		Stomal Ulcer	No Lesion Found
		Chronic	Acute		
Up group ..	16	6	1*	2*	9
Bed group ..	18	3	1	—	11

* 1 patient had a stomal ulcer and an acute gastric ulcer.

TABLE III.—Severity of Illness

Transfusion before D day

	Patients transfused		Average No. (and range) of pints per patient transfused
Up group ..	..	17 (51.5%)	4.9 (2-16)
Bed group ..	..	16 (48.5%)	4.8 (2-15)

Interval (days) between admission and D day

	2	3	4	5	6	7	Average
Up group ..	6	14	7	6	—	—	3.4 days
Bed group ..	8	12	7	2	3	1	3.5 days

TABLE IV.—Complications After D Day

Complications	Up group	Bed group
Recurrent bleeding :		
Not requiring transfusion	1	1
Requiring transfusion	3 (2.3 pints/patient)	5 (3.8 pints/patient)
Requiring surgery ..	—	2 (after leaving hospital but within 6 weeks of D day)
Severe dyspepsia :		
Not requiring surgery	—	3
Surgical treatment ..	1	1
Perforation ..	—	1 (died)
Leg-vein thromboses ..	1	—
Total	6	13

TABLE V

	Average Stay	Range	Exclusions
Length of Stay in Hospital (in Days)			
Up (31 patients)	10.9	7-18	Elective surgery, 2
Bed (30 patients)	17.6	14-27	Elective surgery, 1. Died, 2
Length of Time off Work (in Days)			
Up (24 patients)	26.9	14-56	Retired, 6. Elective surgery, 3
Bed (21 patients)	37.7	18-71	Retired, 6. Elective surgery, 3. Died, 2. Untraced, 1.

Haemoglobin levels in both groups at different times.

and of time lost from work, and the rise of haemoglobin (Tables IV and V, and Chart). On average the up patients stayed in hospital for 11 days and were off work for 27 days, while the bed patients were in for 18 days and off work for 38 days. The rise of haemoglobin was satisfactory, and comparable in the two groups. However, the incidence of complications, particularly of recurrent haemorrhage and severe dyspepsia, was lower in the up than in the bed patients.

A barium-meal examination was performed on average on the fifth day after D day in the up patients (range 2-10), and on the 11th day after D day in the bed patients (range 1-22). In addition, three emergency barium-meal examinations were performed during massive bleeding, on patients who subsequently had emergency surgery. In no case was any ill effect seen.

Gastroscopy was carried out in 38 patients, and in only seven was a lesion seen. Of 31 negative examinations, a duodenal ulcer was later seen radiologically in 17, while in 13 patients no radiological lesion was seen. Of these 13, 9 had their gastroscopy within three days of admission.

Discussion

This study has shown that patients mobilized rapidly after haematemeses and/or melaena progressed as well in every respect as those kept in bed a week longer. The complications in the up patients were in fact fewer than in the bed patients, but the significance of this is uncertain because of the small numbers. The up regime is particularly advantageous from the social and economic aspects. The patient's satisfaction from

his early return home and the economic gain from an early return to work must be appreciated, as well as the saving in hospital beds [calculated for this hospital for 1956 as 1,040 bed days (or £3,250)].

Prolonged bed rest is traditionally recommended in the treatment of active chronic ulcer, but it does not seem to be necessary in cases of haemorrhage. One reason may be that bleeding unrelated to progressive chronic ulceration may occur in response to salicylates (Douthwaite, 1938; Muir and Cossar, 1955; Alvarez and Summerskill, 1958), to alcohol, to infection, or to unknown stimuli. The number of patients who had consumed salicylates within the 48 hours prior to bleeding (42%) agrees with the findings of Alvarez and Summerskill (1958) in this hospital in 1957. Another reason is that patients bleeding from severe progressive ulceration often need emergency surgery and so have not been studied here. Such patients may also account for the serious complications after D day which occurred during and in spite of bed rest.

Early discharge from hospital necessitates early radiological examination for diagnostic purposes. It has been held that a barium-meal examination too soon after bleeding might restart haemorrhage, but Zamcheck *et al.* (1952) and Zamcheck (1955) showed that immediate examination is both safe and reliable, and that patients tolerate the standing position for radiology better soon after admission than after bed rest. Certainly, no ill effects occurred in this series with moderately early barium-meal examinations.

Only seven lesions were seen in 38 gastroscopies, probably because the study was limited to male patients, who have a high ratio of duodenal to gastric ulcers (Avery Jones, 1957), while cases of carcinoma of the stomach were excluded. The low proportion of acute lesions visualized was not due to delay in performing the examination, and the presence of blood in the stomach did not often invalidate the procedure.

Summary

The necessary duration of bed rest in hospital after haematemesis and malaena from peptic ulcer has been studied by comparing the progress of two groups of patients, one mobilized quickly and the other slowly.

Patients mobilized as soon as massive haemorrhage had stopped did as well as those kept in bed.

Rapid mobilization involved radiological examination soon after haemorrhage had ceased, and no ill effects occurred as a result of this.

Our thanks are due to Dr. F. Avery Jones, and to the staff of the department of gastro-enterology, Central Middlesex Hospital, for their help. We also thank the Medical Committee of the Middlesex Hospital and the consultant physicians of the Portsmouth Group of Hospitals for permission to study their case notes.

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Medical Memoranda

Cadmium Poisoning

Cadmium is largely obtained in the smelting of impure zinc ores as a by-product and less often as a mineral called greenockite, which is cadmium sulphide. Cadmium can be highly polished and has good anti-corrosion properties (Heyroth, 1949). If slightly overheated, molten cadmium readily ignites. Its vapour is heavier than air and burns with a bright flame producing brown fumes of cadmium oxide. Cadmium as a fume is very toxic (Elkins, 1959). If the metal is heated, as in welding, fumes of cadmium oxide are emitted which are responsible for the toxic effects when inhaled from the working atmosphere. Even small amounts of molten cadmium can produce a toxic concentration of fumes. Cadmium vapour condenses in the air and is inhaled as a smoke of finely divided particles. A dust hazard may develop from grinding, cutting, or handling the dry powder. Probably the most hazardous compound of cadmium is the oxide, which is an acute irritant affecting mainly the eyes, nose, throat, and lungs.

In acute cadmium poisoning the patient develops sore eyes, dryness of the throat, tightness of the chest, breathlessness on slight exertion, and cough. In a few hours he may have nausea, vomiting, shivering, general weakness, and pains in the joints. Pneumonitis may develop. Death may be due to pulmonary oedema or bronchopneumonia. At post-mortem examination cadmium is found particularly in the lungs, kidneys, and liver (Elkins, 1959).

Chronic cadmium poisoning may occur through long-continued exposure to the fume or dust. The patients develop lassitude, chronic cough, and dyspnoea due to emphysema. This may be associated with recurrent epistaxis, anosmia, and irritation of the throat. Cadmium is excreted in the urine, but its presence alone without symptoms does not warrant the diagnosis of cadmium poisoning. In chronic poisoning there is sometimes renal excretion of a protein of low molecular weight which is detectable by the sulphosalicylic acid test (Bonnell *et al.*, 1959).

Cadmium-plated articles should not be used for the preparation of food because of the possible irritant effects on the gastro-intestinal tract, causing an acute gastro-enteritis which is usually rapid in onset (Fairhall, 1949; Sax, 1957). This condition can be treated by administering albumin (Dickinson, 1948).

The maximum allowable concentration of cadmium as recommended by the American Conference of Industrial Hygienists is 100 µg./c.cm. (Sax, 1957). Local extract ventilation is necessary in processes involving a potential hazard from cadmium dust or fume, such as smelting, casting, grinding, or hot-metal spraying.

In the United Kingdom, under the National Insurance (Industrial Injuries) Act, 1946, certain occupational diseases are prescribed for industrial injuries benefit. Poisoning by cadmium is one of the prescribed diseases.

INDUSTRIAL USES

In electronics cadmium-plated steel chassis are used in view of the low electrical potential between the two