INTERN'S MANUAL

ARTHUR BERNSTEIN

Second Edition

INTERN'S MANUAL

(Cook County Hospital)

by

ARTHUR BERNSTEIN, M.D.
Assistant Medical Superintendent Cook County Hospital
Clinical Associate Professor of Medicine
University of Illinois College of Medicine

SECOND EDITION

THE YEAR BOOK PUBLISHERS • INC.

200 EAST ILLINOIS STREET • CHICAGO

Reprinted, June 1955
Reprinted, September 1956
Second edition, 1959

Library of Congress Catalog Card Number: 59-8484

Printed in U.S.A.

	Name	Location	Tel.
Administrator	.....	.....	.....
Asst. Administrator	.....	.....	.....
	.....	.....	.....
Medical Director	.....	.....	.....
Asst. Med. Director	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
Accounting Dept.	.....	.....	.....
Admitting Dept.	.....	.....	.....
Anesthesia Dept.	.....	.....	.....
Basal Metabolism	.....	.....	.....
Blood Bank	.....	.....	.....
Cashier	.....	.....	.....
Clinic, Outpatient			
Administrator	.....	.....	.....
Nursing Sup.	.....	.....	.....
Arthritis	.....	.....	.....
Cardiac	.....	.....	.....
Chest	.....	.....	.....
Dental	.....	.....	.....
Dermatology	.....	.....	.....
Diabetic	.....	.....	.....
Fractures	.....	.....	.....
Gastrointestinal	.....	.....	.....
Gyne., General	.....	.....	.....
" Tumor	.....	.....	.....
Hand	.....	.....	.....
Neurology	.....	.....	.....
Nutrition	.....	.....	.....
Obstetric	.....	.....	.....
Orthopedic	.....	.....	.....
Pediatric			
Allergy	.....	.....	.....
Medical	.....	.....	.....
Neurology	.....	.....	.....
Skin	.....	.....	.....
Rectal	.....	.....	.....
Social Service	.....	.....	.....
	.....	.....	.....
	.....	.....	.....
Surgery	.....	.....	.....
Tumor, Breast	.....	.....	.....
" General	.....	.....	.....
" Gyne.	.....	.....	.....
Vascular	.....	.....	.....
Coroner's Office	.....	.....	.....

	Name	Location	Tel.
Delivery Room	.....	.....	.....
Dietary Dept.	.....	.....	.....
	.....	.....	.....
Electrocardiography	.....	.....	.....
Fracture Wards	.....	.....	.....
Genito-Urinary Dept.	.....	.....	.....
Gynecology	.....	.....	.....
Hematology	.....	.....	.....
Laboratories			
Bacteriology	.....	.....	.....
Biochemistry	.....	.....	.....
Isotope	.....	.....	.....
Pathology	.....	.....	.....
Surg. Path.	.....	.....	.....
Virology	.....	.....	.....
Library, Medical	.....	.....	.....
Mail Room	.....	.....	.....
Medical Records	.....	.....	.....
Morgue	.....	.....	.....
Nurses, Admin.	.....	.....	.....
	.....	.....	.....
Nursery, Newborn	.....	.....	.....
Nursery, Premature	.....	.....	.....
Obstetrics	.....	.....	.....
Operating Rooms	.....	.....	.....
Orthopedic Dept.	.....	.....	.....
Pediatric Dept.	.....	.....	.....
Administrator	.....	.....	.....
Nursing Sup.	.....	.....	.....
	.....	.....	.....
Pharmacy	.....	.....	.....
Physiotherapy	.....	.....	.....
Recovery Room	.....	.....	.....
Social Service Dept.	.....	.....	.....
	.....	.....	.....
Supplies, Sundries	.....	.....	.....
Supplies, Sterile	.....	.....	.....
Surgery	.....	.....	.....
Nursing Sup.	.....	.....	.....
	.....	.....	.....
Therapeutics Dept.	.....	.....	.....
Welfare Dept.	.....	.....	.....
	.....	.....	.....
X-ray, Diagnostic	.....	.....	.....
	.....	.....	.....
X-ray Therapy	.....	.....	.....

PREFACE TO SECOND EDITION

It is most gratifying that the Manual has been received so very favorably and that it has become necessary to have a second edition.

The material has been brought up to date. The addition of topics such as glomerulonephritis, use of Sengstaken tube, liver and renal biopsy, use of oral diuretic drugs, antidiabetic drugs, and virology will more completely fill the intern's needs.

The alphabetical arrangement has been retained, but an index has also been included. The absence of an index was, for some people, a deficiency of the first edition. The inclusion of an index will further aid the intern to quickly find the procedure he may be looking for. Cross references have been retained as an adjunct to the alphabetical listings.

The cooperation of the many Departments in the Cook County Hospital is most gratefully acknowledged. Suggestions for revision and additions to the Manual have been constructive and most helpful.

Again, Miss Irene Gordon, my secretary, has been most helpful and has, with her usual enthusiasm, compiled the material. The publisher has given encouragement and advice.

A.B.

PREFACE

This Manual has been compiled as a result of requests from all parts of the World for copies of the mimeographed directions distributed to interns at the Cook County Hospital, Chicago. At this 3,400 bed institution, hundreds of interns and other members of the house and attending staffs have been using since 1945 the notes which form its basis. No count has been made of the number of requests for copies received from other institutions during these years, but their volume indicates a real need for the Manual. The material has been brought up to date regularly and the present edition is the first to be made universally and easily available.

Though based on the Cook County Hospital procedures, which are standardized, the Manual can be used as a guide by interns and house staff anywhere. The alphabetical arrangement makes it possible for the intern to turn quickly to a subject and find there exactly what procedures are required and how to carry them out in establishing the diagnosis, treating the patient, and avoiding or preventing complications. For example, if the intern is faced with a parenteral therapy reaction, he will find the procedures listed under that heading; if he is dealing with a chest injury, he will find under that entry procedures to follow for the various types of wounds and complications, as well as a discussion of diagnosis and treatment. In addition, directives are included for the departments of pathology, bacteriology and biochemistry (under Laboratory Diagnosis), the social service department, medical record library and blood transfusions. Cross references are utilized to avoid repetition. Thus, the treatment of shock is described under that heading, and a cross reference to it appears in discussions of conditions in which shock may occur.

To extend its applicability to a particular hospital, the form on the inside front cover is provided, with space for insertion of pertinent house phone numbers to be filled in by the intern.

The Manual has been designed as a guide and a reference. The procedures, though standard and tested, are to be followed with the approval of the attending physician. The intern is, of course, encouraged to review the current literature and to apply new knowledge to a problem as it becomes available.

The book was made possible by the cooperation of the many residents of our various departments who provided the material and by the department heads and attending staff who

generously contributed their advice and time. Dr. Carlo Scuderi made available the material on fractures, developed from his lectures to students of the University of Illinois College of Medicine.

Miss Irene Gordon, my secretary, has given valuable technical help and enthusiasm to the compiling of the material. The publisher has been most helpful and encouraging throughout its preparation.

A.B.

ABDOMINAL DISTENTION, see Surgical Complications

ABDOMINAL WOUNDS, PENETRATING
" " TRAUMATIC
} see Wounds, Penetrating, of Body Cavities

ABDOMINOPERINEAL RESECTION, see Pre- and Post-operative Care

ABSCESS, PELVIC
" PERIAPPENDICAL
" SUBPHRENIC
} see Appendicitis

ACIDOSIS, DIABETIC, see Diabetic Acidosis

AGED, SURGERY IN, see Geriatric Surgery

ALCOHOL-OXYGEN VAPOR THERAPY

(See also Acute Left Ventricular Failure, under Heart Disease).

(The use of alcohol-oxygen vapor therapy is not recommended if acute pulmonary infectious process is present.)

1. Place patient in sitting position with lower extremities dependent (if no contraindications; e.g., shock).
2. Insert nasal catheter so that tip is directly behind uvula.
3. Using ordinary oxygen tank and flowmeter equipment, place 95% ethyl alcohol (instead of water) in humidifier and fill to appropriate level.
4. Start oxygen flow at 2 L./min. and increase to 7 L./min. or more as tolerated in course of 2-5 minutes.
5. Note BP, pulse, respirations and temperature if not done earlier.
6. Repeatedly encourage patient to expectorate, if possible, during treatment.
7. At 30 minute intervals observe BP, pulse, respirations, etc., and determine need for further treatment. Continue therapy as long as improvement is evident but insufficient.

Note: (A) Maximum improvement is usually obtained in 60-90 minutes in acute attacks. Subacute cases usually require longer therapy and results are not so dramatic.
(B) Other therapy (e.g., morphine, venesection and rapid digitalization) should be used in conjunction with above.

ALCOHOLISM, see Poisoning

AMPUTATION, see Amputation of Leg, under Pre- and Postoperative Care

ANEMIAS, see Blood Dyscrasias

ANESTHESIA DEPARTMENT

Location of Equipment and Supplies

Drugs for premedication are obtained from drug room. Procaine, distilled water and saline are obtained from Sterile Solutions Dept. An adequate choice of vasopressors and other analeptics is available in Anesthesia Dept. Equipment and supplies may be borrowed from Anesthesia Dept. by authorized personnel trained in their use, if properly signed out and promptly returned.

Emergency intratracheal equipment is always available.

Preanesthetic Medication

Below are listed suggested premedications for various types of anesthesia. They are to be considered suggestions and should be modified under any special circumstances. Consult Anesthesia Dept. at any time in regard to choice of anesthesia. On questions about premedication, consult the Department as necessary.

As a general rule use light premedication before deep general anesthesia and heavy premedication before a weak anesthetic. Increase dosage for pain, thyrotoxicosis, nervousness, and muscular (but not merely fat) patients; also before local, spinal, and regional blocks. Decrease dosage in older, debilitated and toxic patients, and whenever in doubt.

Time of Administration: Important in order to obtain full benefit of premedication and to prevent some anesthetic complications.

2 hr. preop.:	Barbiturates
1½ hr. "	Hypo - morphine and scopolamine (or atropine).
In emergency:	Morphine and scopolamine I-V. Administer slowly over 5-10 min. Use 2/3 of usual dose.

Scopolamine (or atropine) should be given to every patient before any anesthetic. Scopolamine is preferred as it has a more potent drying effect on secretions, counteracts respiratory depressant effect of morphine, and has psychic sedative effect with some amnesia. It should not be given to patients over 60 or under 5 yr. of age; atropine should be used instead. Evening before surgery every patient should receive pentobarbital 3/4, 1½ or 3 gr. as sedation to insure good night's rest.

Before Inhalation Anesthesia

1. Nitrous Oxide-Ether or Cyclopropane

	Morphine	Scopolamine
Average patient	1/8 gr.	1/200 gr.
Small "	1/12 "	1/250 "
Robust "	1/6 "	1/150 "
Poor risk "	None	1/200 "
Child (5-10 yr.)	1/16 "	1/300 "

2. Nitrous Oxide or Ethylene

	Pentobarbital	Morphine	Scopolamine
Average pt.	3 gr.	1/6 gr.	1/150 gr.
Small "	1½ "	1/8 "	1/200 "
Robust "	3 "	1/4 "	1/100 "

3. Open Drop Ether (Tonsils)
   Adult: Morphine 1/8 gr.
   Scopolamine 1/200 gr.
   Child: Scopolamine 1/400 to 1/200 gr.

Before Spinal Anesthesia

	Pentobarbital	Morphine	Scopolamine
Average pt.	1½ gr.	1/6 gr.	1/150 gr.
Robust "	3 "	1/6 "	1/150 "
Poor risk "	None	None or 1/12 gr.	1/200 "
GU pt.	1½ gr.	None or usual dose if adult under 40 yr.	1/200 " (or atropine 1/120 gr.)

Before Intravenous Anesthesia

	Pentobarbital	Morphine	Scopolamine
Average pt.	None	1/6 gr.	1/150 gr.
Robust "	1½ gr.	1/6 "	1/150 "
Old or GU	3/4 "	None	1/200 " (or atropine 1/120 gr.)

Before Regional Anesthesia (Caudal, Brachial, Lumbar Sympathetic, Etc.)

	Pentobarbital	Morphine	Scopolamine
Average pt.	1½ gr.	1/6 gr.	1/150 gr.
Robust "	3 "	1/6 "	1/150 "
Poor risk"	1½ "	None	1/200 "

Before Any Extensive Local Anesthesia (O.R. or Ward)
Pentobarbital 3/4 to 3 gr.
Have anesthesia machine at hand in case of procaine reaction.

Choice of Anesthetic Agent

1. For average healthy patient for elective surgery, anesthetic agent preferred by surgeon should be given primary consideration, provided anesthetist is competent in technic and patient is amenable.
2. For patient presenting problem in choice of anesthetic due to complications, increased risk, unusual procedures, etc., conference between surgeon and physician anesthetist is desirable.
3. In every case, consent sheets must be signed by patient or guardian and anesthesia code sheets must be completed, even for local anesthesias given by interns on the ward.

General Considerations

Preparations for administration of any anesthetic involve certain duties.

1. All necessary equipment should be assembled beforehand.
   a. Apparatus for administering oxygen and artificial respiration should be present and in good working order.
   b. Working suction apparatus should be available for instant use.

2. Blood pressure apparatus must be applied to patient.
3. Attendant, nurse, or member of surgical team should remain with patient during induction period.

Do not anesthetize any patient unless an attendant is present as an assistant.

Do not anesthetize any patient who does not have restraints, properly applied.

Do not anesthetize patient on stretcher, roller or bed, where you cannot cope with emergencies instantly (e.g., emesis, fire hazards, etc.).

Spinal Anesthesia

Contraindications

1. Severe myocardial disease
2. Severe hypertension
3. Hypotension
4. Decompensation
5. Cerebrospinal disease
6. Anemia
7. Hemorrhage, dehydration, shock
8. Infections about vertebral column
9. Uncooperative patients
10. Anatomical disturbances of vertebral column

Drugs: Approximate Duration of Anesthesia

Procaine, $\frac{1}{2}$ - 1 hr.
Pontocaine, $1\frac{1}{2}$ - 2 hr.
Nupercaine, 2 - 3 hr.

Diagnostic and Therapeutic Nerve Blocks

Daily by appointment

Ward Anesthesia

General Anesthesia: May be given by member of Anesthesia Dept. or by authorized interns or residents with previous anesthesia training. Ward permits for administration of anesthetic must be obtained from office.

Local Anesthesia: Patient should receive adequate barbiturate premedication. Amount and concentration of drug must be kept within safe limits. Intravascular injection must be avoided.

Special Nerve Blocks: Any special nerve block (i.e., brachial plexus, stellate ganglion, intercostal, sciatic, continuous caudal, etc.,) may be given in consultation with member of Dept. who will give block himself or supervise its administration.

Consultation

Director of Department is available for consultation as to type of anesthetic and technic of administration in any surgical case. He is also available for consultation in the management of certain conditions in which cardiorespiratory system is involved; e.g., tetanus, barbiturate poisoning, acetylsalicylic acid poisoning, respiratory obstruction, advisability of using analeptic drugs or muscle relaxants, etc.

ANGIONEUROTIC EDEMA, see Urticaria

ANTICOAGULANT THERAPY

Selection of Conditions for Treatment

Indications

1. Pulmonary or peripheral embolism, with or without evidence of source of embolism.
2. Thrombophlebitis and phlebothrombosis.
3. Acute arterial occlusion, including peripheral thrombosis and embolism and acute thromboangiitis obliterans.
4. Acute myocardial infarction.
5. Vascular surgery.
6. Frostbite.
7. Any case recommended by resident or attending staff will be considered for anticoagulant treatment. (See Anticoagulant Service, below).

Contraindications and Precautions

Contraindications to and precautions in therapy are:

1. Hepatic insufficiency.
2. Renal insufficiency.
3. Purpuras or ulceration of gastrointestinal tract.
4. Recent operations or injuries to brain or spinal cord.
5. Blood dyscrasias with bleeding tendency.
6. Pregnancy.
7. Subacute bacterial endocarditis.

8. Performance of spinal punctures, sympathetic blocks. Avoid deep I-M injections.

General Principles

1. Notify anticoagulant service at once.
2. Determine clotting time and prothrombin level immediately.
3. Relieve pain to minimize spasm of vessel involved.
4. Start anticoagulant treatment immediately when surgery is not contemplated.
5. Methods of therapy are:
   Heparin: To be used for immediate effect.
   a. Determine initial clotting time (Lee-White).
   b. Give heparin I-V: 50 mg. every 3-4 hr., maintaining clotting time at 3-4 times patient's normal.
   c. For bleeding and overheparinization, give protamine sulfate, 50 mg. in 300 cc. saline or glucose I-V every 5-8 hr., and fresh blood if needed. Since heparin effect lasts only about 4 hours, bleeding is easily controlled with these measures.

   Dicumarol: Needs 48-72 hr., to achieve effective level. May be started with heparin.
   a. Obtain initial prothrombin level.
   b. If prothrombin level normal, give 300 mg. dicumarol on 1st day and usually 200 mg. the next. Subsequent dosage is regulated until prothrombin level reaches and is maintained at 20-30% or 2-3 times normal in seconds.
   c. For bleeding or severe hypoprothrombinemia, give 50-100 mg. vitamin K I-V and fresh blood transfusions as needed.

   Tromexan: Similar to dicumarol but acts more quickly and is excreted in shorter period. Larger doses are used; usually 1,200-1,800 mg. initially, subsequent doses according to prothrombin levels determined daily.
6. Watch patient carefully for bleeding and other thromboembolic episodes.
7. NEVER USE ANTICOAGULANT THERAPY WITHOUT PRELIMINARY AND SUBSEQUENT DAILY PROTHROMBIN OR CLOTTING TIME DETERMINATIONS.
8. If any complications occur during period of treatment, anticoagulant service should be notified immediately.

Anticoagulant Therapy Service*

Acceptance for Treatment: Member of anticoagulant service will see patient and upon acceptance of case will proceed with anticoagulant routine.

Anticoagulant Procedure:

1. Daily blood specimens for prothrombin determinations are drawn by anticoagulant service.
2. Anticoagulant medication is ordered and furnished daily to patient by anticoagulant service.
3. Daily record is kept on each chart of prothrombin values, dose and type of anticoagulant, any complications, and patient's progress.

ANTIDOTES, see Poisoning

ANTISEPSIS, see Zephiran

APPENDICITIS, ACUTE

History

Hour by hour. A consistently progressive course with occasional remission but no intermission. When pain and tenderness are gone no appendicitis remains.

Pain: Diffuse and colicky at onset with localization to or toward right lower quadrant in 1st 24 hr.; then becomes more constant and usually more severe. Materially disturbs sleep on 1st or 2d night or both.

Gastrointestinal Symptoms: Anorexia 95%; nausea 75%; vomiting 50%.

Physical Examination

Temperature: Above 99° per rectum with rare exceptions.

Pulse: Increased in proportion to temperature.

Abdominal Signs:

1. Tenderness. At McBurney's point or at site of appendix or both, and is both superficial and deep.

---

* Set up for experimental purposes at Cook County Hospital.

2. Muscular rigidity. Increased equally, bilaterally, when passing over tender area. Unilateral rigidity on bimanual palpation indicates presence of inflammatory mass.
3. Special signs. Rovsing's, Blumberg's, obturator, psoas, testicular pull, cutaneous hyperesthesia, Murphy punch.
4. Mass formation. Infrequent before 3d day.
5. Bowel sounds. May be hyperactive very early; then later be decreased or absent if diffuse peritonitis present.

Rectal Examination
Vaginal Examination

Work-Up

1. WBC usually above 10,000 but not as constant as presence of fever.
2. Cervical smear and sed. rate to rule out gonococcus in females.
3. Urinalysis.
4. Blood pressure.

Variations in Position of Appendix Which Affect Symptoms

Note: In appendicitis it is usually possible to diagnose position of appendix. Inability to do so usually speaks against appendicitis. The most common positions are listed.

1. Retrocecal and paracecal. Lateral findings are most general.
2. Retrocecal and extraperitoneal. Tenderness in lumbar region with no, or minimal, peritoneal findings.
3. Over kidney pelvis or uterer. Genitourinary findings.
4. Deep in pelvis. Tenderness more marked on rectal and vaginal examination.
5. Along terminal ileum and coiled about cecum.
6. Against peritoneum or obturator muscle.
7. Against peritoneum over vas deferens.
8. Free-lying.

Treatment

Simple Unruptured Appendicitis

Surgical removal on 1st or 2d day; occasionally on 3d