Third Edition

Accident and Emergency

Etiology, Diagnosis and Management

is the thoroughly revised and updated edition which focuses on the critical aspects of accident and emergency. New chapters on current topics and surgical emergencies have been added.

Accident and emergency is an emerging specialty stressing on the knowledge and medical skills required for the prevention, diagnosis and management of the acute and urgent aspects of illness and injury, affecting patients of all age groups covering physical and behavioral disorders. As time is the critical factor in this specialty, this book is planned to serve as a handy guide and reference on widely accepted techniques currently available for finding •Causes, •clinical diagnosis, •investigations and •management of acute medical emergencies and other •common disorders.

The contents of this book are presented in five parts

I Introduction (History Taking and Physical Examination)
II Medical Emergencies
III Accident Emergencies
IV Surgical Emergencies
V Administrative and Legal Considerations
Appendices

The book discusses acute emergencies as well as some other common disorders for which the patients visit the department of accident and emergency for consultation and treatment. Special chapters on pediatric infections, cardiovascular disease, psychiatric problems, obstetrics and gynecological problems, environmental disorders, acute abdomen, and fractures are intended to serve as medically-oriented discussions in patient-care. Special attention has been given to recent developments such as pandemic Covid-19 and other infections; and in orthopedic surgery such as interlocking nailing, total joint replacement, revised hip arthroplasty, anterior cruciate ligament replacement and arthroscopic surgery.

The book primarily aims at the medical students, residents, medical officers and all other professionals forming the main and support teams in the department of accident and emergency (A&E) in a hospital.

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Dedicated to Education
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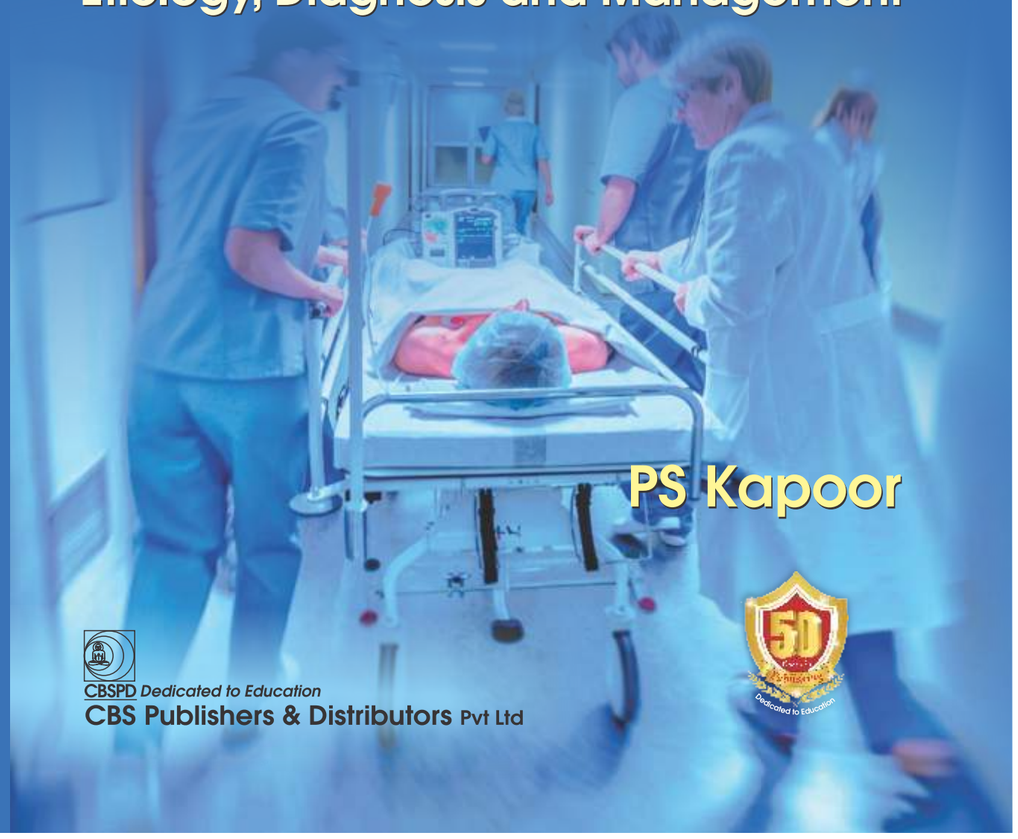

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Contents

Abbreviations

A&E	Accident and emergency
Ab	Antibody
ABC	Airway, breathing, circulation
ABG	Arterial blood gases
ACE	Angiotensin-converting enzyme
ACEI	Angiotensin-converting enzyme inhibitor
ACL	Anterior cruciate ligament
ACLS	Advanced cardiac life support
ACS	Acute cardiac syndrome
ACTH	Adrenocorticotropic hormone
ADH	Antidiuretic hormone
AF	Atrial fibrillation
AFB	Acid-fast bacillus
Ag	Antigen
AHF	Anti-hemophilic factor
AIDS	Acquired immune deficiency syndrome
AKPOP	Above knee plaster of Paris
AMI	Acute myocardial infarction
ANF	Antinuclear factor
A-O (ASIF)	Association for the study of internal fixation
APH	Ante-partum hemorrhage (hemorrhage)
ATS	Anti-tetanus serum
APLS	Advanced pediatric (paediatric) life support
AP	Anteroposterior
AR	Aortic regurgitation (incompetence)
ARBS	Angiotensin II receptor blockers
ARDS	Adult respiratory distress syndrome
ART	Antiretroviral therapy
AS	Aortic stenosis
ASAP	As soon as possible
ASD	Atrial septal defect
ATLS	Advanced trauma life support
AV	Atrioventricular
AXR	Abdominal X-ray
BAL	Bronchoalveolar
BACTEC	Bacterial culture
BCG	Bacille Calmette-Guérin
b.d.i.	Bis die (twice daily)
b.i.w.	Twice a week
BKPOP	Below knee plaster of Paris
BLI	Blast injury
BLS	Basic life support
BMD	Bone mineral density
BMJ	British Medical Journal
BMT	Bone marrow transplant
B/L	Bilateral
BLI	Blast injury
BP	Blood pressure
BSA	Blood spectrum antibiotic
BUN	Blood urea nitrogen
Ca	Carcinoma
Ca^{+}	Calcium
CABG	Coronary artery bypass grafting (surgery)
CAD	Coronary artery disease
C1	First cervical vertebra
C2	Second cervical vertebra
C7	Seventh cervical vertebra
CBF	Cerebral blood flow
CBV	Cerebral blood volume
CCU	Coronary care unit
CHF	Congestive heart failure
Cl	Chloride
C/I	Contraindication
CK	Creatine kinase
Cm	Centimeter (s)
CNS	Central nervous system
CO	Carbon monoxide
CO_2	Carbon dioxide
COHb	Carboxyhemoglobin
COPD	Chronic obstructive pulmonary disease
CPR	Cardiopulmonary resuscitation
CPAP	Continuous positive airways pressure
CPP	Cerebral perfusion pressure
CRP	C-reactive protein
CRT	Cardiac resynchronization therapy
CSF	Cerebrospinal fluid
CT	Computerised (axial) tomography

$CuSO_4$	Copper sulphate
CVA	Cerebrovascular accident
CVD	Cardiovascular disease
CVP	Central venous pressure
CVS	Cardiovascular system
CXR	Chest X-ray
D	Dimension
dB	Decibel
DBS	Deep brain stimulation
DBP	Diastolic blood pressure
DC	Direct current
D&C	Dilatation and curettage
DCS	Dynamic condylar screw
DHS	Dynamic hip screw
DEXA	Dual energy X-ray absorptiometry
DFN	Distal femoral nail
D&I	Dilatation and insufflation
DIP	Distal interphalangeal joint
dL	Decilitre
DLC	Differential leucocytic count
DM	Diabetes mellitus
DMARDs	Disease modifying anti-rheumatic drugs
DNA	Deoxyribonucleic acid
DOT	Directly observed treatment
DPL	Diagnostic peritoneal lavage
DSS	Dengue shock syndrome
DT	Delirium tremens
DU	Duodenal ulcer
DVT	Deep vein thrombosis
EBM	Evidence based medicine (journal)
ECF	Extracellular fluid
ECG	Electrocardiogram
Echo	Echocardiogram
ECT	Electroconvulsive therapy
ED	Emergency department
EEG	Electro-encephalography
e.g.	For example
EMG	Electromyogram
ENT	Ear, nose and throat
EOD	Every other day (syn. alternate day)
EPTB	Extrapulmonary tuberculosis
ESR	Erythrocyte sedimentation rate
ET	Endotracheal
ETOH	Exposure to occupational hazards
EX	Explosive pressure
FB	Foreign body
FBC	Full blood count
FBS	Fasting blood sugar
FH	Family history
FISH	Fluorescence *in situ* hybridisation
FSH	Follicle stimulating hormone
G	Gauge
g	Gram (s)
GA	General anaesthesia
GCS	Glasgow Coma Score
GERD/ GORD	Gastroesophageal disorder
GI	Gastrointestinal
GIT	Gastrointestinal tract
GP	General practitioner
GTN	Glyceryl trinitrate
GTT	Glucose tolerance test
Hb	Hemoglobin (haemoglobin)
HbA1c	Hemoglobin glycosylated
HBV	Hepatitis B virus
HCG	Human chorionic gonadotrophin
HCO_3	Bicarbonate
H_2CO_3	Carbonate
HDL	High density lipoprotein
Hg	Mercury
HiB	Haemophilus influenzae type B
HIV	Human immunodeficiency virus
HOB	Head end of bed
hr	Hour
HPLC	High performance liquid chronography
HRT	Hormone replacement therapy
HTIG	Human tetanus immunoglobulin
Ib/ibid	In the same place
ICP	Intracranial pressure
ICS	Intercostal space
ICU	Intensive care unit
i.e.	That is
Ig A, G, E	Immunoglobulin A, G, E
IHD	Ischemic heart disease
i.m. (IM)	Intramuscular
Inf	Inferior
IQ	Intelligence quotient
IP	Interphalangeal
Iu	International unit
IUCD	Intrauterine contraceptive device
IV	Intravenous
IVI	Intravenous infusion
IVP	Intravenous pyelography
IVU	Intravenous urogram
JVP	Jugular venous pressure
K^+	Potassium
KCl	Potassium chloride

kg	Kilogram
kl	Kilolitre
KUB	Kidneys, ureters, bladder
L	Litre
LA	Local anaesthesia
Lab	Laboratory
LAD	Left axis deviation
LAT	Lateral
LBBB	Left bundle branch block
LFTs	Liver function tests
LH	Luteinizing hormone
LMP	First day of last menstrual period
LP	Lumbar puncture
LSD	Lysergic acid diethylamide
LVF	Left ventricular failure
LVH	Left ventricular hypertrophy
MAOI	Monoamine oxidase inhibitor
max	Maximum
MC	Metacarpal
MCH	Mean corpuscular haemoglobin
MCHC	Mean corpuscular hemoglobin concentration per cent
MCP	Metacarpophalangeal
MCV	Mean cell volume
MDO	Medical defence organisation
mEq/L	Milliequivalents per litre
mg	Milligrams
MHA	Mental health act
MI	Myocardial infarction
MI	Missile injuries
mL	Millilitre
mm Hg	Millimetres of mercury
mmol	Millimoles
mU	Million units
MR	Mitral regurgitation
MRI	Magnetic resonance imaging
MSU	Midstream urine
MTP	Metatarsophalangeal
Na^+	Sodium
NaCl	Sodium chloride
NF	Nasal fracture
NBM	Nothing by mouth
NG	Nasogastric
NHS	National health service
NICU	Neonatal intensive care unit
NMDA	N-methyl-d-aspartate
N_2O	Nitrous oxide
NPO	Nothing by mouth
NSAIDs	Nonsteroidal anti-inflammatory drugs
NSTEMI	Non-ST elevation myocardial infarction
N&V	Nausea and/or vomiting
NWBPOP	Non-weight bearing plaster of Paris
O_2	Oxygen
OA	Osteoarthritis
o.d. (od)	Omni die (once daily)
OD	Overdose
O&G	Obstetrics and gynaecology
om	Omni mane (in the morning)
on	Omni nocte (at night)
OPD	Out-patients department
ORIF	Open reduction and internal fixation
ORT	Oral replacement therapy
PA	Postero-anterior
$PaCO_2$	Partial pressure of carbon dioxide (arterial)
PCR	Polymerase chain reaction
PCV	Packed cell volume
PaO_2	Partial pressure of oxygen (arterial)
PIP	Proximal interphalangeal
PO	Per os (orally/by mouth)
POP	Plaster of Paris
P/R	Per-rectum
PTA	Post-traumatic amnesia
PUO	Pyrexia of unknown origion
P/V	Per vaginum
PW	Penetrating wounds
q.d.s.(qds)	Quater die sumendum (four times daily)
q.i.d.	Quater in die (4 times a day)
RA	Rheumatoid arthritis
RBBB	Right bundle branch block
RBC	Red blood cell
Rh	Rhesus
RNA	Ribonucleic acid
Rt	Right
RVF	Right ventricular failure
RVH	Right ventricular hypertrophy
SA	Sino-atrial
SARS	Severe acute respiratory syndrome
SaO_2	Arterial oxygen saturation
SBE	Subacute bacterial endocarditis
s.c.(S/c)	Subcutaneously
SE (S/E)	Side-effect(s)
SH	Septal hematoma
Sec	Second(s)
SIDS	Sudden infant death syndrome
SL	Sublingual
SLE	Systemic lupus erythematosus
SLR	Straight leg raising

Stat	Immediately
STD	Sexually transmitted disease
STEMI	ST-elevation myocardial infarction
Sup	Superior
SXR	Skull X-ray
TB	Tuberculosis
t.d.s.(TDS)	Ter in die sumendus (three times daily)
TFTs	Thyroid function tests
TIA	Transient ischaemic attack
t.i.w.	Three times per week
TLC	Total leucocytic count
TSH	Thyroid stimulating hormone
TURP	Transurethral resection of the prostate
U/u	Unit
U&E	Urea and electrolytes
µg	Microgram
URC	Upper respiratory catarrh
UTI	Urinary tract infection
USS	Ultrasound (ultrasonography) study
V	Volts
VA	Visual acuity
VDRL	Venereal diseases research laboratory
VF	Ventricular fibrillation
VT	Ventricular tachycardia
WI	Warfare injuries
WBC	White blood cell(s)
WCC	White cell count
WHO	World Health Organization
Wk(s)	Week(s)
wt	Weight
X-match	Cross-match blood
Yr(s)	Year(s)
ZN	Ziehl-Neelsen syndrome

Triage of Medical/ Surgical Emergency Patient

Triage is a French word meaning sorting, selection, choice. It is the process of sorting patients based upon their requirement of immediate medical or surgical treatment as compared to their chance of benefiting from such care. Patients visiting A&E are to be sorted immediately by an experienced triage staff on duty in order to attend to serious patients on priority basis. A strategy must be driven for the detection of the highest risk group in whom immediate intervention can improve outcome. The decision has to be taken upon considering the seriousness of the illness or injury, e.g. critical, serious or alert (Table: Triage).

Triage of Medical/Surgical Emergency Patient

Risk group	*Airway*	*Priority*	*Care*
Critical (Highest)	Unconscious Breathless Airway obstructed	1st	Immediate
Serious (High)	Semiconscious Breathing noisy Airway obstructed	2nd	Within 2–5 min
Alert (Low)	Conscious Talking Airway patent	3rd	Within 30 min

The A&E staff must have a clear knowledge of the benefit and harm of each therapy, allowing formulation of a simple approach to treatment selection based upon the disease or injury presentation. Properly attended or treated, acute emergency should have low hospital mortality, but if left neglected or untreated, mortality is high. Proper history taking and investigations usually suffice for diagnosis. Careful surveillance and management, including invasive management in selected cases, substantially reduce long-term risks. The clinical question is which patients with acute symptoms have a presentation benign enough to make discharge from the A&E department safe and appropriate.