

L. Wille M. Obladen

Neonatal Intensive Care

Principles and Guidelines

With a Section on Neonatal Cardiology
by H. E. Ulmer

Foreword by A. Merritt

bladen

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With 49 Figures and 76 Tables



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The significant strides made during the past decade in neonatal medicine are based largely upon the provision of intensive perinatal care to the parturient, her fetus, and the newborn. In addition to technologic advances in the bioelectric monitoring of the fetus and newborn, the introduction of noninvasive methods to monitor oxygenation, the pharmacologic manipulation of the ductus arteriosus and pulmonary vasculature, and the use of ultrasonographic diagnosis of congenital heart defects and other lesions, intensive efforts by neonatal specialists throughout the world have also contributed to the decline in neonatal and infant mortality. Professors Wille and Obladen have provided an authoritative manual outlining intensive care of newborns and the ways in which the science of neonatal medicine, the technology of the 1980s, and the art of application have resulted in the practice of neonatal intensive care at the Kinderklinik of the University of Heidelberg. The English translation resulted from the success of the German edition and will serve well the needs of the English-speaking student and practitioner of neonatal intensive care.

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Preface to the English Edition

The unexpectedly friendly reception accorded our book and the further development of neonatal intensive care have necessitated revision of the first edition only one year after its publication. Our readers have made many critical proposals as to possible improvements for which we would like to thank them. Those chapters on patient supervision, oxygen therapy, artificial ventilation, pulmonary diseases, and cardiological problems have been particularly modified and expanded; new sections dealing with acute renal failure and long-term prognosis following neonatal intensive care have been added, as have tables concerning instruments and pharmacotherapy. The positive response and great demand which these guidelines on clinical practice have met within such a short space of time gave rise to the present English version, designed to make the original book accessible to neonatologists and nurses working within the field of neonatal intensive care in English-speaking countries. The task of translation was kindly accepted by T. C. Telger. Special thanks are extended to T. Allen Merritt, who undertook the difficult assignment of critically examining the text from the point of view of an experienced specialist in perinatal care. Exceptional support in the preparation of the manuscript was provided by our secretary, Mrs. Engelhorn.

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Heidelberg, November 1980

Lutz Wille
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Preface to the First German Edition

Neonatal intensive care is inseparably linked with neonatology. An understanding of the physiology and pathophysiology of the first four weeks of life, knowledge of the symptoms and differential diagnosis of acute neonatal diseases and dysmorphic syndromes, and a familiarity with advanced medical technology and equipment, combined with extensive clinical experience and manual dexterity, are important elements in the clinical care of critically ill newborns. The stimulus for this book was the desire of the residents and nurses in our neonatal intensive care unit (NICU) for a revised version of our NICU "bible", a collection of brief, specific guidelines for everyday clinical practice at the University of Heidelberg. Their skillful observations and enthusiasm served as the resource for the present material. This book is concerned primarily with therapeutic modalities, the practical and technical aspects of mechanical ventilation, and the techniques of intensive care. For the study of basic clinical pediatrics, neonatology, neonatal physiology and pathophysiology, the reader is referred to the extensive standard texts in these fields.

Our book represents a summary of therapeutic practices in *one* intensive care facility. It cannot be complete and will have to be continuously modified in accordance with the rapid developments in our discipline. We are also certain that different methods of treatment can be employed with equal success at different intensive care units.

The "working guidelines" presented here must be regarded as simplified suggestions which can be modified as circumstances warrant. They are not intended as a "cookbook" to be followed uncritically: Schemata are no substitute for thoughtful initiative and thorough discussions among those caring for the sick newborn.

Neonatal intensive care cannot be learned from the literature. We are therefore grateful to Prof. H. Bickel, who gave us the opportunity to gain our own experience at the intensive care

facilities in Lausanne (L. S. Prod'hom), Copenhagen (B. Friis-Hansen), Helsinki (N. Hallman), and San Diego (L. Gluck). Prof. H. Plücker has shared with us his extensive knowledge and experience in the field of neonatology, and his thoughtful discussions remain a constant stimulus for us to analyze and find practical solutions for clinical problems in neonatology. We are also grateful to the staff of Springer Verlag for their patient cooperation during preparation of the manuscript and for bringing it so quickly to press.

Heidelberg, September 1977

Lutz Wille
Michael Obladen

Abbreviations

ACD	Acid-Citrate-Dextrose Anticoagulant
ACG	Angiocardiography
ADH	Antidiuretic Hormone
AGA	Appropriate for Gestational Age
BAS	Ballon Arteriotomy
BE	Base Excess
BPD	Bronchopulmonary Dysplasia
BPM	Beat per Minute
BVH	Biventricular Hypertrophy
BW	Body Weight
CC	Cardiac Catheterization
CCMP	Cardiomyopathy of the Congestive Type
CDP	Continuous Distending Pressure
CNP	Continuous Negative Pressure
CNPV	Continuous Negative Pressure Ventilation
COA	Coarctation of the Aorta
CPAP	Continuous Positive Airway Pressure
CTG	Cardiotocography
CVP	Central Venous Pressure
DDAVP	1-Deamino-8-D-Arginine Vasopressin
DIC	Disseminated Intravascular Coagulation
DOCA	Deoxycorticosterone Acetate
ECG	Electrocardiography
EEG	Electroencephalography
EFE	Endocardial Fibroelastosis
ET	Exchange Transfusion
FiO ₂	Fractional Concentration of O ₂ in Inspired Air
Hb	Hemoglobin Concentration
HCMP	Cardiomyopathy of the Hypertrophic Type
HK	Hematocrit
HLHS	Hypoplastic Left Heart Syndrome
HOT	Hyperoxia Test
HTSI	Human Thyroid Stimulating Immunglobulin
ICS	Intercostal Space
I:E Ratio	Inspiratory Time-Expiratory Time Ratio

IM	Intramuscular
IMV	Intermittent Mandatory Ventilation
IPPV	Intermittend Positive Pressure Ventilation
IV	Intravenous
ICU	Intensive Care Unit
LA	Left Atrium
LA/Ao	Left Atrial-Aortic Diameter Ratio
LAD	Left-Axis Deviation
LATS	Long Acting Thyroid Stimulator
LD	Loading Dose
LGA	Large for Gestational Age
LV	Left Ventricle
MD	Maintenance Dose per Day
NICU	Neonatal Intensive Care Unit
NP	Neonatal Period
PaO ₂	Arterial Oxygen Partial Pressure
PCG	Phonocardiography
PCO ₂	Carbon Dioxide Partial Pressure
PDA	Patent Ductus Arteriosus
PEEP	Positiv End-Expiratory Pressure
PFC	Persistence of Fetal Circulation
PO ₂	Arterial Oxygen Partial Pressure
PT	Prothrombin Time
PTT	Partial Thromboplastin Time
RA	Right Atrium
RDS	Respiratory Distress Syndrome
RV	Right Ventricle
RVH	Right Ventricular Hypertrophy
SaO ₂	Aterial Oxygen Partial Saturation
SC	Subcutaneous
SGA	Small for Gestational Age
StB.	Standard Bicarbonate
TV	Tidal Volume
tcPO ₂	Transcutannous Aterial Oxygen Partial Pressure
TGA	Transposition of the Great Arteries
THAM	Trometamol
UAC	Umbilical Artery Catheter
UVC	Umbilical Vein Catheter
VSD	Ventricular Septual Defect

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