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Complete Summary

GUIDELINE TITLE

Levels of neonatal care.

BIBLIOGRAPHIC SOURCE(S)

Stark AR, Couto J. Levels of neonatal care. Pediatrics 2004 Nov;114(5):1341-7. [47 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

American Academy of Pediatrics (AAP) Policies are reviewed every 3 years by the authoring body, at which time a recommendation is made that the policy be retired, revised, or reaffirmed without change. Until the Board of Directors approves a revision or reaffirmation, or retires a statement, the current policy remains in effect.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Pre-term birth or serious medical or surgical conditions requiring intensive neonatal care

GUIDELINE CATEGORY

Management

CLINICAL SPECIALTY

Critical Care
Family Practice
Obstetrics and Gynecology
Pediatrics

INTENDED USERS

Hospitals
Physicians

GUIDELINE OBJECTIVE(S)

To review the current status of the designation of neonatal intensive care units (NICUs) in the United States and the association of the designated level of care of the site with neonatal outcomes and to make recommendations for uniform nationally applicable definitions of levels of neonatal intensive care that are based on the capability of facilities to provide increasing complexity of quality care

TARGET POPULATION

High-risk infants including those born preterm or with serious medical or surgical conditions

INTERVENTIONS AND PRACTICES CONSIDERED

Management

1. Establishment of regional systems of perinatal care
2. Establishment of uniform classification of the functional capabilities of facilities
3. Establishment of uniform national standards such as requirements for equipment, personnel, facilities, ancillary services, and training, and the organization of services (including transport)
4. Collection of population-based data on patient outcomes, including mortality, specific morbidities, and long-term outcomes

MAJOR OUTCOMES CONSIDERED

Neonatal outcomes, such as morbidity and mortality

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METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Not stated

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

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RECOMMENDATIONS

MAJOR RECOMMENDATIONS

1. Regionalized systems of perinatal care are recommended to ensure that each newborn infant is delivered and cared for in a facility appropriate for his or her health care needs and to facilitate the achievement of optimal outcomes.
2. The functional capabilities of facilities that provide inpatient care for newborn infants should be classified uniformly, as follows:

    - Level I (basic): a hospital nursery organized with the personnel and equipment to perform neonatal resuscitation, evaluate and provide postnatal care of healthy newborn infants, stabilize and provide care for infants born at 35 to 37 weeks' gestation who remain physiologically stable, and stabilize newborn infants born at less than 35 weeks' gestational age or ill until transfer to a facility that can provide the appropriate level of neonatal care
    - Level II (specialty): a hospital special care nursery organized with the personnel and equipment to provide care to infants born at more than 32 weeks' gestation and weighing more than 1500 g who have physiologic immaturity such as apnea of prematurity, inability to maintain body temperature, or inability to take oral feedings; who are moderately ill with problems that are expected to resolve rapidly and are not anticipated to need subspecialty services on an urgent basis; or who are convalescing from intensive care. Level II care is subdivided into 2 categories that are differentiated by those that do not (level IIA) or do (level IIB) have the capability to provide mechanical ventilation for brief durations (less than 24 hours) or continuous positive airway pressure.
    - Level III (subspecialty): a hospital neonatal intensive care unit (NICU) organized with personnel and equipment to provide continuous life support and comprehensive care for extremely high-risk newborn infants and those with complex and critical illness. Level III is subdivided into 3 levels differentiated by the capability to provide advanced medical and surgical care.

    Level IIIA units can provide care for infants with birth weight of more than 1000 g and gestational age of more than 28 weeks. Continuous life support can be provided but is limited to conventional mechanical ventilation.

    Level IIIB units can provide comprehensive care for extremely low birth weight infants (1000 g birth weight or less and 28 or less weeks' gestation); advanced respiratory care such as high-frequency ventilation and inhaled nitric oxide; prompt and on-site access to a full range of pediatric medical subspecialists; and advanced imaging with interpretation on an urgent basis, including computed tomography, magnetic resonance imaging, and echocardiography and have pediatric surgical specialists and pediatric anesthesiologists on site or at a closely related institution to perform major surgery.

    Level IIIC units have the capabilities of a level IIIB neonatal intensive care unit and are located within institutions that can provide extracorporeal membrane oxygenation (ECMO) and surgical repair of serious congenital cardiac malformations that require cardiopulmonary bypass.

3. Uniform national standards such as requirements for equipment, personnel, facilities, ancillary services, and training, and the organization of services (including transport) should be developed for the capabilities of each level of care.
4. Population-based data on patient outcomes, including mortality, specific morbidities, and long-term outcomes, should be obtained to provide level-specific standards for volume of patients requiring various categories of specialized care, including surgery.

CLINICAL ALGORITHM(S)

None provided

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EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting each recommendation is not specifically stated.

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BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Development of uniform definitions of levels of care offers at least 4 advantages that may improve the assessment of outcomes for high-risk newborn infants and provide the basis for policy decisions that affect allocation of resources.

1. Standard definitions will permit comparisons for health outcomes, resource utilization, and costs among institutions
2. Standardized nomenclature will be informative to the public, especially high-risk maternity patients who may seek an active role in selecting a delivery service
3. Uniformity in definitions of levels of care published by a professional organization will minimize the perceived need for businesses that purchase health insurance for their employees to develop their own standards
4. Uniform definitions will facilitate the development and implementation of consistent standards of service provided for each level of care.

Most studies that link neonatal outcomes with levels of perinatal care indicate that morbidity and mortality for very low birth weight (VLBW) infants are improved when delivery occurs in a subspecialty facility rather than a basic or specialty facility even after adjustments for severity of illness.

POTENTIAL HARMS

Not stated

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IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

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INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness

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IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004 Nov

GUIDELINE DEVELOPER(S)

American Academy of Pediatrics - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Pediatrics

GUIDELINE COMMITTEE

Committee on Fetus and Newborn

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee on Fetus and Newborn, 2003-2004: Lillian Blackmon, MD, *Chairperson*; Daniel G. Batton, MD; Edward F. Bell, MD; Susan E. Denson, MD; William A. Engle, MD; William P. Kanto, Jr, MD; Gilbert I. Martin, MD; *Ann R. Stark, MD

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

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GUIDELINE AVAILABILITY

Electronic copies: Available from the American Academy of Pediatrics (AAP) Policy Web site.

Print copies: Available from American Academy of Pediatrics, 141 Northwest Point Blvd., P.O. Box 927, Elk Grove Village, IL 60009-0927.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 11, 2005. The information was verified by the guideline developer on February 10, 2005.

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