



Topic Expert Group: NICU design

Core principles of NICU design to promote family-centred care

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Target group

Infants, parents, and families

User group

Healthcare professionals, neonatal units, hospitals, health services, and other relevant stakeholders

Statement of standard

Neonatal care is optimised by utilising key design elements to promote the family as primary care givers throughout the stay.

Rationale

The design of the NICU may modulate significantly both short-term and long-term outcomes of neonatal care. (1–4) Family-centred care (5,6) may be achieved independently of NICU design, but the health benefits of daily parent participation, interaction, and skin-to skin care are significantly improved if the environmental design allows privacy and protects from visual and auditory stress. (7–11) Facilitating unrestricted parent-infant closeness and skin-to-skin care represent an underestimated parent opportunity for improving outcomes for infants. Benefits of family-centred care include reduced pain and stress (12,13), reduced sepsis (1,2,4), improved cardiovascular stability (14,15) and sleep (16,17), together with improved exclusive breastfeeding (1,18), improved parental confidence, interaction and bonding (18–21), which lead to decreased length of stay (4) and readmission rates (22) and improved neurodevelopmental outcomes. (23–25)

The United Nations Convention on the Rights of the Child states that “*The child ... shall have the right from birth to ... be cared for by his or her parents*” (Article 7), and that “*Parties shall ensure that a child shall not be separated from his or her parents against their will*” (Article 9). (26)

The charter of the European Association for Children in Hospital states that “*Children should have the right to have their parents or parent substitute with them at all times*” (Article 2) and that “*Accommodation should be offered to all parents and they should be helped and encouraged to stay*” (Article 3). (27)

Benefits

Short-term benefits

- Facilitated implementation of family-centred and developmental care (2,5,8) (see TEG Infant- & family-centred developmental care)
- Improved parental presence, confidence and parent-infant interaction both pre- and post-discharge (10,11,18–21)
- Reduced rate of late-onset neonatal sepsis (2,28)



Long-term benefits

N/A

Components of the standard

Component	Grading of evidence	Indicator of meeting the standard
For parents and family		
1. Parents and family are informed by healthcare professionals about NICU design and are part of the planning process for NICU design.	B (High quality)	Parent feedback, patient information sheet, training documentation
2. Parents are educated by healthcare professionals about housekeeping rules, patient safety and hygiene, to facilitate their active role in the care of their infant.	B (Moderate quality)	Training documentation
For healthcare professionals and relevant stakeholders		
3. A unit guideline on the organisation of care in developmentally supportive adapted NICU design is adhered to by all responsible stakeholders.	B (High quality)	Guideline
4. Training on the basic emotional, social and psychologic needs of patients, parents and siblings, and of the principles of family-centred care is attended by all responsible healthcare professionals and stakeholders before they are involved in the planning process for a new unit. (see TEG Infant- & family-centred developmental care)	B (High quality)	Training documentation
5. Healthcare professionals are part of the planning process for a NICU design.	B (High quality)	Audit report
For neonatal unit and hospital		
6. A unit guideline on the organisation of care in developmentally supportive adapted NICU design is available and regularly updated.	B (High quality)	Guideline
7. Training on the basic emotional, social and psychologic needs of patients, parents and siblings, and of the	B (High quality)	Training documentation



principles of family-centred care for everyone participating in the planning process is ensured. (see TEG Infant- & family-centred developmental care)

8. Family-centred care supportive areas are included during the design process.	B (Moderate quality)	Audit report
9. Patient treatment area: each patient space has at least enough room for a comfortable chair and a hospital bed for parents next to the infant's cot (minimal space 18 m ²) (9,10) taking into account family integrity and privacy; additionally separate parent sleeping facilities including a toilet and shower are sited within the neonatal unit (minimal space 10 m ²).	A (Moderate quality)	Audit report
10. Single occupancy areas: facilities for infants and caregivers are located in the same room (minimum space 24 m ²) (2,9,10), and designed to take into account family integrity and privacy. (9,10)	A (Moderate quality)	Audit report
11. Clinical and monitoring working areas are located in close proximity to patient areas.	B (High quality)	Audit report
12. Areas for eating and socialising for parents, private rooms for parent counselling, and staff rooms out of sight of parents are available on the ward.	B (High quality)	Parent feedback
13. Bereavement space and space to stay with the infant after death is provided within the design.	B (High quality)	Audit report
14. The unit is built to comply with patient safety standards.	B (High quality)	Audit report
For health service		
15. A national guideline for NICU design incorporating the principles of family-centred care is available and regularly updated.	B (High quality)	Guideline



16. Parents and NICU healthcare professionals are involved in guideline development and planning processes	B (High quality)	Guideline
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Where to go – further development of care

Further development	Grading of evidence
For parents and family	
<ul style="list-style-type: none">Parents are present in single-family rooms. (2,3,28)	A (Moderate quality)
For healthcare professionals and relevant stakeholders	
N/A	
For neonatal unit	
<ul style="list-style-type: none">Provide single-family rooms and rooms adequately sized for care of multiple births. (2,3,28)	A (Moderate quality)
For hospital	
<ul style="list-style-type: none">Provide single-family rooms and rooms adequately sized for care of multiple births. (2,3,28)	A (Moderate quality)
For health service	
<ul style="list-style-type: none">Incorporate the single-family-room concept in national guidelines.	B (Moderate quality)

Getting started

Initial steps

For parents and family

- Parents and family are verbally informed by healthcare professionals about NICU design, housekeeping rules, patient safety and hygiene.
- Parent representatives are encouraged to express parents' needs regarding NICU design.

For healthcare professionals and relevant stakeholders

- Attend training on basic emotional, social and psychologic needs of patients, parents and siblings, and of the principles of family-centred care to support future changes.

For neonatal unit and hospital

- Develop and implement a guideline on the organisation of care in developmentally supportive adapted NICU design.
- Develop information material on NICU design, housekeeping rules, patient safety and hygiene for parents.
- Involve all relevant stakeholders for the process of NICU design.
- Provide space for a comfortable chair for each parent.
- Guarantee privacy (e.g. by putting up a folding screen).
- Provide adequate and secluded space for pumping of breast milk.
- Identify areas in need of change and improvement and support implementation of and solutions for family-centred care.

For health service

- Develop and implement a national guideline on the organisation of care in



- developmentally supportive adapted NICU design.
- Develop a policy promoting family-centred care.

Description

The standard focuses on the architectural and technical elements necessary to provide family-centred care at the cot side, consistent with the UN convention on the rights of the child. Elements that are not specific to the implementation of these care principles are not covered in this standard but are extensively covered in the standard for neonatal intensive care units by White et al. (29)

The most difficult and challenging aspect of planning a NICU environment centred around the family and newborn infant is the change in culture and mind-set that has to take place among staff and administrators. This process has to start years before the physical planning. It requires leadership with dedication and in-depth understanding and knowledge of the combined scientific and humanistic approach necessary to create a caring environment combining principles of family-centred care with high quality intensive care. It also requires knowledge and a will to work by the principles of shared decision making in healthcare.

Planning for a NICU environment facilitating optimal conditions for infant-parent contact and skin-to-skin care cannot be based only on scientific evidence, although evidence exists. A main source of information and input should come through visitation to units that has gone through the process of redesigning, and discussion with colleagues in these units about strengths and weaknesses of their design is a valuable source of information.

In the planning process, it should be acknowledged that there may be a conflict between the patient and families' preferences and the preferences of the staff, building and technical department or the administration. Such conflicts should be handled with great caution with respect to the patients' perspective, as the voice of the patient may otherwise be too weak to be heard. Free-speaking competent advocates for the patients' interests should be appointed early in the planning process.

As part of the process, and before a full scale major re-design of a unit is taking place, leaders should be aware to the possibilities that minor physical changes or procedures in the existing unit allow introduction of new caring principles. An example may be to allow one or two parent beds to be placed beside the incubator or cot and then let the parents practice skin-to-skin care for as long as they wish with support from the staff. This will demonstrate to the staff that alternative ways of providing care is possible. It may also help the staff to see that most parents are very eager to participate and be present, and through participation are empowered to an extent that changes the traditional roles between staff and parents.

Although NICU healthcare professionals may be very experienced in what they are doing, it should be kept in mind that experience is most valid in the setting where it was gained. When family-centred care is introduced the setting is fundamentally changed. Parents become the best observers of their child, they represent the best continuity of care and they learn skills in caring for their child that may challenge the traditional roles of the staff. Parents are empowered and as their competence



increase they may appropriately question treatment decisions or procedures carried out by the staff.

The challenge of the staff adapting to empowered and protective parents, legitimately opposing treatment strategies or decisions from the staff, change the traditional balance in the NICU. It has also been shown to reduce diagnostic testing with all the pitfalls of over-diagnosis and overtreatment without putting the child at risk of adversities. (2,30)

The challenges of redesigning a NICU focussed on family-centred care is well known and foreseeable. If adequate strategies are not developed and risks handled well ahead of implementation, the risk profile may be high. There are two studies from one single unit that has presented data in conflict with the rest of the published literature. They found increased stress among the staff and poorer neurodevelopmental outcome in infants after introduction of single-family rooms (30, 31). From the first of these two papers it seems that parental visitation rate and participation is very low compared in European NICU's (32), and the unfavourable results may to some extent be explained by limitations and difficulties integrating parents in care. (31)

Single family rooms and NICU design is no goal in itself; it is a tool to fulfil the rights of the child to have its parents present without restrictions and to improve short- and long term medical and neurobehavioral outcome. Good NICU design creates a protective physical environment for the vulnerable sick infant and encourage parents to take an active part in the care and medical treatment for their child.

Source

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Lifecycle

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