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ORIGINAL ARTICLE

World Café Methodology engages stakeholders in designing a Neonatal Intensive Care Unit

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Abstract *Background:* This paper discusses engaging World Café Methodology (WCM) during the design process when building a world class Neonatal Intensive Care Unit (NICU). The NICU World Café was held to consider the requirements needed to support a philosophy of family centred care acknowledging the needs of neonates, families and staff.
Method: A NICU World Café was conducted with the aim to engage stakeholders in the design of a new NICU. World Café Methodology is an integrated set of principles for hosting conversations that matter. Stakeholders converse with Café experts regarding the question of the Café from which a collective knowledge evolves to answer the Café question.
Results: The NICU World Café stakeholders identified a core group of requirements essential to creating a functional NICU: flexibility, visibility, privacy, skills, safety and sense of community. Stakeholders resolved these requirements could be applied most effectively in both two and single cot rooms, detailing their recommendations for the architects.
Conclusion: World Café Methodology facilitated stakeholders' exposure to a variety of opinions and new information regarding the NICU's new design. Applying WCM

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principles allowed stakeholders to focus on the key issues and find answers to their question.
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Introduction

The first Neonatal Intensive Care Units (NICU) were adult wards, modified by removing walls to construct open plan (OP) neonatal units, that generally catered for twenty to fifty neonates (Harris et al., 2006). These wards were functional for staff; however, recent knowledge about neonates' brain development has increased and current research has identified single room design (SRD) as ideal in facilitating individualised developmental care for neonates. Staff members have the ability to modify temperature, light and noise to the neonates' needs. Studies have also shown that SRD encourages participation of families in their baby's care and greater privacy allows them to spend quality time with their baby (Harris et al., 2006). Infection rates have been shown to be significantly reduced in NICUs that have implemented SRD (Walsh et al., 2006).

However, studies have also identified negative aspects of SRD for both families and staff. Families identified feelings of isolation, reduced family to family interaction and lack of continuity of care, as their babies may be moved between areas to match the staff skill mix on a day to day basis (Goldschmidt and Gordin, 2006). Staff in SRD neonatal units acknowledged the benefits for neonates and families, but also outlined their concerns. Beck et al. (2009) undertook a study where the participants experienced three interior design layouts. In this study nurses highlighted concerns with SRD; these related to: safety of the neonates as staff felt that it was difficult to care for babies when they were located in different rooms; and increased staff workload in SRD, as often there were not enough hands to carry out tasks or do tasks simultaneously as they had been able to in OP setting such as checking medications. Staff also expressed feelings of isolation in the single rooms and how this impacted on their ability to communicate with and learn from, other staff.

Setting

In 2008, Australian Capital Territory (ACT) Health Directorate announced the construction of a Women and Children's Hospital, which was to include a complete rebuild of the existing NICU. The current NICU has an open plan design; it was designed in the 1980's to accommodate 24 neonates in eight intensive care, high dependency and special care cots. In 2011 the occupancy rate of the NICU was 110% with the NICU providing treatment for up to 30 neonates in the open plan design.

A collaborative of stakeholders encompassing the Capital Asset Development and Planning (CADP) and a Neonatal User Group, consisting of NICU staff, families, allied health, Aboriginal liaison officer, infectious disease representative and biomedical technical officer, joined forces to develop a Centre of Excellence for neonatal care in the ACT.

Throughout 2008—2009 different strategies were engaged to assess the positive and negative aspects of recently built NICUs and consider the design for the new NICU. Nursing staff enthusiastically reviewed literature, scanned the internet and visited recently built NICUs in Australia and overseas to assess current trends in NICU design. A NICU design meeting was held to provide nursing staff with detailed information on recommended standards for NICU design. Weekly staff meetings were held where information was presented regarding the positive and negative aspects of different NICU designs, where staff members actively debated the impact of each design on staffing, workflow and nursing practice.

The group's research identified three room designs for consideration: open plan, two cot rooms and single rooms. World Café Methodology was used to facilitate the process of making the final design choice.

Methods

World Café Methodology is a creative methodology for hosting authentic conversations around questions that matter (Brown and Isaacs, 2005). It is a method utilised to create collaborative discussion on real life questions (Brown, 2002). Participants join together at Café style tables where they hold conversations exploring the question of the Café (Brown and Isaacs, 2005). The tables are led by experts who have an opinion or view about the Café question. At the start of the Café participants are invited to join one of the experts' tables for a conversation regarding the question, in which the expert talks about their experience or ideas. Then at designated time intervals the participants split up and choose

another table they would like to join. This is how this method facilitates the collection of diverse information, cross pollination of ideas and growth of insight. The participants develop a collective knowledge that grows and evolves, guiding the group to answer the Café question together based on their learning and insight (Brown and Isaacs, 2005). World Café format is flexible and adaptable with its uses limited only by imagination (Brown and Isaacs, 1999).

Six key principles have been outlined to guide Café organisers through the process (Brown and Isaacs, 1999) (Table 1).

In preparation for the NICU World Café, ten people were asked to be an expert (host a table) at the 3 hour workshop. Experts included nurses, developmental paediatricians, allied health staff and parents who had previously experienced their baby being admitted to the NICU. An expert at the NICU World Café was defined as someone with specific knowledge related to the NICU. Their knowledge included topics such as: the three different NICU designs under consideration, parental experience in the current NICU or a member of the multidisciplinary team that support families during their transition through the NICU. The experts were encouraged to talk to Café participants about their particular area of expertise, experience, knowledge and opinions regarding the best use of functional space for the new NICU. To assist the experts with their task they were emailed information and guidelines on World Café Methodology (Brown, 2002). The Clinical Director of the NICU also spoke to each expert about the methodology and outline of the workshop beforehand.

Since the beginning of the redevelopment project, members from Access Improvement Program (AIP) had worked alongside the Neonatal User Group in the development of the model of care and facilitated discussions on the new design. A staff member from AIP, who has significant experience in overseeing meetings and patient centred care, took on the role of Café moderator. Other AIP staff facilitated the NICU World Café by welcoming participants, serving lunch and assisting with the overall organisation of the Café.

Table 1 Six key principles for hosting a World Café.

- Create a hospitable space
- Explore questions that matter
- Encourage everyone's contribution
- Connect diverse people and ideas
- Listen together for insights, patterns and deeper questions
- Make collective knowledge visible

(Brown, 2002) A resource guide for hosting conversations that matter at The World Café Whole Systems Associates. http://www.theworldcafe.com

An open invitation to the NICU World Café was conveyed to all NICU staff. Participants ($n = 55$) included members from all the groups working on the new NICU design.

The room was set up to resemble a Café with tablecloths, glasses and water placed on tables set up to accommodate six to eight participants. The organising group welcomed the stakeholders to the Café, creating friendly relaxed atmosphere where participants were encouraged to chat and enjoy their lunch at the tables before the session began.

The workshop moderator firstly related the Café question to the attendees:

What would be the best use of functional space for the new NICU design?

The Café moderator then gave a short presentation on current NICU designs that included the following topics:

1. Current research in NICU design.
2. Nurturing environments for neonates, families and staff.
3. Impact of the NICU environment on neonates and families.
4. NICU environment's impact on staff members' health and the benefits of an appropriate environment to work in.

To guide the workshop Café participants were then given a short overview of World Café Principles:

1. Every voice counts — encourage other people at your table to contribute.
2. Listen respectfully to the person who is speaking.
3. A different opinion does not mean a wrong opinion — explore the differences.
4. Stop to consider the patterns, insights and deeper questions you encounter during the Café (Brown, 2002).

Under the direction of the Café facilitators participants chose a table to join; they rotated to a different table every 20–30 min with most participants joining four or five tables during the Café. They held conversations with different members of staff and the experts hosting the tables, expressing and listening to different viewpoints on the design for the future NICU. As participants moved around the tables they were given the opportunity to pass critical ideas from one table group to the next, trading ideas and opinions. Participants were encouraged by the

experts to express their concerns and questions allowing them to gather new information that would assist in the final decision making process.

During the Café experts made notes of ideas, questions and suggestions provided by the participants. They then went on to discuss with new participants who joined their table, thus adding and refining the information. Participants' differing opinions were acknowledged with the expert giving the participant more information about the concerns and then listing their point for discussion during the close of the workshop. In addition, throughout the running of the Café, members of the organising group mingled with the various groups gathering key information on the question. At the end of the Café; guided by the moderator who transcribed the ideas onto a white board, the participants joined as a collective to review their findings.

Results

To finalise the Café experts and participants joined to review viewpoints and concepts generated by the group. Participants of the Café identified two main topics and underlying themes that outlined their requirements to facilitate the best use of functional space for the new NICU design: The three design choices were reviewed on how each could meet these requirements. These requirements are outlined below:

Operational requirements

In moments of crisis in the NICU it is essential that staff are available to help out quickly; this was highlighted as a major challenge at the Café when considering small room design. In the current design senior staff are close by at all times but this would change in a unit composed of smaller rooms. This has the potential to create anxiety for staff and parents regarding the possible time delay in gaining support in an emergency. Café attendees identified the need for a detailed emergency response system and dedicated staff members to provide timely response on all shifts.

Changing the NICU design generates an operational challenge when considering staffing as considerable investment in training will be necessary to facilitate the new model of care. Whereas in the current OP design staff are able to help each to cover breaks, check drugs and take on the extra load of busy staff, supernumerary staff will be essential to take up these roles in a NICU design that involved a SRD.

Functional requirements

Collectively the stakeholders identified six key functional requirements that should be considered in the development of the design for the new NICU:

Safety

Participants acknowledged the new design should assist in maintaining safety in the NICU. Safety involves many factors that impact on neonates, families and staff and include a design that facilitates secure access via swipe cards with one main entrance and reception, cameras and an intercom system to view and talk to families and visitors as they enter the unit. The NICU also needs to be functional providing space for the secure storage of personal belonging for families and staff.

Flexibility

The rooms should be able to meet the needs of a dynamic work environment, based on the clinical condition of the babies, staff availability and skill mix. Unlike the current unit where neonates are moved between bays based on acuity and staffing; Café participants identified each bedspace in the new unit should be able to be modified to accommodate all neonates needs, ranging from intensive to intermediate care. In addition, parents of healthier babies should not have to walk past sick babies, requiring the new NICU to be split into different areas with different access: a high and a low acuity area. The design should also be flexible and able to accommodate the families' needs. Each bedspace should have dedicated family space that includes seating suitable for breastfeeding and spending quiet time with their baby, a cupboard to lock away private belongings and access to the internet, as parents are often in the NICU for long periods, often doing work at the cot side.

Visibility

Good visibility of the neonates at all times was considered essential. Staff should be able to visualise the neonates in their care and have the ability to remotely monitor their patients when they step out of the room. Café participants also thought the design should allow staff to maintain visual access to staff in other rooms next to them to reduce the feeling of isolation commonly identified in small room design. This set up should also facilitate the support of junior nursing staff.

Privacy

It was agreed the new unit should provide privacy for all the members of the NICU community. Procedures (e.g. insertion of a cannula) should be able to be done in a quiet, private environment. There should be adequate space where families and staff can discuss the neonate's condition and care requirements without being overheard or interrupted. Privacy for parent education, breastfeeding, kangaroo care and expression of breast milk to allow families to spend quality time and bond with their baby. Staff members also require privacy to consult with other team members on issues that may arise in caring for neonates in the NICU.

Skill mix

Participants were uncertain how small room design would impact on the skill mix. Current NICU staffing provides a diverse skill mix from senior staff with twenty years' experience to junior staff with limited neonatal experience. The current OP design allows more experienced staff to lend a hand to less experienced staff, while still being able to see the baby they are providing care for. A single or double room design would make it impossible for one staff member helping a staff member in another room to still observe their own patient, remote monitoring would be essential in such a design.

In addition, a question that arose was: *would extra senior staff be required to facilitate junior staff's learning and provide technical and emotional support necessary in the development of a skilled, experienced and competent workforce for the NICU?* The need for a succession plan was also acknowledged at the Café, with many staff being close to retirement, it was felt that it would be essential to promote and actively recruit new staff to work in the NICU.

Community

The current NICU has a strong community where staff value the relationships they have within the multidisciplinary team. Many Café participants felt this was due to the current design where different staff members, nursing, medical or allied health, are easily accessible and available, allowing staff to work more effectively as an integrated team. Participants would like this to continue in the new unit and new design support the current NICU community.

On reviewing the three design choices stakeholders agreed that either single or two cot rooms best met the requirements they had outlined to produce a functional space for the new NICU. The Café moderator and Clinical Director took responsibility to inform the design team and architects of the Cafes' participant's choice and requirements. They also undertook to write a report on the Café to be circulated and reviewed by Café attendees.

After further consultation and collaboration with the design team, a two cot room design was formalised for the new unit. The new unit has two wings: Intensive Care/High Dependency (20 cots) and Special Care (14 cots) interlinked in sets of two, three and four rooms with a doorway and large window between each room. This allows staff to visually monitor neonates and communicate with staff in the adjoining rooms.

Conclusion

Designing a new NICU is a significant investment of capital, time and infrastructure; but often one of the biggest challenges is finding a strategy to engage and include stakeholders in the design process. World Café Methodology proved to be an innovative and exciting method to engage and involve the NICU community. Utilising World Café principles allowed staff to focus and engage on the key issue of the new NICU design, exploring new information and a variety of opinions that allowed the group to generate key recommendations for the design of the new NICU.

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