New generation mother & child care centres

A generic patient-centred environment fails to meet the needs of the entire patients' population hosted in a healthcare facility. A differentiation based on different developmental stages, age and corresponding needs is required for children. A more domestic atmosphere can positively impact the period of hospitalization of women pre- and post-delivery. New mother & child departments are undergoing an intense reorganization process. This paper outlines some of the most recent changes in mother & children care and the vision behind it.

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The context

Designing a patient-centred environment in healthcare settings is much more complex than what the majority of planners and designers commonly think. Standardization is one of the goals to reach in healthcare facilities in order to accomplish a reduction of costs. However, the standardization of a patient-centred environment most of the time does not succeed in achieving full patient centricity. It is ineffective to create a generalized environment which attempts to address all patients, seen as a whole, without considering the nuances that distinguish them on the basis of clinical, personal, age-related and environmental needs.

This statement derives from the fact that an environment of care, to be considered fully patient-oriented, should take into account the different groups of patients which form the overall patients' population of a healthcare facility.

Healthcare facilities, such as general hospitals, are indeed populated by various groups of patients, each of them with different needs and characteristics. It may sound normal that an environment of care, centred on adults, should be structured in a different way than an environment intended for children. However, only in a few cases is a second level of differentiation considered in the form of subgroups of the patients' population. For instance, within the group of adults, women in need of general care and those who are mothers have different needs to be addressed compared with other adult patients.

Mother and child care is a special type of care for which most hospitals, even some of the most modern ones, are unsuitable. This can be the case of healthcare settings which are perfectly patient supportive in general terms, but fail to take into account the differences due to the various ages of the patients.

Already in 2003, the UK Department of Health highlighted in its children's national service framework report how many healthcare facilities intended for children were "designed with little acknowledgement of the differing needs of small children, older children, adolescents, parents and carers"[1]. This is still the case in many modern hospitals that host mother & child departments. Professor Kennedy, in his report on the Bristol Royal Infirmary Inquiry[2], and Sir Herbert Laming, in his report on the Victoria Climbié Inquiry[3], pointed out the importance of providing an age-appropriate type of care and environment of care that are safe and tailored to the different development stages of the child or young person: babies, young children, teenagers, and children with disabilities.

On the other hand, mother and child departments also have to fulfil the requirements for supporting the hospitalization of women pre and post-delivery. According to the outcomes of two large European studies[4] involving over 4,000 women, sense of safety, satisfaction with the birth experience and the feeling of being in control of the environment are significantly impacted by the physical environment in which labour[5] and birth take place. This means that planners have to be sure that their design solutions are aimed at mitigating anxiety and fear, increasing the level of security and safety, reducing boredom, and creating a healing environment from both the perspective of mothers and children hospitalized at different levels, and that of simple visitors of the department.

Understanding patient groups in mother & child care environments

According to McFaul (2000), in a general population of 300,000, there will be 60,000 children who are 16 years old or younger. Of these, 2,400 will have a chronic illness and/or disability. Many of these children will require frequent admissions to hospital[6]. How can the hospital environment better address the different needs of the child population? How can the environment be suitable for women involved into mother & child care processes? As mentioned before, a general standardized patient-centred environment is difficult to apply to these particular cases.

The patient-centred approach is made up of some general parameters applicable to the general community of patients, but in order to reach an optimized patient-centred environment these parameters have to be inflected on the basis of the various groups of patients. Therefore it becomes of crucial importance to make a clear distinction among patients' groups and adapt the environment on the basis of their needs and characteristics.

Mother and child care addresses two main groups of patients: women, in pre or post-delivery condition, and children, divided in other fours subgroups such as babies, young children, teenagers, and disabled children.

In neonatal and post-neonatal age, contact with the carers and the mother is very important. Traditionally babies were accommodated in nursery rooms, while the mother was being hosted in a maternity room. Nowadays this trend has started to reverse and some hospitals allow a specific space for the newborn in the maternity room in order to emphasize the mother-baby link and the feeling of home daily life.

The feel of a domestic environment is also very important for the young children group, who normally experience frequent and lengthy admissions to hospital. This group of patients often require a high level of contact with parents and above all with the mother. Specific layout solutions have

to be designed in order to let the family components being part of the care process. The teenager group on the other hand, may require different solutions. In fact during puberty, self-esteem, sense of privacy, autonomy and body image are of crucial importance. This is the reason why facilities for this type of patient may be located in a separate or more differentiated area of the mother & child department. In this way teenagers will feel more independent rather than being treated as kids, even though they still require the support of their parents.

New insights for a new generation of care

Mothers are encouraged to room-in with their babies and partners are encouraged to stay overnight. Babies are admitted at the bedside and skin to skin contact and bonding are promoted. The nursery is available both for the care of babies experiencing difficulty transitioning to extra-uterine life and as a respite nursery. A family-centred philosophy, which encourages keeping mothers and babies together, is one of the current trends characterizing modern maternity units in new generation mother and child care departments. The concept of a 'hospital within the hospital', where children are treated in separate dedicated facilities, and their needs supported by an environment suitable for their age, is the way forward for the design of new mother & child facilities in the near future. To provide developmentally appropriate, family centred care in a child friendly environment was the aim of the Mother Baby Center at Abbott Northwestern Hospital, in Minneapolis, USA. Inaugurated in 2013, this new birth centre results from the merge of the Labour, Delivery and Newborn departments of Abbott Northwestern Hospital with the Neonatal Intensive Care Unit, Special Care Nursery and Infant Care Center of the neighbouring Children's Hospitals and Clinics of Minnesota. Large light panels were used in a functional way in order to serve not only esthetic and lighting purposes, but also to provide directional information to the users.

In Europe, already in 2010, the Onze Lieve Vrouwe Gasthuis in Amsterdam and a few years later the Ikazia children hospital in Rotterdam, were considered among the best examples of modern mother & child care facilities for their innovative visions.
The Onze Lieve Vrouwe Gasthuis is the only top hospital in the inner ring of Amsterdam and is located in the multicultural Oosterpark district. The Anna Pavilion – as is called the mother & child department - is organized on a model defined as 'shell model' by the EGM architects.
The shell model is organized on the basis of a strategic satellite disposition of four types of patients' suite, each one addressing a certain developmental stage of the child hospitalized into it as well as the mother. The suites are divided as follows: neonatal, large, small, short-term care, children suites, and double teens' suites.
The neonatal suites are intended for new-borns requiring medium and high levels of care. They are single rooms and allow for an active comfortable involvement of the family.
The large care suites are aimed at babies requiring low levels of care and their mothers. The baby and the mother stay in the same room as would be the case in a domestic environment. This solution is very important for the condition of hospitalized women who "should be able to feel they are in control of what is happening during pregnancy, childbirth and postnatal period"[7] (Commonwealth of Australia, 2008).
The small suites are intended for a more flexible use by mothers, young children, young patients, teenagers and children with disabilities.
The children suites address various developmental stages and diseases and can also be used when isolation is clinically required. This kind of suite is not planned to host babies and mothers, and includes an area particularly designed for visitors and parents who can also stay overnight.
To fulfil the needs of young children and above all of teenagers, the architects decided to include in the layout specifically designed double teenager suites. The environment of these suites is designed to support socialization with the other patient hosted in the room, customization, sense of control and privacy; multimedia facilities, a play table and a minibar are some of the elements characterizing this type of room.
Lastly, an area of the department is specifically dedicated to short-term care such as one-day or emergency procedures, mostly related to gynecology and obstetrics.

Another interesting trend, which proves the continuous evolution of the spatial disposition of mother & care facilities in the name of patient-centred approach and space optimization, relates to the location of delivery rooms. As for the Onze Lieve Vrouwe Gasthuis, there is a growing consensus in considering maternity care facilities like maternity rooms as an integral part of the mother & child department's layout. This new vision justifies looking into the location and proximity of delivery rooms within the M&C care context.
New spatial solutions envisage the removal of specific delivery rooms in favour of generic maternity ones, where a woman can experience both the normal period of hospitalization and delivery. This means that every room could be suitable for delivery. This is the vision applied by the Ikazia hospital in Rotterdam. The final aim of such a choice is to make the woman feel more in a domestic rather than a medical environment, and avoid costly waste of space for specific delivery rooms. This concept is particularly applied in Dutch hospitals and also in the USA. However, it is important

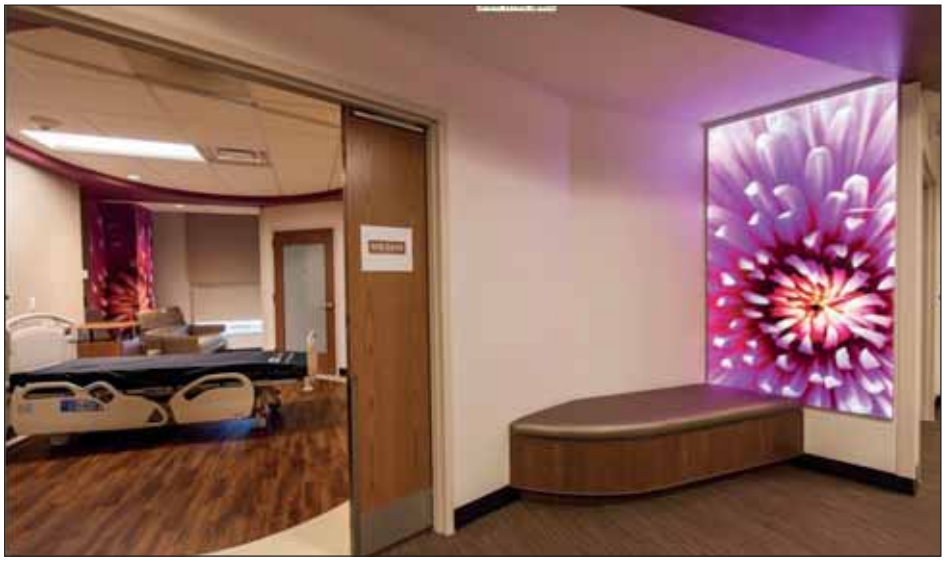

Figure 1. The View of the corridor and a typical bedroom characterized by specific light lane panels in ViviGraphix Spectra glass with custom graphic interlayer and standard finish. Mother Baby Center, Abbott Northwestern Hospital, in Minneapolis, USA, 2013.

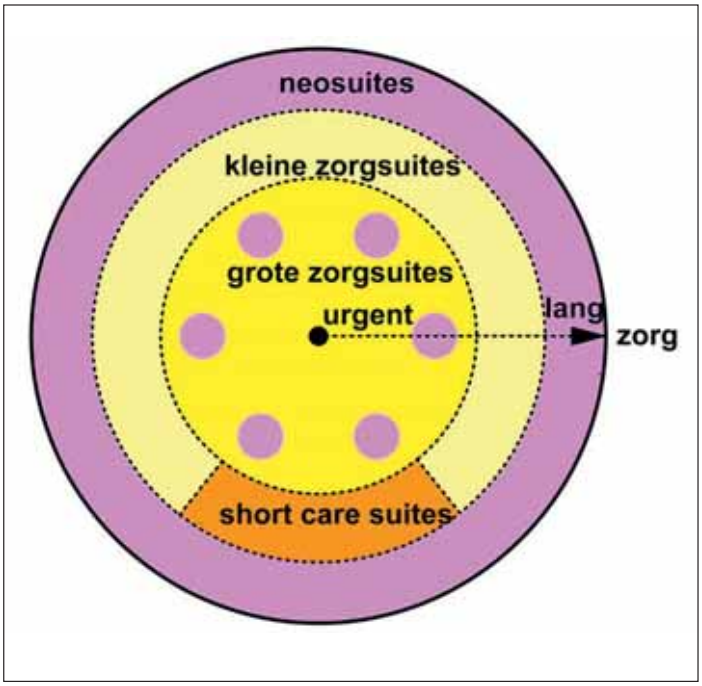

Figure 2. The shell model developed by EGM architecten for Onze Lieve Vrouwe Gasthuis, Amsterdam, 2010.

to note that such highly flexible rooms are planned only for normal conditions of delivery. For caesarean sections, a determined number of smaller scale operating rooms is required. Recent American developments show a tendency in placing these smaller scale operating theatres directly into the mother & child department, avoiding transferring the patient into the central operating unit.

Conclusion

A sense-sensitive design approach is particularly important for children, who navigate their environment using the senses of sight, touch, hearing, taste and smell.

The design of the environment for mother and child care departments should not only address the specific needs of mothers but be also adapted to the age of the children and their stage of development. Patient control over their environment; inclusion of positive distractions such as music, art and entertainment; removal of environmental stress factors such as noise or unpleasant smells should all be taken into account. On the other hand, mothers have to feel safe and protected in an environment that provides contact with their baby and make them feel at home. In order to reach this goal it is not sufficient to adopt a general patient-centred environment for the departments discussed here. It is much more effective to set up a mother and child-centred environment.

New generation mother & child departments are emerging from an intense restructuring phase that also concerns most of the other hospital departments, both in the USA and Europe. Some European countries continue to play a pioneering role in the innovation of healthcare facilities.

This article aims at contributing to the actual debate on optimal mother & child care environment and at inspiring and possibly influencing hospital decision makers in their future choices.

References

1. NHS Estates, (2004), HBN 23 Hospital accommodation for children and young people, TSO, London.
2. Kennedy, I. (2001), The report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995: learning from Bristol, TSO, London.
3. Laming, H. (2003), the Victoria Climbié Inquiry,TSO, London.
4. Newburn, M., Singh D. (2005), Midwife-led units, community maternity units and birth centres, NCT, PO -0208 752 2404, London.
5. Rudman A, El-Khouri B, et al. (2007), Women's satisfaction with intrapartum care - a pattern approach. J Adv Nurs 59 (5): 474-87.
6. MacFaul R., Werneke, U. (2000), Recent trends in hospital use by children, Arch. Dis. Child, Vol 85, pp 203–207.
7. Commonwealth of Australia (2008), Improving maternity services in Australia, The Department of Health, Canberra.

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