Fathers’ Stress in a Neonatal Intensive Care Unit

Betty Noergaard, MHSc; Jette Ammentorp, MHSc, PhD; Ester Garne, MD; Jesper Fenger-Gron, MD; Poul-Erik Kofoed, MD, PhD

ABSTRACT
Background: Healthcare professionals in neonatal intensive care units (NICUs) tend to focus attention on the mothers and the newborn infants. Thus, fathers may find it difficult to establish an optimal father–child relationship and their stress may increase and persist during hospitalization.

Purpose: To investigate the impact of a more father-friendly NICU on paternal stress and their participation in childcare.

Methods: A quasi-experimental design was conducted on Danish-speaking fathers of newborn infants 28 or more weeks’ gestational age. The Parental Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU) was used to measure paternal perceptions of stressors. Paternal participation in childcare was measured using 7 additional items. The questionnaires were distributed on admission to the NICU, at the 14th day of hospitalization, and at the time of discharge.

Results: A total of 109 fathers were included. The overall PSS:NICU stress score increased after the intervention. Paternal involvement, staff expectations, and the social expectation to fulfill the traditional role of a breadwinner and additionally of a caregiver may have caused increased stress.

Implications for Practice: Healthcare professionals must be aware of the father’s need to be an equal coparent. Nurses, as key persons, should motivate and expect fathers to be involved, and support them to establish a father–child relationship, although they might become more stressed.

Implications for Research: More adequate outcome measures are needed to determine the effect of interventions on paternal stress.

Key Words: father, infant bonding, intervention, NICU, parenting, paternal involvement, stress

A n early parent–child relationship is important for a child’s development, both intellectually and socially.1,2 When preterm or ill newborn infants are admitted to a neonatal intensive care unit (NICU), the preconditions for the parent–child attachment process is not optimal, as the parents are often anxious about their child’s health, and are worried about the whole family situation.2 When parents are involved in childcare at the NICU, there is a significant reduction in infant admission time by 5.3 days.4,5 Similarly, the frequency of visits by fathers, and their involvement in the care of their children, has shown to have a positive effect on infant weight and social development both during hospitalization and after 8 and 18 months.6

Traditionally, healthcare professionals pay the most attention to the newborn infants and their mothers, despite the fathers’ desire to be equal partners in childcare.7 Fathers often find it difficult to establish an optimal father–child relationship, and several studies have identified elevated stress levels among parents with infants admitted to the NICU. Parents experienced the following situations as stressful: the appearance and behavior of their premature or ill infants, the parenting of sick infants, the unknown routines of the NICU, and the relationships and collaboration with the staff.8 As with mothers, fathers experience fear, anger, and guilt, and their self-reported stress persists during the infants’ hospitalization.9,10

Research has shown that one-third of fathers experience depressive symptoms, lasting up to 35 days following the birth of their child or...
children; a Danish study found that 7% of new fathers were diagnosed with depression, as compared with 10% to 14% of mothers. The emotional distress from having an infant hospitalized at the NICU may develop into posttraumatic stress syndrome. Parents of infants in the NICU have a higher incidence of posttraumatic stress syndrome compared with parents of “healthy” infants, which has been shown to affect parental ability to establish a parent-child relationship.

Various interventional programs (eg, individual support, education, and communication) have investigated how to reduce parental stress levels with different outcomes. For example, a 5-step individualized intervention program delivered by a psychologist and nurse–parent dialogues using semistructured reflection sheets and person-centered communication did not have any effect on paternal stress. In contrast, fathers benefitted from a 2-stage family support program including information regarding the NICU, face-to-face training sessions, psychological training, and sharing experiences with other parents. Contrary to what was expected, a Norwegian randomized controlled trial found that paternal stress increased in parallel with paternal involvement in the intervention. Other studies indicated that fathers require different interventions from mothers and that it is important to find out how fathers can be involved. Paternal needs and experiences while their newborn infants are admitted in the NICU have been explored but as far as we know, no study has investigated the effect of activities addressing these needs.

The present study is part of an intervention project evaluating the effect of a father-friendly NICU on newborn infants, parents, and staff. We used an approach based on participatory action research that involved fathers, mothers, interdisciplinary healthcare professionals, and managers in developing a father-friendly NICU intending to meet the paternal needs.

The aim of this part of the project was to investigate the impact of the intervention, the father-friendly NICU, on paternal stress levels, and on their participation in childcare.

What This Study Adds

- Knowledge of the effect of a father-friendly NICU in terms of self-perceived paternal stress.
- Identification of the need to develop more appropriate outcome measures to assess the effect of interventions on paternal stress.

METHODS

Study Design and Setting

The effect of the father-friendly NICU was investigated in a quasiexperimental design. In accordance with Danish law, the study was approved by the Danish Data Protection Agency.

This study was conducted at a 22-bed level II NICU at a regional hospital in southern Denmark, having approximately 600 admissions per year. The unit is organized into 2 groups, with 38 nurses, 2 assistant nurses, and 4 consultants. The majority of newborn infants are admitted directly from the delivery room though some are admitted from the maternity ward. The unit treats ill newborn infants, including preterm infants with a gestational age of 28 weeks or more. Single, double, and quadruple occupancy rooms are available to patients. Parents and siblings (without any acute illness) have unrestricted access to visit the infants. An armchair is provided next to the incubators or cradles, and the parents are allowed to sleep in a patient hotel adjacent to the NICU. Only one of the parents can stay free of charge; the second parent must pay, which could have an impact on paternal presence in the NICU. However, during long-term hospitalization, both parents may stay with their newborn(s) in an NICU family room without payment during the last week of hospitalization.

Sample

Two hundred fifty-three fathers with infants admitted to the NICU were enrolled to the control group from December 1, 2011, to December 31, 2012, and 344 fathers to the intervention group from August 1, 2013, to January 31, 2015 (see Figure 1). Exclusion criteria were (a) fathers who did not understand verbal and written Danish; (b) fathers of critically ill newborn infants (infants who were transferred to a university hospital shortly after admission or were not expected to survive); (c) fathers of newborn infants whose mother was critically ill; and (d) fathers of newborn infants admitted to the NICU from home.

Intervention

The intervention, the father-friendly NICU, was developed and implemented based on the principles of participatory action research by Reason and Bradbury, and Herr and Anderson. In collaboration with the fathers and other stakeholders, the research team obtained knowledge and understanding of paternal needs and wishes, which was used in the design of the intervention during the period from August 2011 to February 2013. The 8 activities listed in Figure 2 were implemented to create the father-friendly NICU from February 2013 to August 2013. With these new activities the healthcare professionals would also focus on the fathers and encourage them to participate in the childcare (eg, to have skin-to-skin contact, to participate in father groups, and to feed their infants).

Outcome

The primary outcome was the difference in the overall stress score, determined using the Parental
Stressor Scale: Neonatal Intensive Care Unit (PSS:NICU) score, which was measured on admission to the NICU (during the first 3 days of hospitalization), at the 14th day of hospitalization, and at the time of discharge, in both the control and intervention groups. Secondary outcomes were (a) the difference in the PSS:NICU overall stress score and the subscale scores between on admission to the NICU, at the 14th day of hospitalization, and at the time of discharge for fathers in the control versus the intervention group, (b) the difference in the PSS:NICU overall stress scores and the subscale scores during hospitalization for fathers in the control versus intervention groups, and (c) the difference in paternal participation in childcare at the time of discharge for fathers in the control versus intervention groups.

Instruments
Stress is defined as a particular relationship between a person and the environment that exceeds the person’s resources and threatens his or her well-being. Stress reactions are both physical and psychosocial, and various stressors can cause stress in different persons.

After obtaining approval from Miles et al. and in accordance with the recommendation, the PSS:NICU questionnaire was forward-translated from English into Danish by 2 Danish-native speakers fluent in English, and then back-translated into English by an independent translator to provide quality control of the translation. The translated PSS:NICU was used to measure paternal perception of stressors when their newborn infants were admitted to the NICU. The questionnaire included 3 dimensions: sights and...
sounds of the unit (6 items), infant behavior and appearance (13 items), and parental role alteration (7 items). Fathers were asked to rate their stress related to particular situations on a 5-point Likert scale, ranging from 1 (not at all stressful) to 5 (extremely stressful). Fathers who had not experienced a particular situation on an item indicated this with a “not relevant” response. Both for the PSS:NICU overall stress score and each of the subscale scores, the maximal score was 5, a high score indicating a high level of paternal stress.

Paternal participation in childcare was measured by assessing 7 items: feeding, washing, holding in arms, skin-to-skin contact, talking, eye contact, and daily visits. These items were added to the PSS:NICU at the 14th day of hospitalization and at the time of discharge. The fathers could choose from the following responses: “not at all,” “once a day,” or “several times a day.” In this article, we dichotomized these variables as either “yes” (once a day and several times a day) or “no.”

**Data Collection**

Participating fathers received up to 3 questionnaires depending on the length of their newborn infants’ NICU stay. In order to not overload the fathers who

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**FIGURE 2**

1. Fathers shall be encouraged to have skin-to-skin contact with their infants as soon as the newborns are admitted to the NICU if the mothers are still in the recovery room or intensive care unit.

2. Fathers shall be encouraged and given the opportunity to participate in important situations, such as their infants’ first baths, when their infants are moved from the incubator to cradle or from the intensive care to a lower dependency room.

3. Fathers shall receive information and guidance directly from the healthcare professionals (and not only through the mothers).

4. Important conversations about the children’s development shall be scheduled so both parents can participate.

5. The department shall offer counselling by a social worker about paternity leave and other social and economic issues.

6. The department shall organize father-groups where the fathers can meet and talk “father to father” about their situation.

7. The families shall have the opportunity to have a close family member to support them in the unit. The family member can stay with the newborn infant if the parents wish, e.g. if the parents want to visit their older children at home.

8. Older siblings shall have the opportunity to stay overnight.

**Principles for a father-friendly neonatal unit.**
participated in this study, a gap of at least 5 days was given between being asked to complete the questionnaires. They received a questionnaire during the first 3 days of hospitalization, at the 14th day of hospitalization (±3 days), and at the time of discharge (length of hospital stay: [a] >5 and ≤13 days and [b] >19 days).

In accordance with Danish law, the Danish Data Protection Agency, the fathers were informed about the study in writing and face-to-face before participation. They were told that participation was voluntary and that they could withdraw at any time and that refusal would not affect the care of their infants. Fathers were guaranteed confidentiality and anonymity. On admission to the NICU, fathers were given an envelope, with the first questionnaire and an information sheet. The fathers could then choose to complete the subsequent questionnaires electronically or on paper. The electronic questionnaires were administered using SurveyXact (http://www.surveyxact.com/). All paper-based questionnaires were double-entered on SurveyXact.

**Data Analysis**

We used a power analysis (α = 5%, β = 10%) with a relatively small effect size of −20%. This indicated that 170 fathers needed to be included in this study (85 in each group). Allowing for dropout, we planned to recruit 250 fathers, 125 in each group. The difference in change in PSS:NICU stress scores between the control and intervention groups was tested using the \( \chi^2 \) test or the 2-sample Wilcoxon rank sum (Mann-Whitney) test, as appropriate. A multiple linear regression model—adjusted for baseline stress and with the following covariates: gestational age, cesarean delivery, monitoring of peripheral oxygen saturation, oxygen therapy, intravenous access on the first day of hospitalization, length of hospitalization, first-time fathers, other children living with the family, and paternal age—was all used to evaluate the differences between the stress scores on admission to the NICU and at the time of discharge.

Stress scores were calculated by adding the scores for each subscale score and the PSS:NICU total stress score, respectively, divided by the number of items. Our focus was on the fathers, and as recommended by Miles et al., all fathers received a score on each item. Fathers who had not experienced a situation received a score of “1” for that item, corresponding with “not at all stressful” (metric 2).

A missing data criterion for stress scores was set as follows: If the fathers had missed 60% or more of items for at least one of the subscale score, their data were withdrawn from the analysis.

For simplicity, the missing items of PSS:NICU stress scores of the analyzed population were replaced with 0 because there were few missing items. The difference in paternal participation in childcare was compared using the \( \chi^2 \) test and ordinal logistic regression analysis, controlling for the same covariates as for the stress analysis. The data were analyzed using Stata statistical software (StataCorp, LLC, College Station, Texas).

**Population Included in the Analysis**

The analyzed population consisted of fathers with at least 1 measure after the initial questionnaire completed on admission to the NICU. In this questionnaire, the fathers rated the stress they experienced during the first days of their children’s hospitalization. As the return rate of the surveys was low, we decided to compare 2 time points. The initial questionnaire was compared with either the questionnaire at the 14th day of hospitalization or the questionnaire at the time of discharge, whichever was answered latest.

**RESULTS**

**Participants**

During the study period 578 fathers were assessed for eligibility in the control group and 756 fathers in the intervention group (Figure 1). We excluded 184 fathers in the control group and 255 in the intervention group for not meeting the inclusion criteria, refusing to take part, or other reasons. Other reasons were social or psychological problems (8 in the control group and 10 in the intervention group), unknown identity number (3 in the control group and 2 in the intervention group), 1 infant who died, and 4 infant who was given up for adoption in the intervention group.

Out of 394 fathers in the control group and 501 in the intervention group, 74 and 81 fathers, respectively, answered at least 1 questionnaire after the initial questionnaire on admission to the NICU (Figure 1). Table 1 shows how many fathers completed the different surveys.

Nineteen fathers (25%) in the control group and 27 fathers (33%) in the intervention group missed more than 60% of the items in at least 1 of the subscale scores in the PSS:NICU. Data from 109 fathers were included in this analysis: 55 fathers in the control group and 54 in the intervention group (Figure 1). In the control group, 6 fathers missed 1 item and 1 father missed 2 items. In the intervention group, 3 fathers missed 1 item and 1 father missed 2 items.

The demographic characteristics of the fathers and the characteristics of their newborn infants are shown in Table 2. Among the fathers there were no differences in age, participation in the infant’s birth, and father’s first child between the 2 groups. In the intervention group, more fathers were employed compared with the fathers in the control group. There were no
differences in gestational age, cesarean delivery, Apgar score, and length of stay in the NICU among infants of the 2 groups. Fewer infants were monitored in the intervention group than in the control group.

**Stress Score**
Apart from the subscale score parental role on admission to the NICU, fathers in the intervention group had significantly higher PSS:NICU overall stress scores and higher subscale scores than fathers in the control group both on admission to the NICU (as measured during the first 3 days of admission) and at the time of discharge (Table 3). Analyzing the differences of change of stress scores from the time of admission to the time of discharge showed that for both groups the stress scores decreased significantly during hospitalization. The change of stress score was statistically greater for the control group than for the intervention group (Table 3).

**Paternal Participation in Childcare**
At the time of discharge, fathers in the intervention group had significantly more frequent skin-to-skin contact with their newborn infants compared with fathers in the control group (Table 4). When adjusting for confounders, we still found a significant result for skin-to-skin contact, with a 95% confidence interval of $-3.815$ to $-1.016$; $P = .001$ (data not shown).

**DISCUSSION**
Within the Department of Paediatrics, we developed a father-friendly NICU that consisted of different activities meant to address the needs of fathers during the hospitalization of their newborn infants, allowing and supporting fathers to be more involved in the care of their infants. The present study investigated the impact of this new concept on paternal stress.

We found that the decrease in PSS:NICU overall stress scores from admission to the NICU until the time of discharge was greater in the control group than in the intervention group. The same result was shown for the 3 subscale scores that measured the stress caused by the sights and sounds of the NICU; by the appearance of the infant, behaviors, and special treatments; and by the relationship the fathers had with their infants, and their parental role. Our results agree with the results of other studies, having found increased stress levels for fathers who were more involved in the care of their infants. For example, Ravn et al report that paternal stress increased with increased involvement in the Mother-Infant Transaction Intervention Program that taught parents to be sensitive and responsive to their children’s physiological and social cues. In addition, van der Pal et al, in the Newborn Individualized Developmental Care and Assessment Program, found that fathers were more stressed when they were involved in childcare, such as being informed about tubes, the behavior of their infants, and signals of pain and distress.

The fact that the intervention caused higher stress scores among fathers both on admission to the NICU and during hospitalization can be explained by the staff’s expectations that the fathers should be more involved in childcare (eg, expected to be present at different procedures such as introducing feeding tubes, performing intubations, or giving their infants the first baths), being encouraged to have skin-to-skin contact with the infant, and expected to be part of father groups. The fact that the fathers still had obligations regarding to their work, taking care of siblings, and managing the housework at home might have caused more stress for the fathers in the intervention group than for those in the control group.

In this study the risk that emotional stress may develop into posttraumatic stress syndrome, as shown in other studies, does not appear to be an issue, as we found that the paternal stress scores varied from “not at all stressful” to “little stressful,” with a mean score ranging from 1.40 to 2.10 during hospitalization as compared with other studies finding stress scores ranging from 2 (little stressful) to 3 (moderately stressful). That the PSS:NICU overall stress score was relatively low could be due to the fact that the most severely ill newborn infants were...
transferred to a university NICU and therefore not included. This corroborated the results of a meta-analysis that found that higher birth weight and higher gestational age were associated with less parental stress in studies of preterm infants.18,53 The finding that the stress score was higher when scored during the first days of hospitalization can be caused by the fact that childbirth itself is a stressful experience for parents.55 Furthermore, the stress level has also been shown to be related to the severity of the newborn infants’ illness, which is often more severe during the first days of life.55

Although not hypothesized a priori, we found that 2 of the 7 indicators, skin-to-skin contact and feeding (not significant), increased in the intervention group compared with the control group, which helped the fathers to define their parental role.47 This corroborates the results from other studies that pointed out

| TABLE 2. Demographic and Clinical Characteristics of the Participants |
|---------------------------------------------------------------|
| **Control Group** | **Intervention Group** |
| n = 55 | n (%) or Mean (Range) | n = 54 | n (%) or Mean (Range) |
| **Fathers**a,b | | | |
| Age, median (range), y | 31.3 (22-55) | 32.7 (23-51) | | | |
| Participated in the child’s birth | 50/53 (94) | 49/53 (92) | | | |
| First child | 30/54 (56) | 35/54 (65) | | | |
| Other children living with the family | 29/55 (53) | 22/54 (41) | | | |
| Previous infant(s) admitted to the NICU | 8/47 (17) | 8/51 (16) | | | |
| Cohabiting with the infant’s mother | 53/54 (98) | 52/54 (98) | | | |
| Employment | | | | | |
| Employed | 45/54 (83)c | 49/54 (91)c | | | |
| Unemployed | 2/54 (4)c | 1/54 (2)c | | | |
| Other | 7/54 (13)c | 4/54 (7)c | | | |
| Distance from father’s home to the hospital, km | | | | | |
| 0–10 | 12/53 (23) | 14/54 (26) | | | |
| 11–30 | 18/53 (34) | 25/54 (46) | | | |
| ≥31 | 23/53 (43) | 15/54 (28) | | | |
| **Children**b,d | | | | | |
| Boys | 33/55 (62) | 31/54 (57) | | | |
| Twins | 8/55 (14) | 4/54 (7) | | | |
| Gestational age, wk | 35.7 (27.0-41.0) | 35.3 (26-41) | | | |
| Weight at birth, g | 2697.0 (1120-4600) | 2474.4 (593-4530) | | | |
| Length at birth, cm | 48.4 (39-66) | 47.3 (30-57) | | | |
| Head circumference at birth, cm | 32.7 (25-39) | 32 (22.5-37) | | | |
| Cesarean delivery | 29/55 (53) | 20/54 (37) | | | |
| Apgar score after 5 min | 9.1 (4-10) | 9.1 (2-10) | | | |
| Duration of CPAP, d | 4.5 (0-41) | 6.3 (0-120) | | | |
| Intervention on the first day of admission | | | | | |
| Oxygen therapy | 28/55 (51) | 22/54 (41) | | | |
| Monitoring (SAT) | 55/55 (100)c | 50/54 (93)c | | | |
| Intravenous access | 34/55 (62) | 26/54 (48) | | | |
| Length of stay in the NICU | 24.5 (5-85) | 25.2 (5-125) | | | |

Abbreviations: CPAP, continuous positive airway pressure; NICU, neonatal intensive care unit; SAT, peripheral oxygen saturation.

a Data collected from questionnaires and the infants’ electronic patient records.
b Number may vary due to missing in single items.
c P value ≤ .05.
d Data collected from the infants’ electronic patient records.
that caregiving initiated a closer father–child relationship and engagement in childcare.\(^{53,56,57}\) Until now, most evaluations of father-friendly initiatives (including those in this study) have been based on an expectation of “decreased stress” as a criterion of success.\(^{20-31}\) But as a higher stress level might be a consequence of more involvement and a closer father–child relationship, future studies, in addition to stress, might need to develop different and more adequate outcomes to measure the effect of complex interventions.\(^{58}\)

### STRENGTHS AND LIMITATIONS

The strength of the study was the complex intervention program developed in collaboration with fathers, mothers, and staff members, ensuring that the changes were tailored to the NICU.\(^{44,45,58}\) Moreover, the intervention was implemented in a real-life clinical practice. Our before-and-after intervention design had a sufficient period between each phase, ensuring an appropriate design with explicit inclusion and exclusion criteria.\(^{44,45,58}\)

However, the study had several limitations. First, the sample population fell short of our power analysis, which may limit the strength of the results. The response rate was low, probably due to the fathers being involved in their work, housework, and family life, in addition to their newborn infants. However, the response rate corresponds to other studies using multiple measurements, which have also been challenged with low response rates.\(^{18,22,28}\) The length of

### TABLE 3. Stress Scores on Admission to the NICU and at the Time of Discharge, and the Change in Stress Score From on Admission to the NICU to the Time of Discharge of Fathers in the Control Group Compared With Fathers in the Intervention Group\(^{a}\)

|                      | Control N = 55 Mean (SD) | Intervention N = 54 Mean (SD) | P Value\(^{b}\) | Control N = 55 Mean (SD) | Intervention N = 54 Mean (SD) | P Value\(^{b}\) | Change in Stress Score From on Admission to the NICU to the Time of Discharge in the Control and Intervention Groups, Respectively\(^{c}\) Mean Change (P Value) |
|----------------------|--------------------------|-------------------------------|----------------|--------------------------|-------------------------------|----------------|----------------------------------------------------------------------------------|
| **Score on Admission to the NICU** |                          |                               |                |                          |                               |                |                                                                                  |
| PSS:NICU             |                          |                               |                |                          |                               |                |                                                                                  |
| Total stress score   | 1.71 (0.46)              | 2.02 (0.55)                   | .0014          | 1.43 (0.44)              | 1.84 (0.59)                   | .0001          | −0.28 vs −0.18 (.004)                                                            |
| **Subscales**        |                          |                               |                |                          |                               |                |                                                                                  |
| Sights and sounds    | 1.55 (0.44)              | 1.78 (0.53)                   | .0215          | 1.42 (0.44)              | 1.77 (0.64)                   | .0030          | −0.13 vs −0.01 (.023)                                                            |
| Infant behavior      | 1.64 (0.51)              | 2.10 (0.59)                   | .0000          | 1.40 (0.48)              | 1.87 (0.62)                   | .0000          | −0.24 vs −0.23 (.074)                                                            |
| Parental role        | 1.94 (0.68)              | 2.10 (0.86)                   | .4734          | 1.50 (0.58)              | 1.83 (0.80)                   | .0319          | −0.44 vs −0.27 (.004)                                                            |
| **Score at the Time of Discharge** |                          |                               |                |                          |                               |                |                                                                                  |
| **Abbreviations:** PSS:NICU, Parental Stressor Scale:Neonatal Intensive Care Unit; SD, standard deviation.\(^{a}\) Data from fathers who answered both on the admission to the NICU and the discharge questionnaire. Seven fathers in the control group and 4 in the intervention group missed a total of 13 items.\(^{b}\) The stress scores reported by the control compared with the intervention group. The 2-sample Wilcoxon rank sum (Mann-Whitney) test was used.\(^{c}\) Linear regression analysis was used. The covariates were gestational age, cesarean delivery, monitoring (SAT) on the first day of admission, intravenous access on the first day of admission, length of stay, father’s first child, other children living with the family, and father’s age.
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CONCLUSION

The father-friendly NICU was unique, as it was developed in collaboration with fathers, mothers, and staff working in the NICU. Interestingly and importantly, we found that paternal stress increased after the intervention, paralleling a higher involvement in the care of the infant. As stress might be a consequence of more involvement, and a closer father-child relationship, in addition to stress other and more adequate outcomes to measure the effect of the interventions should be developed. A follow-up study after the time of discharge would add to the knowledge of the long-term effects of paternal early involvement in childcare.

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What we know: • Fathers in the intervention group had a higher stress level both upon admission and at discharge, and the decrease in stress level was lower than for the control group. • Paternal stress scores were relatively low. • The fathers in the intervention group had more skin-to-skin contact with their infants than those in the control group. • Both the staff’s expectations of fathers to be more involved and the social expectations and norms might cause more stress for the fathers.

What needs to be studied: • A follow-up study after discharge would add knowledge of the long-term effect of paternal early involvement in childcare. • Future studies need to develop additional and adequate outcomes to measure the effect of such complex interventions.

What we can do today: • Recognize that fathers are competent and important caregivers, as are mothers. • Support fathers to have skin-to-skin contact. • Involve fathers in childcare considering that this might increase their stress level. • Be conscious of cultural expectations and norms regarding men and fathers.
