

Effect of the Baby-Friendly Initiative on Infant Abandonment in a Russian Hospital

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Objective: To study whether early mother-infant contact with suckling and rooming-in reduces the rate of infant abandonment.

Design: The infant abandonment rate was studied at a Russian hospital before and after the introduction of early mother-infant contact with suckling and rooming-in.

Setting: Maternity Hospital 11, a public hospital in St Petersburg, Russia, was chosen as the site of this study because it recently changed its maternity care practices, implementing portions of the United Nations Children's Fund Baby-Friendly Hospital Initiative.

Interventions: In mid 1992, Maternity Hospital 11 changed its practices in accord with the Baby-Friendly Hospital Initiative, encouraging early contact, suckling, and rooming-in of the mother and infant from birth to the time of discharge from the hospital.

Patients: The location of a mother's maternity hospital is related to her residential district. Maternity Hospital 11 serves an urban working-class community, with most mothers receiving prenatal care. All deliveries at this hospital from 1987 to 1998 were studied.

Main Outcome Measure: Infant abandonment.

Results: The rate of infant abandonment at Maternity Hospital 11 was studied from 1987 to 1998, 6 years before and 6 years after the implemented changes in mother-infant contact. The mean (\pm SD) infant abandonment rate decreased from 50.3 ± 5.8 per 10 000 births in the first 6 years to 27.8 ± 8.7 per 10 000 births in the next 6 years following implementation of the Baby-Friendly Hospital Initiative.

Conclusion: Encouraging early mother-infant contact with suckling and rooming-in may provide a simple, low-cost method for reducing infant abandonment.

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RECENT WELFARE reform has attracted attention to the problem of parental inadequacy and the phenomenon of infant abandonment¹⁻⁴. The rate of abandonment of neonates in the United States remains poorly investigated, although it has been estimated to be 0.4% in San Francisco, Calif,⁵ and 2% in Washington, DC.⁶ International studies have shown that neonatal abandonment ranges from 0.4% in France⁷ and Thailand⁸ to 4% in Romania.^{9,10} The problem of infant abandonment has rarely been studied in the Soviet Union and postcommunist Russia, where the existence of the problem was denied and banned from discussion and publication for several decades.

Numerous studies have shown that abandoned infants are at an increased risk for failure to thrive,⁹ developmental delay,¹¹ decline in IQ scores,^{1,12} severe psy-

chological disturbance,¹³ nosocomial infection,^{5,12,14} and child abuse.¹⁵ Despite the importance of the problem of infant abandonment, research regarding possible preventive measures has been very limited. Several reports have shown that establishing early mother-infant contact may reduce maternal inadequacy, including the rate of infant abandonment.^{8,16,17} This study describes the infant abandonment rate over a 12-year period at Maternity Hospital 11 in St Petersburg, Russia, that followed 2 different systems of mother-infant care during the early neonatal period.

RESULTS

Table 2 gives the number of deliveries, the number of abandoned infants, and the infant abandonment rate calculated per 10 000 births at Maternity Hospital 11 from 1987 to 1998.

METHOD

The rate of infant abandonment was studied at Maternity Hospital 11 over a 12-year period, from 1987 to 1998. Prior to 1992, maternity services at the hospital followed the regulations of the Administration of Maternal and Infant Health of the Ministry of Public Health, Moscow, Russian Federation. Six to 8 mothers labored, were delivered of their neonate, and roomed together in the postpartum period. Immediately after birth, the neonate was separated from the mother and taken to the nursery for an 8-hour stabilization period. The mother could not see the infant during this time because she was in her recovery period. If the condition of the neonate was considered satisfactory after 8 hours of stabilization, the neonate was taken to the mother's room for a 30-minute bottle feeding under strict nurse supervision and then returned to the nursery. All further feedings lasted only 30 minutes and occurred 6 times per day. The neonate remained in the nursery the remainder of the time (21 hours per day). Rooming-in was not permitted and fathers and other family members were not allowed to visit the mother or neonate.

By the end of 1992, with the help of a Swedish medical team, Maternity Hospital 11 converted its services to comply with the United Nations Children's Fund Baby-Friendly Hospital Initiative (BFHI), which included early mother-infant contact with suckling and rooming-in for all patients. In addition, all patient's rooms were converted to private or semiprivate status, and all delivery services were changed so that each mother would be delivered of her neonate in a private room and the neonate would not be separated from the mother following delivery. Visiting practices were also altered so that fathers and other family members would be allowed to visit (**Table 1**).

Each maternity hospital in St Petersburg receives its patients according to geographic district. Maternity Hospital 11 serves an urban working-class community, with most mothers receiving prenatal care. This hospital continued to serve the same district before and after implementing the BFHI.

According to Russian law, an infant is considered abandoned when the mother leaves the maternity hospital after signing a release transferring custody of her child to the state. The number of births per year and the number of abandoned infants were obtained from the logbooks kept by the chief physician at Maternity Hospital 11. A *t* test ($\alpha = .01$) was used to compare mean data before and after the 1992 implementation of the BFHI.

The infant abandonment rate remained stable at 40 to 60 infants per 10 000 births until the end of 1992 and then decreased by 34% during 1993. This decrease in the rate of infant abandonment corresponds to the time of the hospital's conversion to the BFHI. During the 1993-1998 period, infant abandonment continued to decrease and reached a rate of 17 abandoned infants per 10 000 births by 1998.

Table 1. Hospital Care Practices of Maternity Hospital 11 From 1987 to 1998*

	BFHI	
	Before Conversion (1987-1992)	After Conversion (1993-1998)
Infant care practices		
Time from birth to first mother/infant contact	8 h	Immediately after birth
Length of first contact	30 min	24-h rooming-in
Type of first feeding	Only bottle	Mostly breastfeeding
Time infant spent with mother, %	13	100
Time infant spent in nursery, %	87	0 (Nursery closed)
Breastfeedings, No./d	6	Encouraged throughout day
Hospital practices		
Hospital offered rooming-in	No	Yes
No. of mothers per delivery room	6-8	1
No. of mothers per hospital room	6-8	1-2
Average length of stay, d	8.8	7.1
Fathers and relatives allowed to visit	No	Yes
Abandonment rate (per 10 000 births), %	50.3	27.8

*Maternity Hospital 11 is located in St Petersburg, Russia. BFHI indicates United Nations Children's Fund Baby-Friendly Hospital Initiative.

The mean (\pm SD) infant abandonment rate decreased from 50.3 ± 5.8 per 10 000 births in the first 6 years (1987-1992) to 27.8 ± 8.7 per 10 000 births in the next 6 years (1993-1998) following implementation of the BFHI ($t = 5.4$, $P = .01$).

COMMENT

It is difficult to relate what elements of the BFHI contributed most to the decrease in the rate of infant abandonment at Maternity Hospital 11 during the 1993-1998 period, because at the same time as implementing the BFHI, the hospital also changed the delivery room practices to 1 delivery per room, reduced the number of mothers in each postpartum room, and altered visiting practices. However, since introducing early contact with suckling and rooming-in reduced the infant abandonment rates in other countries,^{8,17} it is our impression that these 3 interventions may also be responsible for the reduction in the rate of infant abandonment in Maternity Hospital 11.

The sharp decrease in infant abandonment in Maternity Hospital 11 corresponds to a time of economic decline during Russia's transition to a market economy. Such drastic economic change previously has been linked to a marked increase rather than decrease in infant abandonment.¹⁸ The decrease in infant abandonment in Maternity Hospital 11 seems to be an exception to the abandonment trend in St Petersburg as well. During the 1993-1995 period, the infant abandonment rate at another maternity hospital in St Petersburg that did not implement the steps of the BFHI increased by 32% from its 1992

Table 2. Number of Births and Abandonment Rate at Maternity Hospital 11 From 1987 to 1998*

Year	No. of Births	No. of Abandoned Infants	Abandonment Rate per 10 000 Births, %
1987	3211	17	52
1988	3167	15	47
1989	3008	13	43
1990	2539	12	47
1991	1842	10	54
1992	2035	12	59
1993	1835	6	33
1994	1646	6	36
1995	1981	7	35
1996	1724	5	29
1997	1813	3	17
1998	1815	3	17

*Maternity Hospital 11 is located in St Petersburg, Russia.

level (There were 52.3 abandoned infants per 10 000 births in 1992 at Maternity Hospital 16.).¹⁹ The economic decline may also explain the marked decrease in birth rate that occurred at Maternity Hospital 11 and other maternity hospitals in St Petersburg following 1991.

A high rate of infant abandonment has been a significant problem in Russia for many centuries.^{20,21} Social programs established during the 18th century reign of Catherine the Great, including paying large fees to women to find abandoned infants and care for them, actually encouraged the practice of infant abandonment and helped make it socially acceptable.^{20,21} The promise of freedom and education to abandoned children of serfs further propelled this trend of infant abandonment and overwhelmed the capacities of the foundling homes.²⁰ By the second half of the 19th century, the central foundling home in St Petersburg was taking in 9000 infants each year and had dispatched over 30 000 infants throughout the country.²⁰ Infant abandonment continues to pose a large social and economic problem in Russia.

Studies in several countries have focused on the prevention of infant abandonment. When the initial mother-infant separation time was reduced from 6.3 to 1.6 hours and rooming-in instituted in a Thai hospital, infant abandonment declined from 33 to 1 infant per 10 000 births.⁸ A similar decrease in infant abandonment from 9 to 1.5 infants per 10 000 births was also described when 3 components of the BFHI (early contact with suckling and rooming-in) were introduced in Costa Rica.¹⁸ The importance of suckling was also observed by Fuchs,²² who reported that in the 19th century, French nurses caring for indigent women at government-sponsored hospitals observed that mothers who spent 8 days or more nursing their infants were significantly less likely to give their infants up when they left the hospital than mothers who spent less than 8 days with their infants.

It has been suggested that the first hours and days of life are a sensitive period for the mother when she is especially psychologically prepared to accept her infant as her own.¹⁶ Winnicott²³ noted:

It is my thesis that in the earliest phase, we are dealing with a very special state of the mother, a psychological condition which deserves a name, such as Primary Maternal Preoccupation. . . . I do not believe that it is possible to understand the functioning of the mother at the very beginning of the infant's life without seeing that she must be able to reach this state of heightened sensitivity . . . only if a mother is sensitized in a way I am describing can she feel herself enter her infant's place and so meet the infant's needs.

It is possible that poor women who have unplanned pregnancies are especially helped in this sensitive period by early contact with suckling and rooming-in to accept their infants.²²

With the short postpartum hospital stay that is now routine in the United States, it is necessary to explore the mechanism and timing of this process. Although Maternity Hospital 11 still had an average 7.1 days of postpartum stay after the introduction of the BFHI, this long stay may not be necessary for the reduction of infant abandonment. The report from Costa Rica noted decreased infant abandonment rates with a hospital stay of only 1 to 3 days.¹⁸

A possible explanation for the mechanism of what is happening in the sensitive period when mothers and infants are brought together in the first minutes and hours after birth comes from Swedish researchers who noted that if the lips of the infant touch the mother's nipple in the first hours of life, a mother will decide to keep her baby in her room significantly longer (100 minutes) on days 2 through 4 of her hospital stay than a mother who did not have this contact until later.²⁴ Swedish researchers also observed that early suckling significantly increased the concentration of plasma and probably brain oxytocin in the mother.²⁵ Increased brain oxytocin concentration is noted to result in slight sleepiness, euphoria, a raised pain threshold, and feelings of increased love for the infant. Under the BFHI, infants are breastfed frequently (every 40-90 minutes), thus these mothers receive almost hourly rises in plasma and brain oxytocin concentrations, probably stimulating an increased feeling of warmth and love for the infant and providing a possible explanation for the decreased infant abandonment at Maternity Hospital 11 in Russia as well as in Thailand⁸ and Costa Rica.¹⁸

Current obstetrical practices in Russia of separating the mother and infant for a large part of the first week of the neonate's life may not be conducive for a mother to develop a close relationship with her infant. Further evidence of the importance of the early hours and days comes from a controlled, randomized study of 287 mothers conducted by O'Connor et al¹⁷ who noted that simply increasing mother-infant contact by 6 hours on days 1 and 2 after delivery was associated with a decrease in child abuse and neglect during the first 17 months of life from 10 to 2 infants. In addition, Siegel et al,²⁶ studying a similar intervention in a randomized trial of 202 mothers during the first year after delivery, found a reduction in child abuse and neglect from 10 to 7 in the group of mothers who were given 15 hours of additional contact with their infants in the first 3 days of the neonate's life. When the results of these 2 studies are combined using a meta-analysis, there is a suggestion that extended contact and rooming-in may

lead to a reduction in child abuse ($P = .05$). Larger studies are required to confirm this finding.

These observations suggest that institutional policies may have a significant effect on the development of mother-infant interaction and as a result may change a phenomenon as serious as infant abandonment. The findings of these studies together suggest that encouraging early contact with suckling and rooming-in may stimulate newly recognized behavioral and hormonal systems that help the mother begin to feel the neonate is hers. Inducing these built-in mechanisms early in the neonatal period may provide a low-cost intervention that will decrease the incidence of infant abandonment. Larger randomized trials should be encouraged to determine if these interventions may also significantly alter child abuse during the early years of the infant's life.

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