

A Hospital Based Study on Breastfeeding Practices in Infants Aged 0-6 Months

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Abstract

Objective: To study breastfeeding practices in 0–6-month babies delivered institutionally & to find barriers to standard breastfeeding practices from postnatal mothers.

Methods: Hospital based cross sectional study which included all postnatal mothers who delivered a healthy neonate. Sociodemographic details regarding age of mother and father of neonate was obtained. Their residence, education, occupation, socioeconomic status, family type etc. was obtained and noted. Breastfeeding practices were assessed and time of initiation of breast feeding after delivery was noted. In case of delay, the reason of delay was assessed. All the cases were assessed for exclusive breast feeding and reason for not exclusive breastfeeding was noted. Colostrum feeding, prelacteal feeding or any other practice with respect to feeding of neonate was observed and noted. Position of breastfeeding, feeding practice during night, method of top feeding and its reason was assessed.

Results: 66.1% mothers at least took four or more antenatal visits. During the antenatal visits, advice regarding diet and physical activity was received by 87% mothers whereas breast feeding advice was received by only 14.3% mothers. Only 57.8% neonates were breast fed exclusively (100% in case of NVD and only 32.7% in case of LSCS). Reason for not feeding exclusively was insufficient milk production (83.1%) in majority of cases followed by Inverted nipples (8.1%). Initiation of breast feeding was significantly earlier i.e. within 30 minutes following delivery in NVD cases (91.7%) as compare to LSCS cases (83.2% after 1 hour) ($p < 0.05$) reason for delay in initiation of breast feeding was no milk production during initial few hours/days (87.9%), maternal illness (6.3%) and unawareness regarding timing of initiation among mothers (3.4%).

Conclusion: The rate of exclusive breastfeeding is suboptimal and are significantly affected by mode of delivery. Upper middle socioeconomic status, death of child and LSCS are associated with delay in initiation of breastfeeding whereas breast feeding counselling during ANC, breast examination during ANC and vaginal delivery are associated with exclusive breastfeeding. Though IYCF recommends breast crawl immediately or within 5 minutes of delivery, it is not being practiced and must be emphasized after delivery.

Keywords: Exclusive Breastfeeding, Colostrum, World Health Organization (WHO), Breast Crawl

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Introduction

Breastfeeding, the first fundamental right of the child, has been accepted as the most vital intervention for reducing infant mortality and ensuring optimal growth and development of children. Breast milk secreted by mammary glands of human female is the ideal nutrition for growing neonate and infant for the first six months of life. The milk secreted in initial few days following birth is called colostrum. It is thick, yellowish fluid which is rich in protein and has low content of carbohydrates and fat as compared to mature breast milk. Also, the colostrum helps in establishment of gut microflora and has high content of immunoglobulin A (IgA) and thus, it helps in protecting the infant from the risk of infection.

World Health Organization (WHO) and UNICEF recommends early initiation of breastfeeding preferably within 1 hour of birth and continuation of exclusive breast feeding till first 6 months of life. Despite this, only 80% infants worldwide are exclusively breastfed and initiation of breastfeeding within one hour of birth is being practiced in approximately 50% of infants. The condition is challenging in the developing countries, where the practice of prelacteal feed in the form of cultural and religious practices is rampant. [1,2]

A Lancet study states that optimal breastfeeding may reduce the infant mortality rate by 13-15%. Optimum breastfeeding practices are thus recommended as one of the most cost effective intervention for improving child health and reducing the neonatal and infant mortality rate. Literature suggests that the breastfeeding patterns are suboptimal for approximately 60% of infants, which is the major attributable factor for neonatal and infant morbidity and mortality. Poor and suboptimal feeding practices increases the susceptibility of children for irreversible consequences in the form of malnutrition, stunting, increased risk of infections

especially diarrhea and pneumonia, poor cognitive development, and in severe cases death. [3]

To increase the awareness and importance of breast feeding, World breast feeding week is celebrated every year in the first week of August. However, due to modernization, education and employment of women and availability of artificial feeds, the incidence of breastfeeding is declining worldwide. Breast feeding patterns are also influenced by number of factors including socioeconomic factors, rural and urban residence, religious and cultural practices, beliefs, education especially maternal education, psychological status, mother's employment and taboos and myths related to colostrum. [4]

As the rate of exclusive breastfeeding in India continues to be suboptimal with no appreciable gains in the last 10-15 years, it is necessary to identify the problems faced by postnatal mothers regarding initiation of breastfeeding and continuation of exclusive breast feeding. The present study was thus conducted at tertiary care centre to assess the breastfeeding practices in infants delivered about the initiation and continuation of exclusive breastfeeding till 6 months of age & identify the problems faced by postnatal mothers regarding initiation of breastfeeding and continuation of exclusive breastfeeding from birth of infants to 6 months postnatally.

Materials and Method

The present study entitled "Breastfeeding practices in infants aged 0-6 months a hospital based study" was conducted as a facility based prospective study at Department of Pediatrics, LN Medical College and associated JK Hospital Bhopal during the study period of 2 years.

Study design: Hospital based cross sectional study

Study population: All postnatal mothers who delivered a healthy neonate in JK hospital irrespective of mode of delivery.

Study area: Department of Pediatrics, LN Medical College and associated JK Hospital Bhopal

Study Duration: 2 years

Inclusion Criteria

- All postnatal mothers delivered in JK hospital irrespective of mode of delivery.
- All healthy newborns delivered in JK hospital

Exclusion criteria

- Preterm babies (<34 weeks)
- Sick newborns
- Newborn having birth asphyxia or delayed crying
- Extremely low birth weight newborns
- Mothers who lost their babies
- Babies with congenital anomalies.

Written consent: Written consent was obtained from all the study participants after explaining them nature and purpose of study. They were ensured that confidentiality will be maintained and option to withdraw from the study was always kept open.

Methodology

After obtaining ethical clearance from Institute's ethical committee, all the females fulfilling the inclusion criteria were enrolled and written consent was obtained from all the participants. Sociodemographic details regarding age of mother and father of neonate was obtained

at the time of admission. Their residence, education, occupation, socioeconomic status, family type etc. was obtained and noted.

Antenatal history was obtained in detail and number of antenatal visits during current pregnancy were noted. All the females were enquired about the advice received during antenatal period with regard to diet, physical activity, nutritional supplements and breastfeeding. History regarding breast examination during antenatal period, their finding and advice given was obtained.

At the time of delivery, mode of delivery, indication in case of cesarean delivery, gestational age at the time of delivery and anthropometric parameters of neonate i.e. birth weight, length and head circumference was noted. At the time of discharge, weight of neonate along with length and head circumference was recorded.

Using the questionnaire, breastfeeding practices were assessed and time of initiation of breast feeding after delivery was noted. In case of delay, the reason of delay was assessed. All the cases were assessed for exclusive breast feeding and reason for not exclusive breastfeeding was noted in cases not practicing exclusive breast feeding. Colostrum feeding, prelacteal feeding or any other practice with respect to feeding of neonate was observed and noted. Position of breastfeeding, feeding practice during night, method of top feeding and its reason was assessed.

Observation Chart

Table 1: Distributions of Mother According to Antenatal History

Antenatal history		Frequency (n=322)	Percentage
Antenatal visits	<4	109	33.9
	>4	213	66.1
Advice regarding diet and physical activity	No	42	13
	Yes	280	87
Breast feeding advice given	No	276	85.7
	Yes	46	14.3

Examination of breast done	No	289	89.8
	Yes	33	10.2
dT given	Yes	322	100

Table 2: Distributions According to Feeding Pattern

		Total		NVD + ASSISTED		LSCS		P value
		n	%	n	%	n	%	
Feeding	Breastfeeding exclusively	186	57.8	120	100.0	66	32.7	0.001
	Both breastfeeding and feeding breast milk substitutes	132	41	0	0.0	132	65.3	
	Only breastmilk substitute	2	0.6	0	0.0	2	1.0	
	Any other	2	0.6	0	0.0	2	1.0	
Reason for not feeding exclusively	Enough milk is not producing	113	83.1	0	0.0	113	83.1	Not Applicable
	Baby is unable to suck	1	0.7	0	0.0	1	0.7	
	Baby is refusing	0	0	0	0.0	0	0	
	Inverted nipple	11	8.1	0	0.0	11	8.1	
	Breast abscess	2	1.5	0	0.0	2	1.5	

Table 3: Distributions According to Time of Initiation of Breastfeeding

		Total		NVD+ ASSISTED		LSCS		P value
		N	%	n	%	n	%	
Initiation of breastfeeding	Immediately	0	0	0	0.0	0	0.0	0.001
	< 30minutes	116	36.1	110	91.7	6	3.0	
	>1 hour	178	55.3	10	8.3	168	83.2	
	>4 hours	28	8.7	0	0.0	28	13.9	
Reason for delay in initiation of breastfeeding	Post operative abdominal pain	5	2.4	0	0	5	2.6	0.001
	Mother's illness	13	6.3	4	40	9	4.6	

	No milk produced for the first few hours/ days	181	87.9	0	0	181	92.3	
	Don't know that it has to be given within a hour	7	3.4	6	60	1	0.5	
Timing of initiation of breast	5-12 hours	8	28.6	0	0	8	28.6	Not Applicable
	>12-24	2	7.1	0	0	2	7.1	

Table 4: Factors Associated with Initiation of Feeding

		<1 hour	>1 hour	P value
Maternal age	≤ 25	51 (38.6)	81(61.4)	0.42
	>25	65 (34.2)	125(65.8)	
Maternal education	Illiterate	10 (66.7)	5(33.4)	0.032
	Primary	10 (47.6)	11 (52.4)	
	Middle/ high school	26 (29.9)	61 (70.1)	
	Higher secondary/ Graduate	70 (35.2)	129 (64.9)	
Maternal occupation	Home maker	104 (36.9)	178 (63.1)	0.39
	Working	12 (30)	28 (70)	
Type of family	Nuclear	36 (32.7)	74 (67.3)	0.38
	Joint	80 (37.7)	132(62.2)	
Socioeconomic status	Upper Middle	3 (13)	20(87)	0.002
	Lower Middle	30 (34.1)	58(65.9)	
	Upper Lower	72 (36.7)	124 (63.3)	
	Lower	11 (73.3)	4 (26.7)	
Gravida	Primigravida	35 (28.7)	87(71.4)	0.03
	Multigravida	81 (40.5)	119(59.5)	
Death	0	1(34.4)	200 (65.6)	0.001
	≥1	11 (64.7)	6 (35.3)	
Breast feeding advice during ANC	No	101 (36.6)	175 (63.4)	0.72
	Yes	15 (32.6)	31 (67.4)	
Breast examination during ANC	No	104 (36)	185 (64)	0.96
	Yes``	12 (36.4)	21 (63.6)	
Mode of delivery	NVD/ ASSISTED	110 (91.7)	10 (8.3)	0.001
	LSCS	6 (3)	196 (97.1)	

Table 5: Factors Associated With continuation of Exclusive Breastfeeding

		Exclusive Breastfeeding Not continued	Exclusive Breastfeeding continued	P value
Maternal age	≤ 25	56 (42.4)	76 (57.6)	0.96
	>25	80 (42.1)	110 (57.9)	
Maternal education	Illiterate	4 (26.7)	11 (73.3)	0.385
	Primary	7 (33.3)	14 (66.7)	
	Middle/ high school	35 (40.2)	52 (59.8)	
	Higher secondary/ Graduate	90 (45.2)	109 (54.8)	
Maternal occupation	Home maker	123 (43.6)	159 (56.4)	0.18
	Working	13 (32.5)	27 (67.5)	
Type of family	Nuclear	43 (39.1)	67 (60.9)	0.41
	Joint	93 (43.9)	119 (56.1)	
Socioeconomic status	Upper Middle	12 (52.2)	11 (47.8)	0.092
	Lower Middle	40 (45.5)	48 (54.5)	
	Upper Lower	82 (41.8)	114 (58.2)	
	Lower	2 (13.3)	13 (86.7)	
Gravida	Primigravida	54 (44.3)	68 (55.7)	0.74
	Multigravida	82 (41)	118 (59)	
Death	0	133 (43.6)	172 (56.4)	0.07
	≥1	3 (17.6)	14 (82.4)	
Breast feeding counselling during ANC	No	125 (45.3)	151 (54.7)	0.007
	Yes	11 (23.9)	35 (76.1)	
Breast examination	No	130 (45)	159 (55)	0.003
	Yes	6 (18.2)	27 (81.8)	

	10 weeks	39.6	0.9	35.62	0.86	35.53	0.86	0.41
	14 weeks	40.9	0.9	40.80	0.91	40.99	0.93	0.07
	6 months	43.4	1.0	43.32	0.98	43.48	0.95	0.14

Results

Majority i.e. 66.1% mothers at least took four or more antenatal visits. During the antenatal visits, advice regarding diet and physical activity was received by 87% mothers whereas breast feeding advice was received by only 14.3% mothers. Only

57.8% neonates were breast fed exclusively, 100% in case of NVD and only 32.7% in case of LSCS. Majority of neonates were given both breast milk as well as breast milk substitute following LSCS. The feeding pattern varied significantly between the neonates born via LSCS and NVD ($P < 0.05$) reason for

not feeding exclusively was insufficient milk production (83.1%) in majority of cases followed by Inverted nipples (8.1%).

None of the neonates received breast feeding immediately following delivery. Initiation of breast feeding was significantly earlier i.e. within 30 minutes following delivery in NVD cases (91.7%) as compare to LSCS cases (83.2% after 1 hour) ($p < 0.05$) reason for delay in initiation of breast feeding was no milk production during initial few hours/days (87.9%), maternal illness (6.3%) and unawareness regarding timing of initiation among mothers (3.4%). No milk secretion was the most common reason for delay in initiation after LSCS which was significantly higher as compare to NVD ($P < 0.05$). In case of initiation after 4 hour, majority of mothers initiated breast feeding between 24 and 48 hours (53.6%).

In present study, higher educational status, upper socioeconomic status, primigravida, and LSCS were significantly associated with delayed initiation of feeding. However history of death of child previously was associated with early initiation of breast feeding ($p < 0.05$)

Breast feeding advise during ANC (76.1%), breast examination during ANC (81.8%) and vaginal delivery (100%) were factors significantly associated with continuation of breast feeding ($p < 0.05$).

Statistical Analysis:

Data was compiled using MS Excel and analyzed using IBM SPSS software version 20. Categorical data was expressed as frequency and proportions whereas continuous data was expressed as mean and standard deviation. Chi square test and independent t test was used to assess the difference in categorical and continuous variables respectively between the groups. P value less than 0.05 was considered statistically significant.

Discussion

Exclusive Breastfeeding (EBF) rates remain low in both low-income and high-income countries despite World Health Organization recommendations for EBF till 6 months Multifactorial determinants of breastfeeding need supportive measures at many levels . When relevant interventions are delivered adequately, breastfeeding practices are responsive and can improve rapidly. Breastfeeding provides short-term and long-term health and economic and environmental advantages to children, women, and society. Optimal breastfeeding practices, reflected by early initiation and feeding of colostrum, avoidance of prelacteal feeds, and continued exclusivity or predominance of breastfeeding, are critical for assuring proper infant nutrition, growth and development. This study emphasizes the need for breastfeeding intervention programs especially for the mother during antenatal and postnatal check-ups and practices like discarding the colostrum and early/late weaning are still widely prevalent and need to be addressed.

Sankar MJ et al did a systematic review and meta-analysis on optimal breastfeeding practices and infant and child mortality. The aim of study was to synthesise the evidence for effects of optimal breastfeeding on all-cause and infection-related mortality in infants and children aged 0–23 months. The risk of all-cause mortality was higher in predominantly, partially and no breastfed infants compared to exclusively breastfed infants 0–5 months of age. The risk was twofold higher in no breastfed children when compared to breastfed children. The findings underscore the importance of optimal breastfeeding practices during infancy and early childhood. Meshram et al studied impact of feeding and breastfeeding practices on the nutritional status of infants in a district of Andhra Pradesh. Banapurmath CR et al researched on breastfeeding practices in villages of

central Karnataka. [5,6]

Haroon S et al did a systematic review on breastfeeding promotion interventions and breastfeeding practices. After reviewing 4600 abstracts, 372 studies were selected for full text screening and 110 of these studies were finally included. Statistically significant increases in EBF rates as a result of breastfeeding promotion interventions were observed. Breastfeeding education and/or support increased EBF rates and decreased no breastfeeding rates at birth, <1 month and 1-5 months. Combined individual and group counseling appeared to be superior to individual or group counseling alone. Interventions in developing countries had a greater impact than those in developed countries.[7]

Rollins NC et al elaborated why invest, and what it will take to improve breastfeeding practices .Despite its established benefits, breastfeeding is no longer a norm in many communities. Multifactorial determinants of breastfeeding need supportive measures at many levels, from legal and policy directives to social attitudes and values, women's work and employment conditions, and health-care services to enable women to breastfeed. When relevant interventions are delivered adequately, breastfeeding practices are responsive and can improve rapidly. The best outcomes are achieved when interventions are implemented concurrently through several channels. Breastfeeding provides short-term and long-term health and economic and environmental advantages to children, women, and society. To realise these gains, political support and financial investment are needed to protect, promote, and support breastfeeding. [8]

Bhandari S et al did a national study on determinants of infant breastfeeding practices in Nepal. Infants reported to have

received colostrum were more likely to have begun breastfeeding within an hour of birth (APR 1.26; 95% CI 1.04, 1.54) compared to those who did not receive colostrum .Most infants in Nepal receive colostrum but less than half initiate breastfeeding within an hour of birth and one-third are fed prelacteal feeds, which may negatively affect breastfeeding and health throughout early infancy. [9]

Hector D et al applied a conceptual framework on factors affecting breastfeeding practices. Data show that the majority of NSW women stop breastfeeding in the early months after birth, and most do not breastfeed exclusively for the recommended six months . The planning of public health interventions to promote longer and more exclusive breastfeeding practices requires an understanding of the factors that affect breastfeeding. [10]

Breastfeeding practices play an important role in reducing child mortality and morbidity. Madhu K et al did a descriptive cross-sectional study on breast feeding practices and newborn care. The primary objective of this study was to describe the breastfeeding and newborn care practices in rural areas and the secondary objective was to describe the factors affecting the initiation and duration of breastfeeding. Study showed 97% of the mothers initiated breastfeeding, 19% used pre lacteal feeds, 90% had hospital deliveries and 10% had home deliveries, and 50% used a house knife to cut the umbilical cord among home deliveries. [11]

Radhakrishnan S et al did a study on prevalence of exclusive breastfeeding practices among rural women in Tamil Nadu. The majority of women (60.5%) initiated breastfeeding within half an hour after delivery. Various demographic factors like the education of the mother, type of delivery, type of family, occupation, number of children, monthly

income, family size, age at marriage and religion had a direct influence on exclusive breastfeeding, which in turn influenced the weight of the baby and immune status of the child. Most of the mothers (44.7%) inferred that the main reason for giving bottle feed is because of inadequate breast milk secretion. Promotion of exclusive breastfeeding and focus on the factors affecting them is highly warranted in this area. [12]

Poor infant feeding practices and their consequences are one of the world's major problems and a serious obstacle to social and economic development. Various studies have shown that infant feeding could be influenced by socioeconomic status, maternal education, place of living and many other factors. I-Shoshan AA studied factors affecting mother's choices and decisions related to breast feeding practices and weaning habits. Exclusive breastfeeding (EBF) is of critical importance for the growth and the development of children. Gogoi I et al studied prevalence of exclusive breastfeeding in slums of Dibrugarh Town and factors affecting the breastfeeding practice. Mog C et al did a cross sectional study on prevalence and determinants of exclusive breastfeeding among lactating mothers in an urban slum, West Tripura. There is a need to emphasize on breastfeeding practices among the mothers, as there are many wrong practices going on. [13-15]

Bandyopadhyay M et al in a similar study saw impact of ritual pollution on lactation and breastfeeding practices in rural West Bengal, India. This study on breastfeeding practices explored how the concept of ritual pollution influenced practices after delivery, including during lactation and breastfeeding. Belief in 'impurity and polluting effects of childbirth' necessitated seclusion and confinement of mothers after childbirth in the study villages. Breastfeeding was universal and

prolonged, and food proscriptions were followed by mothers after childbirth to protect the health of their newborn. Initiation of breastfeeding was delayed after birth because of the belief that mother's milk is 'not ready' until two-to-three days postpartum. Cultural and traditional practices have considerable implications on lactation and breastfeeding, and in the overall well-being and health of mothers and infants. Breastfeeding programs should take into account traditional beliefs and concepts when communicating with families about practices such as food restriction and food avoidance. [16]

Vyas S et al did a community based study with an aim to know breast feeding practices of mothers with a view to strengthen these practices for improving the health of infants. in a rural area of Uttarakhand. The study findings revealed that majority of children were breastfed (93.6%). Initiation of breastfeeding within an hour was practiced by only a few mothers (21.37%). Only 5.13% babies were exclusively breastfed till six months. This shows that undesirable cultural practices such as giving pre-lacteals, late initiation of breast feeding are still prevalent among the community & these should be discouraged by proper BCC activities. For successful feeding, mothers need active support, care & privacy during pregnancy & following birth, not only of their families & communities but also of the entire health system. [17]

Velusamy V et al from pooled analysis from three prospective birth cohort studies in South India studied exclusive breastfeeding practices among mothers in urban slum settlements. Jelly P et al did exploration of breastfeeding practices in India in a systematic review. Breastfeeding is essential and a unique way of providing food to infants for development and healthy growth. Various breastfeeding practices are followed in different regions

of India. This study aims to collect the information for practices related to prelacteal feed, early initiation of breastfeeding, exclusive breastfeeding, and weaning in India. Four studies stated that exclusive breastfeeding was a suboptimal practice, often continued for less than six months for reasons like working mothers (not enough time for breastfeeding), traditional beliefs, and inadequate milk output. Four studies explored the causes of early onset of weaning, and the most common reasons were initiation of supplementary feeding before six months, insufficient breastmilk, and lack of knowledge. [18,19]

Chandhiok Net al did analysis of national survey data on changes in exclusive breastfeeding practices and its determinants in India .Exclusive breastfeeding up to six months is considered to be beneficial for the health and wellbeing of infants and mothers. To guide policy makers in the development of targeted breastfeeding promotion strategies, changes in the effect of predictor variables on exclusive breastfeeding practices in India were examined. Conclusion was that the rate of exclusive breastfeeding in India continues to be sub-optimal with no appreciable gains in the last ten to fifteen years. Interventions that seek to increase exclusive breastfeeding should be timely with an increased focus on mothers with infants four to six months of age and in those who are most at risk of early discontinuation of exclusive breastfeeding. Overall, the results of the individual studies indicate that unhealthy breastfeeding practices such as prelacteal feeding, suboptimal exclusive breastfeeding, and early initiation of weaning practices were prevalent and almost the same across India. [20,21]

Conclusion

The rate of exclusive breastfeeding is

suboptimal and are significantly affected by mode of delivery. The undesirable practice related to breastfeeding such as delayed initiation of breastfeeding, early weaning or less continuation of breastfeeding are higher among mothers delivering via LSCS as compared to vaginal delivery. Upper middle socioeconomic status, death of child and LSCS are associated with delay in initiation of breastfeeding whereas breast feeding counselling during ANC, breast examination during ANC and vaginal delivery are associated with exclusive breastfeeding.

Practice of giving prelacteal feed or discarding colostrum are mainly due to traditions and lack of awareness regarding importance of colostrum. Antenatal period is the most receptive period where mother is receptive to breastfeeding advise and thus she must be counselled regarding the benefits of breastfeeding. Though IYCF recommends breast crawl immediately or within 5 minutes of delivery, it is not being practiced and must be emphasized after delivery. To ensure breast crawl, assistance must be provided immediately following delivery in labour room or the operation theatre.

Declarations:

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What This Study Add to Existing Knowledge

- Breastfeeding is a cost effective method of minimizing infant morbidity

and mortality and promoting growth and development, thus each contact with the mother during the antenatal period must be utilized to counsel and prepare her regarding the early initiation of breastfeeding and continuing exclusive breastfeeding till 6 months of age.

- As examination of breast is an important determinant of exclusive breast feeding till 6 months, examination of breasts for breastfeeding must be done during third trimester to identify problems that may affect initiation of breastfeeding.
- To promote early initiation of breastfeeding, breastfeeding assistance must be given immediately in the labor room or operation theater or as soon as after the mother is out from the effect of general anesthesia.
- “Breast crawl” must be practiced which include skin to skin contact immediately or within 5 minutes after birth to promote early initiation of breastfeeding.

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