

Family-integrated care for preterm infants in China

Review of: Hei M, Gao X, Li Y, *et al.* Family integrated care for preterm infants in China: a cluster randomized controlled trial. *Journal of Pediatrics* 2021;228:36–43.

STUDY QUESTION

Setting: 11 level 3 NICUs across eight provinces in China. All were similar in size and patient mix. Current practice in China is for neither parents to visit their baby on a NICU. Care is provided solely by medical and nursing staff. 323 patients were enrolled in the Ficare hospitals. 337 patients were enrolled in the standard care arm. Staff were trained on site in the Ficare model of practice. This included written protocols, parent education materials, staff training materials, training workshops, hands-on training and a central training meeting in Changsha. Only mothers could enter the NICU, but both parents could attend education sessions. Mothers spent ≥ 6 hours a day in the NICU caring for their baby. Mothers were closely supervised by FICare nurses and attended regular education sessions and medical rounds.

Outcomes: The primary outcome was length of stay. The secondary outcomes were medical expenditures, weight gain velocity after regaining birth weight, duration of oxygen requirement, nosocomial infection rates, antibiotic exposure, breastfeeding rates at discharge and rehospitalisation within 30 days after discharge.

Follow-up period: Growth parameters measured at 1, 3, 6, 12 and 18 months and breastfeeding status at 1, 3 and 6 months' corrected age.

Patient follow-up: 18 months of age. In the Ficare model, 298/323 (92%) patients were analysed, and in the standard care model, 303/337 (90%) were analysed. Causes of patient loss to follow-up included patient withdrawal, non-compliance, being transferred to other hospitals or death.

MAIN RESULTS

To achieve 80% power to detect a 5-day decrease in length of stay, a sample size of 293 infants per group was needed, allowing for a 10% drop-out rate and five sites in each arm. Length of stay was significantly reduced in the Ficare group compared with standard care by 19% (after adjustment, $p \leq 0.01$). Table 1 summarises key outcomes for the babies in the Ficare group compared with standard care.

In the Ficare group, there was 53% reduction in readmission within 30 days after discharge ($p \leq 0.01$) and significantly higher breastfeeding rates up until 6 months of age (78.5% vs 254.0%, $p \leq 0.01$). Follow-up rates, weight and length up until 18 months were significantly higher in the Ficare group. Head circumference was significantly larger until 18 months when there was no significant difference between the two groups.

Table 1 Key outcomes for the babies in the Ficare group compared with standard care

	Adjusted mean ratio/difference	95% CI
Length of stay	0.81	0.72 to 0.91
Medical expenses	0.69	0.53 to 0.90
Weight gain velocity after regaining birth weight	5.43	3.65 to 7.21
Nosocomial infections n/1000 hospital days	0.67	0.47 to 0.96
Duration of antibiotics per 100 hospital days	0.67	0.47 to 0.96
Duration of supplemental oxygen treatment	0.71	0.5 to 1.0

The key principles of Ficare include parent education, staff education, peer-to-peer support, resources and environment.¹ The overarching aim was to educate and empower parents to be primary caregivers and shared decision makers with the clinical team in their infant's care.¹

Ficare has been used in low-resource settings for many years, initially due to the lack of trained staff to care for their babies.² Since then, it has been introduced worldwide with a shift in delivery of care and decision making to parents. Until recently, there has been limited evidence of Ficare in NICUs.

O'Brien *et al* reported the first multicentre cluster trial in NICUs in 2018 showing better weight gain, higher breastfeeding rates and less parental stress.³ In China, however, parents are not allowed to visit their babies on NICUs with limited communication between parents and staff. There is also a culture of 'sitting the month' where the mother stays at home for the first month after delivery and does not bathe. This may have led to the relatively high refusal rate into the study (74% of eligible babies enrolled). Practical difficulties were also overcome, in terms of space on the NICU for parents to allow them to spend a minimum of 6 hours with their babies per day.

The objective of the paper was to demonstrate that implementing Ficare in Chinese NICUs was both possible and beneficial to the babies. Ficare in this study has shown, like many other studies,

reduced length of stay, infection rates, days spent on oxygen, and better breast feeding, growth and follow-up rate.^{1,3} Importantly, the study has shown that that implementation is feasible in China, a country with a huge population, and that the positive outcomes demonstrated may be replicated in other areas of care in terms of cost savings and length of stay.

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Contributors CF wrote the summary of the paper and the commentary. CMH contributed to the commentary and references.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; internally peer reviewed.

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To cite Fraser C, Harrison CM. *Arch Dis Child Educ Pract Ed* 2022;**107**:465–466.

Published Online First 26 May 2021

Arch Dis Child Educ Pract Ed 2022;**107**:465–466. doi:10.1136/edpract-2021-321842

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