

Formula Fortification for the Preterm Infant After Discharge from the NICU A Quality Improvement Project

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QUALITY PROBLEM

Nutrition for the preterm infant following hospital discharge from the NICU varies greatly among institutions, however studies have shown that a high percentage of preterm infants globally have growth values <10th percentile at time of discharge.¹ Preterm infants also have increased risk of readmission following NICU discharge for reasons that include feeding difficulties.¹ While the majority of research regarding nutritional requirements for the preterm infant have looked at extremely low or very low birthweight infants, studies have shown that late preterm infants have higher mineral requirements than term infants and nutritional requirements of late preterm infants is greater than that of term infants.¹ While human milk and breastfeeding is recommended for the first six months of life, preterm and late preterm infants are likely to have nutrient deficits at discharge and require fortification to promote growth and development after leaving the hospital.

As one of three level III/IV NICUs in New Mexico, many of our patients are discharged to primary care providers across the state, which include many rural locations. We have seen many the infants discharged from the NICU at our developmental follow up appointments, typically two months after discharge, beginning to plateau or fall of their growth chart and/or on a formula that is not optimizing their nutritional requirements.

QI Framework

What are we trying to accomplish? Optimizing nutrition in preterm infants after discharge from the NICU by educating parents and providers regarding the importance and typical duration of fortification in formula.

How will we know that a change is an improvement? Understanding of fortification and nutrition requirements will be seen on surveys and improvements in growth charts will be seen at follow up visits.

What change can we make that will result in improvement? Update the education provided in the fortification booklet given to parents in the UNM NICU/ICN units, create a pamphlet as a resource for outpatient providers.

QI Project Aims

- Optimize nutrition in preterm infants after discharge from the NICU, as evidenced by better understanding of nutritional and fortification requirements by families and providers.
- Improve weight trends of preterm infants at follow up visits.

SETTING AND TEAM

Setting: Surveys were created and distributed to families in the UNM NICU and at the UNM Special Baby Clinic (outpatient), as well as providers (physicians, nurse practitioners, physician assistants, and nurses) in the UNM NICU and ICN units as well as outpatient UNM Pediatricians and Family Practice physicians.

Team: The QI team includes Dr. Erin Swieter, Dr. Dawn Novak, and Kara McKinney.

QI Project Measures

- **Outcome Measures:** Percentage of infants with poor weight gain/growth at UNM follow up visits
- **Process Measures:** Number of providers and families with appropriate understanding of preterm nutrition and fortification requirements
- **Balancing Measures:** For improving weight gain/growth across all UNM NICU discharges/ NICU discharges in New Mexico, consider implementing education for NICU families and providers statewide

SURVEY QUESTIONS ADMINISTERED

Figure 1. Family Survey Questions and Results

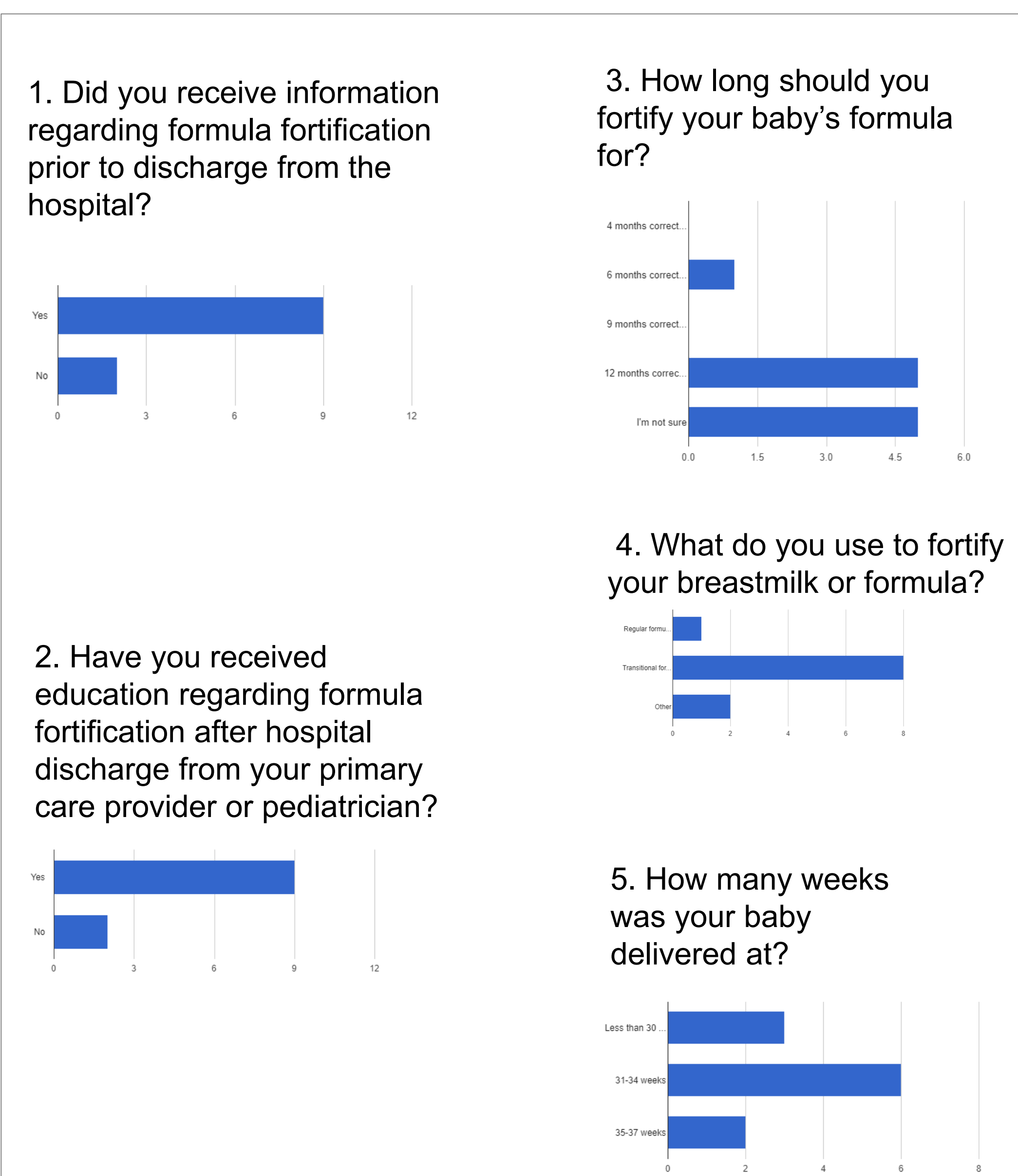
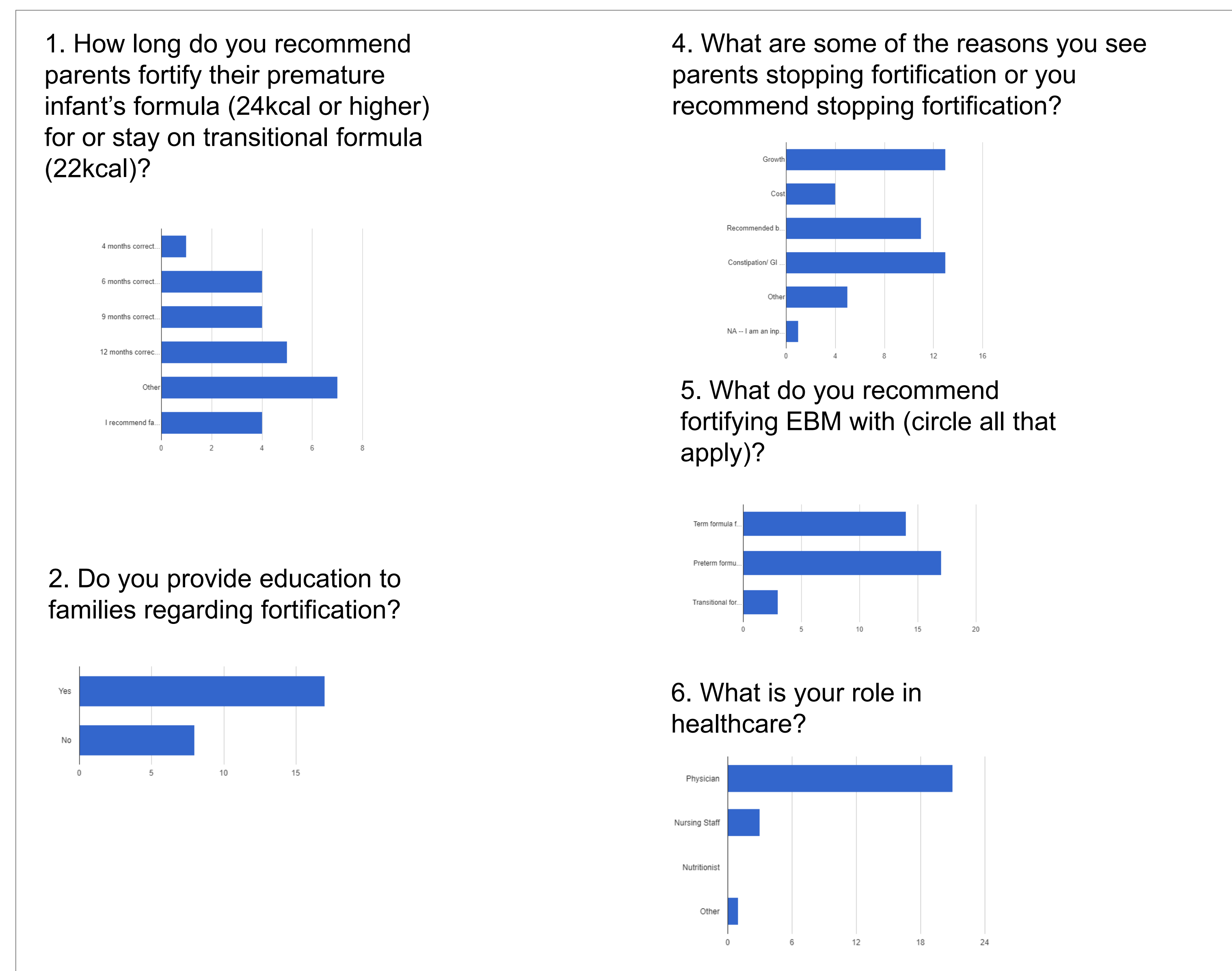
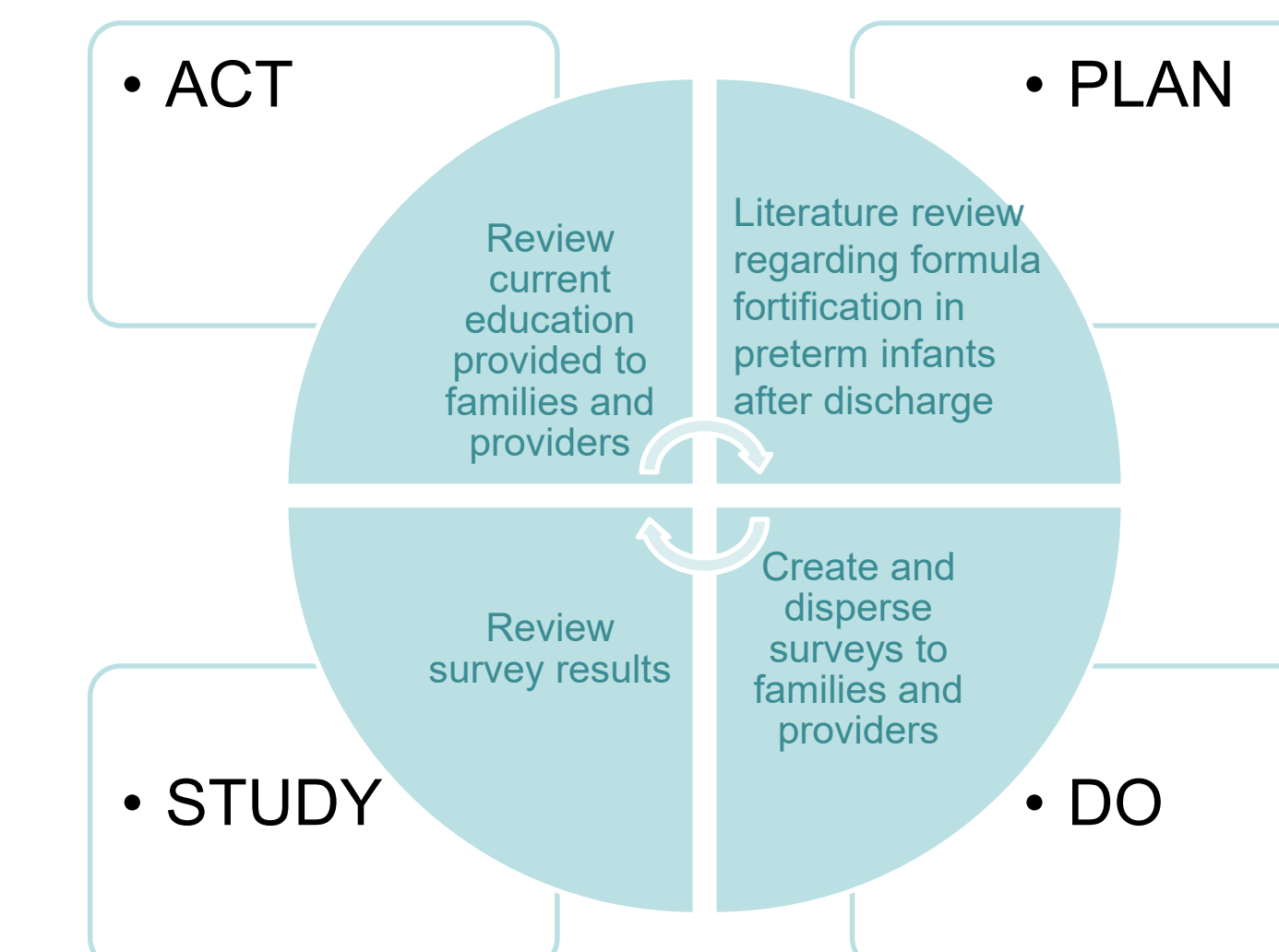


Figure 2. Provider Survey Questions and Results (excludes free text question 3)

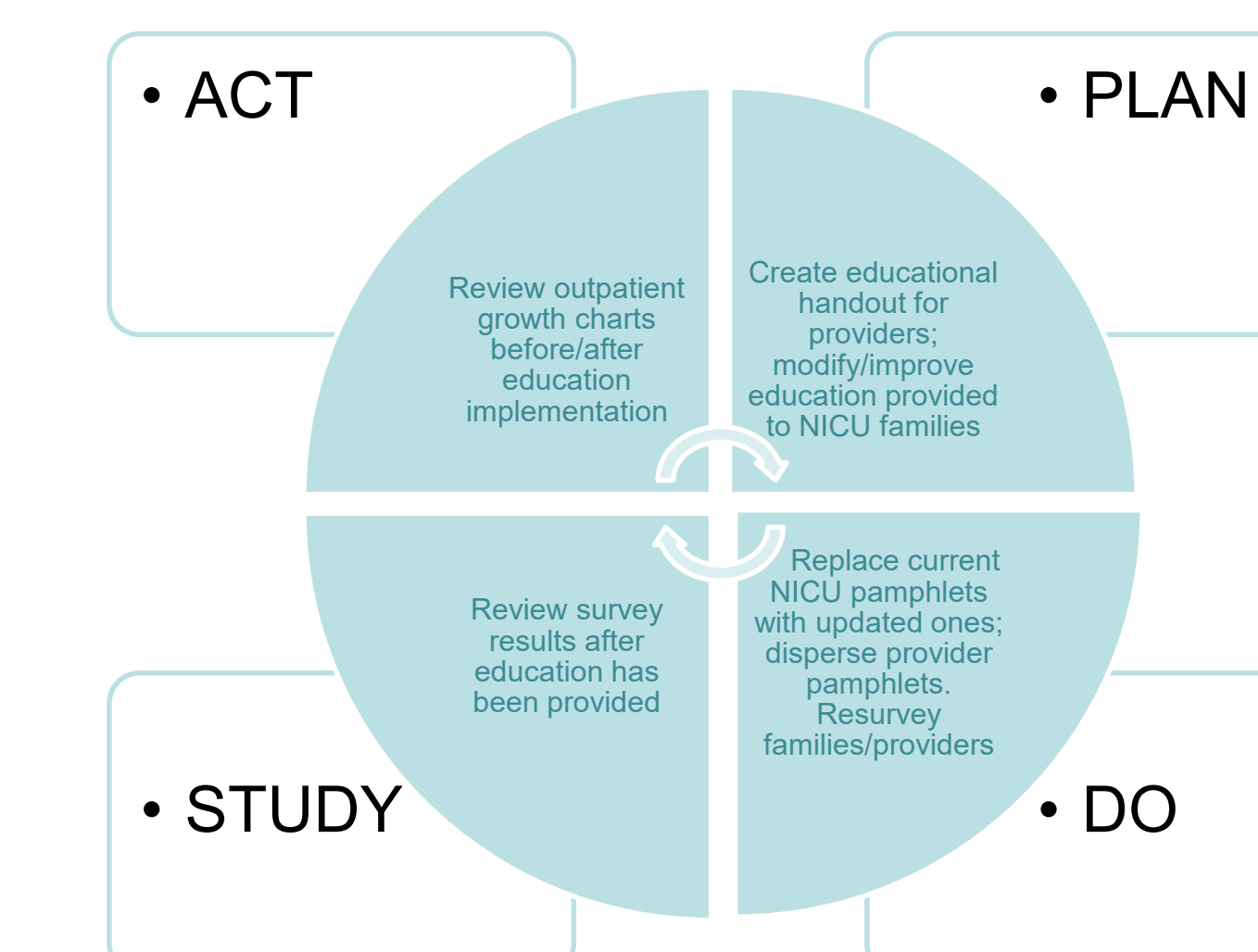


PDSA

PDSA Cycle 1



PDSA Cycle 2



SUMMARY

To anonymously survey pediatric healthcare providers and parents of preterm infants discharged from the NICU regarding their knowledge of formula fortification of preterm infants, which in turn, will provide insight regarding the knowledge base and practice preferences of formula fortification for preterm infants following NICU discharge.

NEXT STEPS

Complete analysis of survey results that will help guide the creation of an educational pamphlet to be distributed to health care providers and families regarding formula fortification. Re-administer surveys following distribution of educational materials.

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REFERENCES

1. Lapillonne A, O'Connor DL, Wang D, Rigo J. Nutritional recommendations for the late-preterm infant and the preterm infant after hospital discharge. J Pediatr. 2013 Mar;162(3 Suppl):S90-100.