



## The impact of switching to Neocate® Syneo® Infant in an infant with cow milk allergy: taking time to thrive

### PATIENT HISTORY:

The GROW Clinic at Boston Medical Center is a multidisciplinary outpatient pediatric nutrition clinic serving infants and children who are diagnosed with growth failure. Patient N was referred to our clinic at two months old after discharging from a local, outpatient NICU stepdown feeding program. Patient N is a female, born term, small for gestational age (SGA), with a nutrition history significant for intrauterine growth restriction (IUGR), supraventricular tachycardia, oropharyngeal dysphagia, neonatal opioid withdrawal syndrome, and cow milk allergy. Her care was further complicated by the Department of Children and Families (DCF) involvement. This case highlights the importance of the type of formula selected to improve growth.

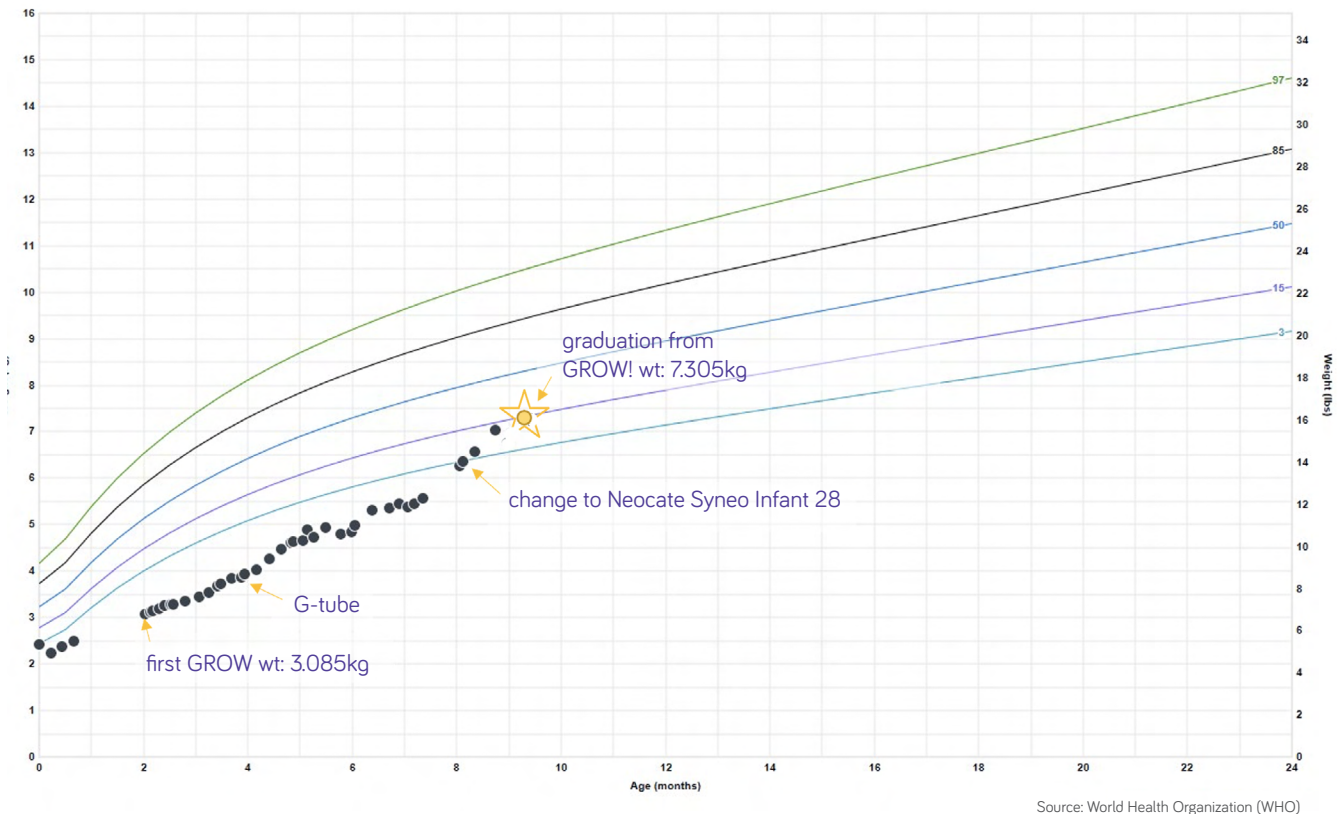
### NUTRITIONAL MANAGEMENT:

When the healthcare providers at GROW first met patient N, she was a full oral feeder but had a history of nasogastric (NG) tube feeding support in her stepdown feeding program. She presented to our clinic established on an extensively hydrolyzed infant formula (eHF). An eHF was selected because of her previously diagnosed cow milk allergy and associated gastrointestinal symptoms of bloody stools, gas, and constipation on a standard cow milk-based formula. Her formula was fortified to 24 kcal/fl oz with an additional 4 kcal/fl oz from canola oil. A high-calorie concentration of 28 kcal/fl oz was required because she still struggled to take substantial volumes by mouth. Her continued gastrointestinal symptoms of constipation and gas were managed with prune juice and simethicone. Her first weight recorded at the GROW clinic was 3.085 kg (6 lbs. 12.8 oz.) (< 1%, Z = -3.86) and her weight/length was 1% (Z = -2.21). Her weight gain goal for catch-up growth and weight repletion was +30 g/day. After 23 days in our care, her rate of weight gain failed – decreasing from an average of +14 g/day between appointments to +10 g/day. Her weight Z-score fell <-4.00. Adverse gastrointestinal symptoms continued, including inconsistent bowel movements (constipation, but would have large volume diarrhea when she did stool), gas, fussiness, colic, and notable pain around feeds. She was switched to Neocate® Infant DHA/ARA, fortified to 28 kcal/fl oz (4 kcal/fl oz from oil) and changes to her gastrointestinal symptom management included the start of famotidine, use of suppositories, and infant massages for gas relief. Despite these changes, patient N continued to struggle to take adequate oral volumes to maintain her nutrition and weight gain needs.

In the following month, she developed a kidney stone and a urinary tract infection (UTI) – contributing further to pain and poor oral intake. By the age of four months, she received a gastrostomy tube (G-tube) and continued Neocate Infant DHA/ARA, fortified to 28 kcal/fl oz. Her initial outpatient plan was established providing Neocate Infant DHA/ARA at 28 kcal/fl oz by mouth, followed by G-tube feeds of unfinished volumes. Even after G-tube feeds, patient N had some initial difficulties achieving catch-up weight gain because of another UTI, and she later tested positive for COVID-19. She finally had a steady three months of consistent oral/G-tube intake of Neocate Infant DHA/ARA fortified to 28 kcal/fl oz and her weight gain improved to an average of +20 g/day. By late February 2022, her weight was 6.56 kg (14 lbs. 7.4 oz.)(4%, Z = -1.70) and weight/length at 15% (Z = -1.03). Around the same time, she required changes in the cardiac medical management of her supraventricular tachycardia, including a dose increase in three solution-based medications. With the heavy solute load from her medication changes, she experienced dark green, watery diarrhea, and mucous emesis.



Her plan remained unchanged from Neocate Infant DHA/ARA fortified to 28 kcal/fl oz, however, her parents inquired about any diet changes that could help her gut health. Despite formula supply issues, Neocate® Syneo® Infant was easily accessible. Her providers recommended the switch to provide the pre- and probiotic blend (also known as synbiotics) to help with gut health and gastrointestinal tolerance. Patient N switched to Neocate Syneo Infant, fortified to 28 kcal/fl oz, with excellent tolerance. Her gastrointestinal symptoms improved, including more formed stools, and decreased bouts of phlegm, fussiness, and gas. Her growth thrived with simultaneous improvements in weight gain and linear growth. She gained an average of +27 g/day in the month following this switch, ultimately reaching a weight of 7.305 kg (16 lbs. 1.7 oz.) (15%, Z= -1.05) and weight/length of 26% (Z= -0.65). At nine months old, she graduated from GROW clinic, started taking solid foods, and her care is now being managed by her primary care physician, cardiologist, and gastroenterologist.



Source: World Health Organization (WHO)

## CONCLUSION:

This case demonstrates the detailed care to help patient N thrive. Even when oral calories were maximized, gastrointestinal symptoms medically managed, and intake was controlled via G-tube, this case highlights the importance of the type of formula selected to improve growth. Neocate Syneo Infant provided the synbiotic blend which the healthcare team attributed to an improvement in her gut health and gastrointestinal tolerance.

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Neocate® is a family of hypoallergenic, amino acid-based medical foods and is intended for use under medical supervision. Neocate® Junior is indicated for the dietary management of cow milk allergy, multiple food allergies and related GI and allergic conditions, including eosinophilic esophagitis, food protein-induced enterocolitis, short bowel syndrome, malabsorption, and gastroesophageal reflux related to food allergies.

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