

Fellow's Column: Three-Pronged Score to Monitor Weekly Postnatal Growth in Preterm Infants

Archana Bottu, MD
Shabih Manzar, MD, MPH

“This brief report describes a three-pronged scoring (TPS) system to monitor weekly postnatal growth in preterm infants. The TPS was developed by combining growth velocity (GV), weight gain ratio (WGR), and a delta z-score (D Z). A score of 3 is concerning, a score of 4-5 is reassuring, and a score of 6 is appropriate.”

Acronyms and Abbreviations:

- GV – Growth velocity
- WGR – Weight gain ratio

Three-Pronged Score (TPS)

Parameter	Score of 1	Score of 2
Growth Velocity (g/kg/day)	< 10 g/kg/day	10-15 g/kg/day
Weight Gain Ratio	< 0.5	>0.5
Z-score Difference	Negative	Positive

Minimum score 3, Maximum score 6

A score of 3 is concerning and needs action

A score of 4-5 is reassuring

A score of 6 is optimal/appropriate

- ZSD –Z-score difference

Summary:

This brief report describes a three-pronged scoring (TPS) system to monitor weekly postnatal growth in preterm infants. The TPS was developed by combining growth velocity (GV), weight gain ratio (WGR), and a delta z-score (D Z). A score of 3 is concerning, a score of 4-5 is reassuring, and a score of 6 is appropriate. The TPS provides a model for developing clinical decision support.

Adequate growth is particularly important for preterm infants, monitored by weight, height, and head circumference plotted on growth charts. In this paper, we looked at growth pertaining to weight.

“Adequate growth is particularly important for preterm infants, monitored by weight, height, and head circumference plotted on growth charts. In this paper, we looked at growth pertaining to weight.”

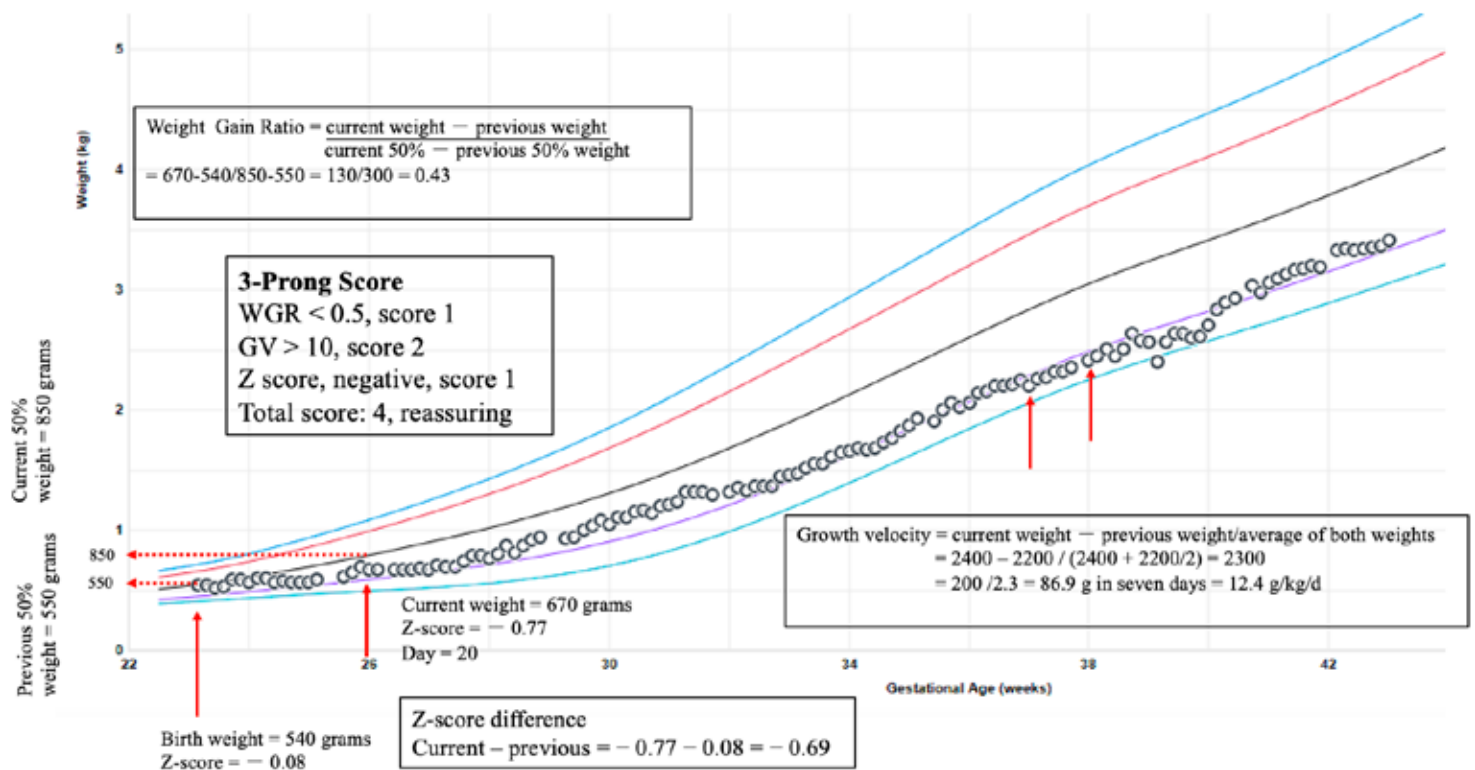


Figure 1 presents an example of calculating GV, WGR, and ZSD. Most of the studies on growth monitoring use Z-scores.(1) Rochow et al. (2) have shown that the inclusion of weight gain ratio (WGR) in addition to delta z-score (D Z) or the difference between z-scores (ZSD) is a better way to monitor postnatal growth. Growth velocity (GV) is the most common indicator to monitor growth.(3) The diagram below uses a three-pronged score, combining GV, WGR, and ZSD, to assess growth more thoroughly in a preterm infant. Example: Figure 1 presents an example of calculating GV, WGR, and ZSD.

“In conclusion, a three-pronged score may better evaluate weekly postnatal growth in preterm infants. This score could be used as a model for developing clinical decision support.”

In conclusion, a three-pronged score may better evaluate weekly postnatal growth in preterm infants. This score could be used as a model for developing clinical decision support.

References:

1. de Onis M, Blössner M. The World Health Organization Global Database on Child Growth and Malnutrition: methodology and applications. *Int J Epidemiol.* 2003;32(4):518-526. doi:10.1093/ije/dyg099
2. Rochow N, Landau-Crangle E, So HY, et al. Z-score differences based on cross-sectional growth charts do not reflect the growth rate of very low birth weight infants. *PLoS One.*

2019;14(5): e0216048. Published 2019 May 7. doi: 10.1371/journal.pone.0216048

3. Patel AL, Engstrom JL, Meier PP, Jegier BJ, Kimura RE. Calculating postnatal growth velocity in very low birth weight (VLBW) premature infants. *J Perinatol* 2009; 29(9): 618-22

Authors' contribution: Dr. Manzar and Dr. Bottu conceptualized the study and wrote the draft.

Completing Interests Statement: Authors have no competing interests to declare.

Financial Disclosure Statement: Authors have no funding to disclose.

NT

Corresponding Author



*Archana Bottu, MD
Fellow, PGY 4
Department of Pediatrics
Division of Neonatology
College of Medicine
Louisiana State University of Health Sciences
1501 Kings Highway
Shreveport, LA 71130*

Fellow's Column is published monthly.

- Submission guidelines for "Fellow's Column":
- 2000 word limit not including references or title page. Exceptions will be made on a case by case basis
- QI/QA work, case studies, or a poster from a scientific meeting may be submitted..
- Submission should be from a medical student, resident, fellow, or NNP in training.
- Topics may include Perinatology, Neonatology, and Younger Pediatric patients.
- No more than 20 references.
- Please send your submissions to:

Elba Fayard, MD, Interim Fellowship Column Editor
or Saba Saleem, OMS IV Fellowship Column Assistant Editor
LomaLindaPublishingCompany@gmail.com

Corresponding Author



*Shabih Manzar, MD, MPH
Attending
Department of Pediatrics
Division of Neonatology
College of Medicine
Louisiana State University of Health Sciences
1501 Kings Highway
Shreveport, LA 71130
Telephone: 318-626- 4374
Fax: 318-698-4305
Email: smanza@lsuhsc.edu*

New subscribers are always welcome!

NEONATOLOGY TODAY

**To sign up for a free monthly subscription,
just click on this box to go directly to our
subscription page**

Readers can also follow

NEONATOLOGY TODAY

via our Twitter Feed

@NEOTODAY