

Regional Variation in Discharge Margin of Safety-a Reflection of National Practice Differences. Alan R. Spitzer, Sharon Kirkby, Gary Cater, Michael Kornhauser, Paidos Health Management Services, Deerfield, IL, and the Division of Neonatology, Department of Pediatrics, the State University of New York at Stony Brook, Stony Brook, NY.

Background: In order to be discharged from the hospital, the prematurely born infant must attain several developmental milestones: the ability to feed orally, thermal stability, and adequate resolution of apnea and bradycardia. In addition, most neonatologists will allow an additional period of hospitalization for observation, which has been called the “discharge margin of safety (DMOS).” Several publications (Darnall, et al., *Pediatr.* 1997; 100: 795; Eichenwald, *Pediatr.* 2001; 108: 204) have attempted to define the DMOS by examining the typical discharge practices of neonatologists. To date, however, no one has examined whether there are regional differences in practice related to DMOS that may significantly affect DMOS and, ultimately, overall length of stay (LOS) in the hospital.

Purpose: To examine the regional variation in practice related to DMOS to see if any significant differences exist that may alter length of stay and affect cost of care.

Methods: The PROACT database of Paidos Health Management Services was queried for a patient population that fulfilled the criteria outlined by Eichenwald: Infants were between 30 and 34 6/7 weeks post-menstrual (PMA) age. Patients who had surgery were excluded from the study. All infants had achieved physiological maturity, defined by full volume oral feeds, temperature maintenance in an open crib, and documentation of the last apnea episode by either observation or recording at the time of discharge. It was determined that the patient’s apnea had adequately resolved to permit home care with or without a home monitor with/without caffeine. In addition, a DMOS was used in all centers based on criteria used in individual hospitals. Nine major metropolitan areas of the country (Austin, Bridgeport, Chicago, Louisville, Miami, Milwaukee, New York, Philadelphia, Washington, DC) in which Paidos Health Management Services assisted in the management of neonatal care served as the study centers.

Results: 3467 infants met criteria. Mean birth weights of these infants varied from a mean of 1732 gms to 1981 gms (mean = 1919 ± 432 gms). The mean postmenstrual (PMA) ages of infants from the regions, however, ranged from 35.1 to 36.1 weeks (mean = 35.5 ± 2.2 wks). The center, however, that had the infants with the lowest mean birth weight also had one of the highest mean gestational ages, suggesting a high proportion of lower birth weight infants at each PMA. DMOS ranged between 3.0 and 5.7 (mean = 3.8 ± 1.7) days in these nine regions, while average LOS varied from 16.4 to 23.6 days (mean = 20.0 ± 12.7 days). The region with the highest DMOS also had the longest mean LOS. Readmission rates were related more to PMA at birth than to practice differences and ranged from 1.0% at 30 weeks PMA to 0.3% at 34 weeks PMA.

Discussion: While there are some differences in the patient populations seen in different regions of the country, there are apparently very striking variations in patient management, especially as premature infants approach discharge. These variations do not appear to dramatically affect readmission rates, but do have a substantial effect upon the duration of overall hospitalization, with one region having a mean LOS more than one week longer than the region with the shortest LOS. Examination of practice patterns and the factors that influence them may be helpful in reducing duration of hospitalization of low birth weight infants.

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