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Improving fluid management of extreme premature infants by providing a restrictive fluid management algorithm in the NICU

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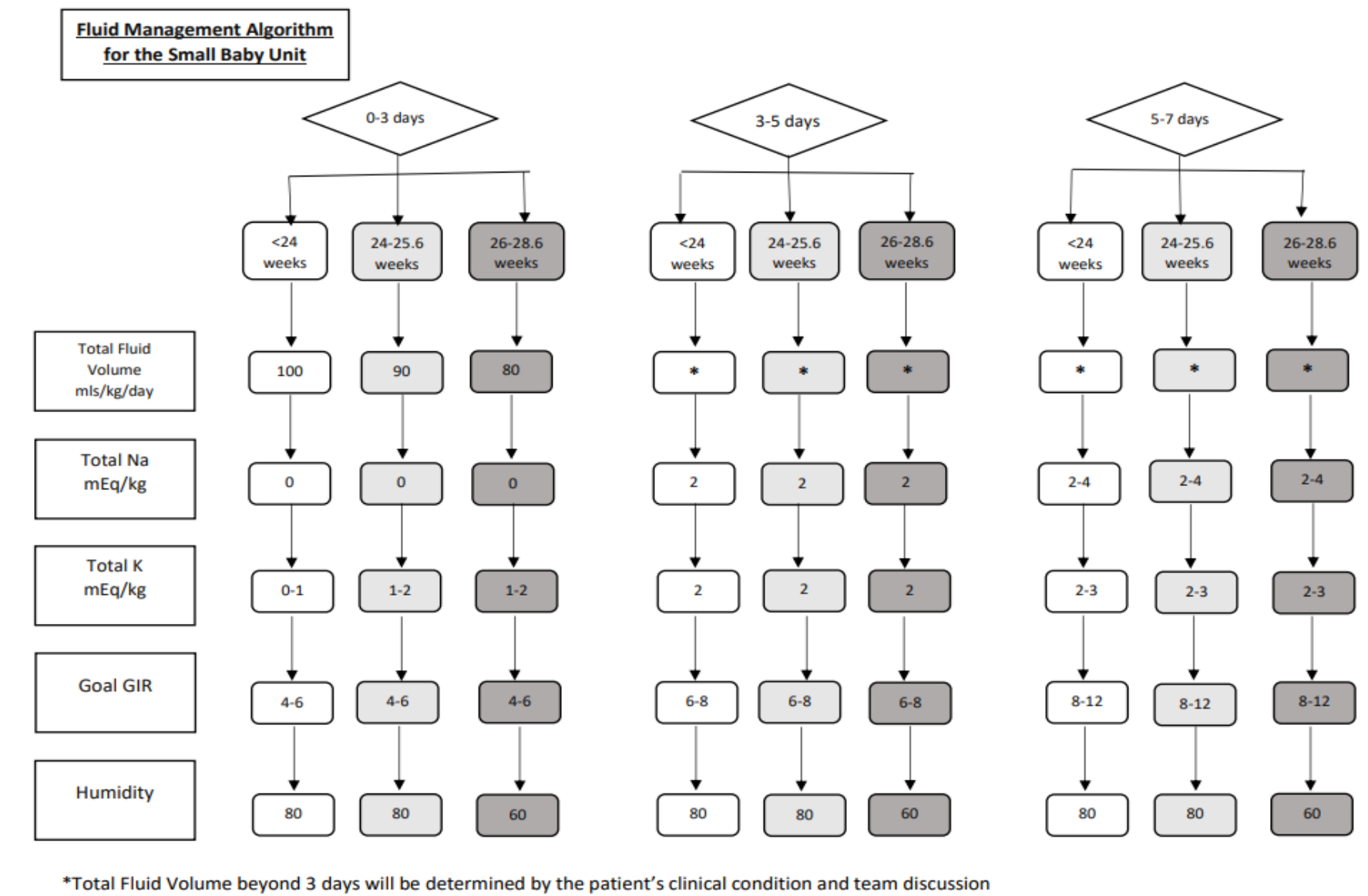
Children's Mercy Hospital Kansas City, Missouri & University of Missouri Kansas City School of Medicine

Background

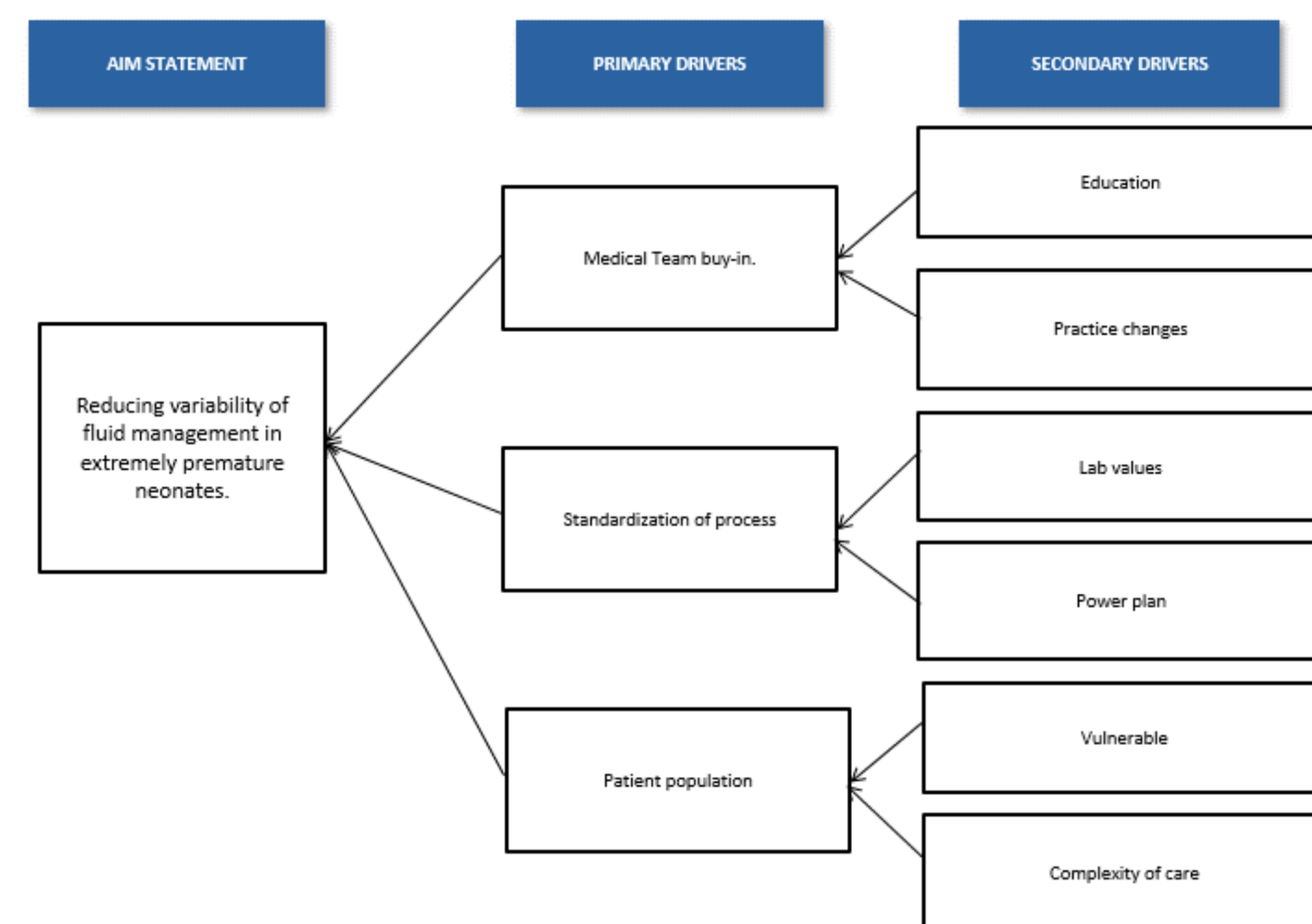
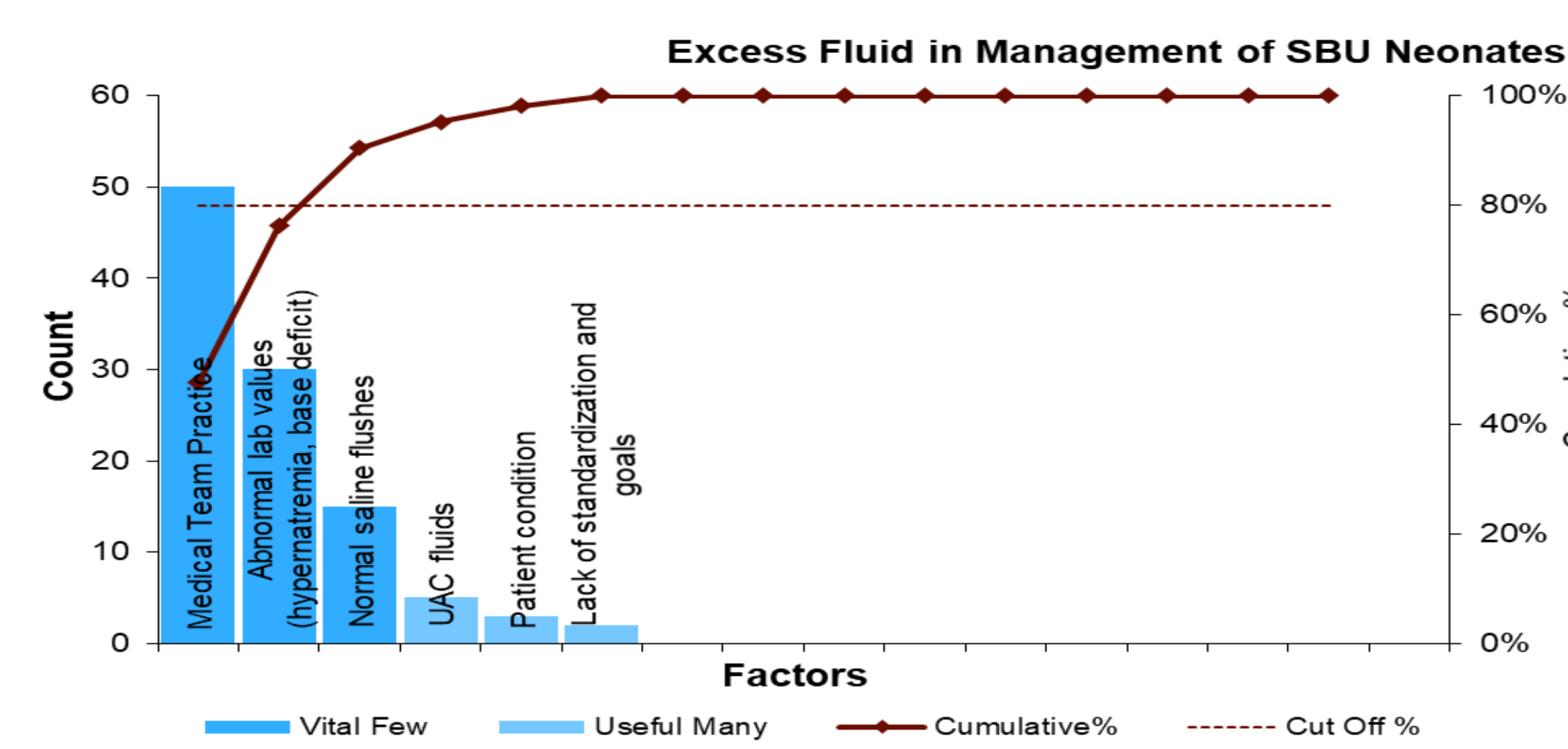
- **Excessive fluid intake** in extreme premature neonates is associated with/increases risk of **adverse outcomes (NEC, PDA, BPD, overall morbidity/mortality)**.
- Currently, there is a lack of evidenced-based standards in the fluid management of this **vulnerable population**.
- Review of fluid management at our institution revealed variable practices in these neonates.

Design/Methods

- We aimed to improve fluid management in this population by providing a restrictive fluid algorithm with greater than 70% compliance by the medical team over an 18-month period.

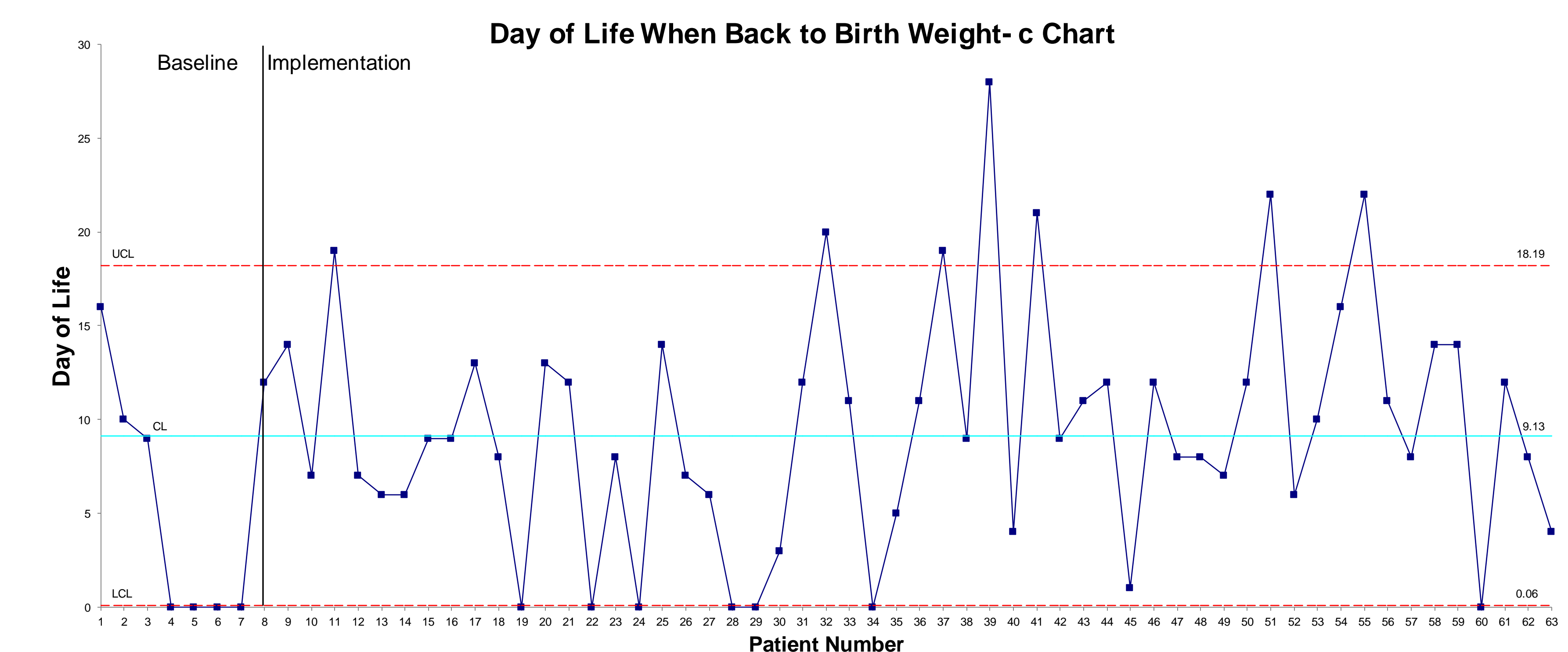
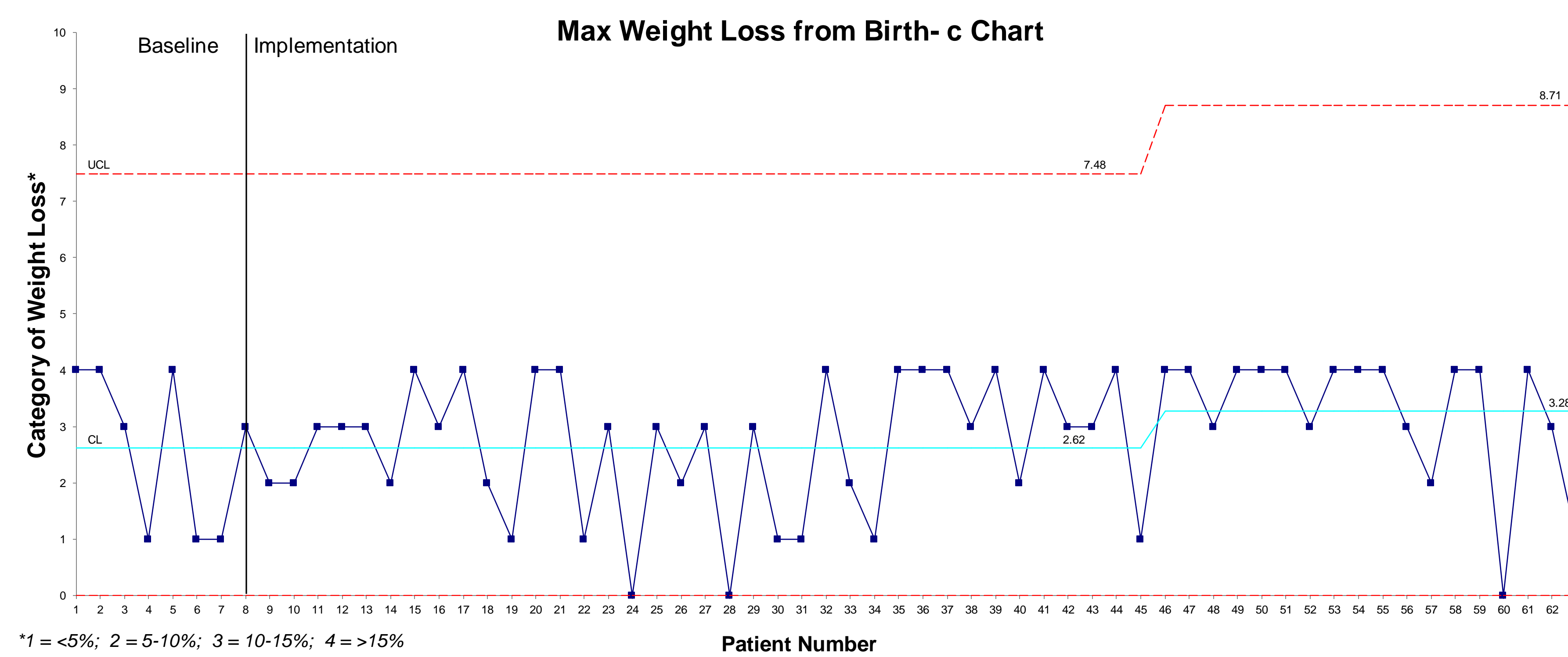
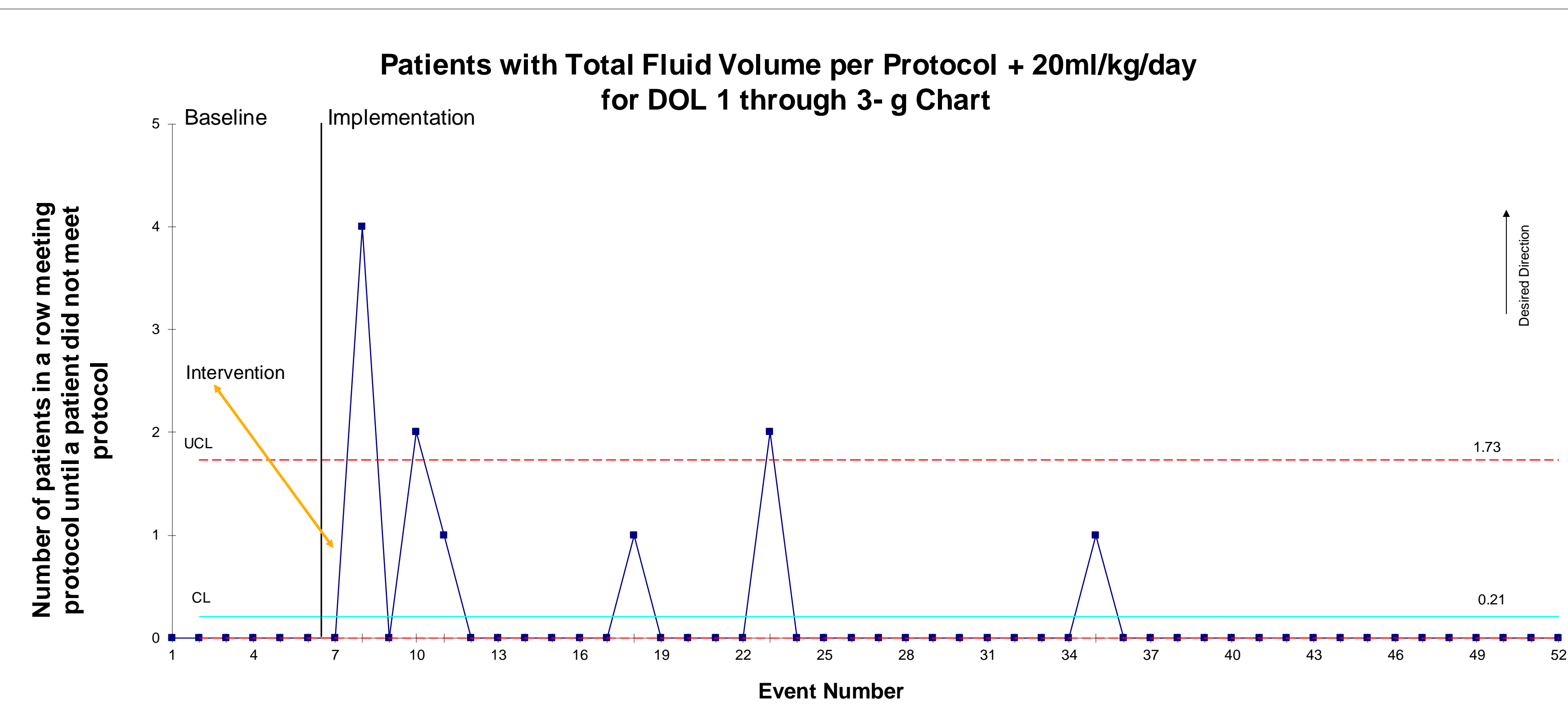


- **Outcome measures were:**
 - 1) Total fluid volume (TFV) administered in a 24-hour period on DOL 0-3 per protocol.
 - 2) TFV administered in a 24-hour period on DOL 0-3 per protocol + 20ml/kg/day allowance.



- **Balancing measures** were maximum percentage of birth weight lost and DOL back to birth weight.

Results



Results

- There were 80 neonates <math>< 28</math> 6/7 weeks gestation admitted to our NICU during this 18-month time period.
 - 63 of these neonates were included in the study.
 - 17 neonates were excluded due to death during the first week of life or admitted after 6 hours of life.
 - 6 neonates were used as a baseline prior to initiation of protocol.
- **Of the 57 neonates placed on restrictive algorithm only 24.6% (n=14) and 19.2% (n=11) met criteria of outcome measures (1) and (2) respectively.**
- None of the baseline neonates followed fluid algorithm.
- During this study days process measures studied showed **days back to birth weight of included patients remained on average (9.13 days) was similar** throughout the study, however, **maximal percentage of weight loss (3.28) started to significantly increased** as compliance with the fluid algorithm worsened.
- **Overall, outcome measures did show some initial modest improvement in compliance, but this significantly waned during the duration of the study.**

Conclusion

- We did not meet our goal of >70% compliance with fluid algorithm.
- **Next steps** for our project is to gather more data regarding reasons for deviation with the protocol, such as patient condition.
- We will also reconvene and determine if there are any adjustments which could be made to the algorithm allowing for better compliance while still restrictive as well as good patient care.
- We also plan to **gather outcome data regarding adverse outcomes (NEC, PDA, BPD, and mortality)** comparing those that did follow fluid algorithm versus those who did not.

Acknowledgements

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