Measuring Accuracy of the Finnegan Neonatal Abstinence Scoring System

Padmani Karna, M.D. (karna@msu.edu), Martha Rodewald RNC-NIC, Jodi Renfro RNC-NIC, Angela Jacob, RN, NNP, Jennifer Thompson-Wood, MSN, RN, Amanda Schwan, BSN, RN. Nicole Jones, M.S. PhD

Sparrow Hospital , Michigan State University

Introduction

Consistent reliable assessment of neonates is critical for the management of Neonatal Abstinence Syndrome to prevent under or over treatment of these neonates. The Finnegan Neonatal Abstinence Scoring System tool (FNAST) is used predominantly to assess clinical symptoms of withdrawal. Each staff member at our hospital has been trained in the correct use of an abstinence assessment tool, using a commercially available video. However; we have not measured the accuracy of scoring among care providers.

AIM: To assess Finnegan scoring accuracy among health care providers at our institution.

METHODS:

Clinical setting: Single Perinatal center in an urban setting with 3500-4000 deliveries per year (additional 2000 deliveries in the region), 35 NICU beds with 28 average census and normal nursery.

### Consistent Care of NAS Infants

This year at an annual skills lab each staff member scored one of the 2 standardized video clips (video A, n = 87 and video B, n=63) from FNAST to measure inter-rater reproducibility among care providers. After scoring these vignettes each item of FNAST was reviewed and discussed by an educator. Their score was compared with the "Gold Standard" score provided by experts in the video. In addition specific items in 3 areas (Central Nervous system, Gastro-intestinal system and Metabolic / Vasomotor / Respiratory system) were further analyzed to identify the least likely items to be scored correctly on the Finnegan Neonatal Abstinence Scale.

Results

Summary Statistics for Modified Finnegan Scores of Standardized Video vignettes after 12 months of training

Video	N	Correct Score	Mean Score	Standard Deviation	95% CL Mean	Minimum Maximum	Mean ± 1	Coefficient of Variation
A	87	10	9.8	1.74	9.4, 10.2	5/15	68%	16%
B	63	14	13.9	2.26	13.3, 14.5	8/22	63%	18%

Distribution of System Specific Modified Finnegan Neonatal Abstinence Scores For Two Standardized Video vignettes
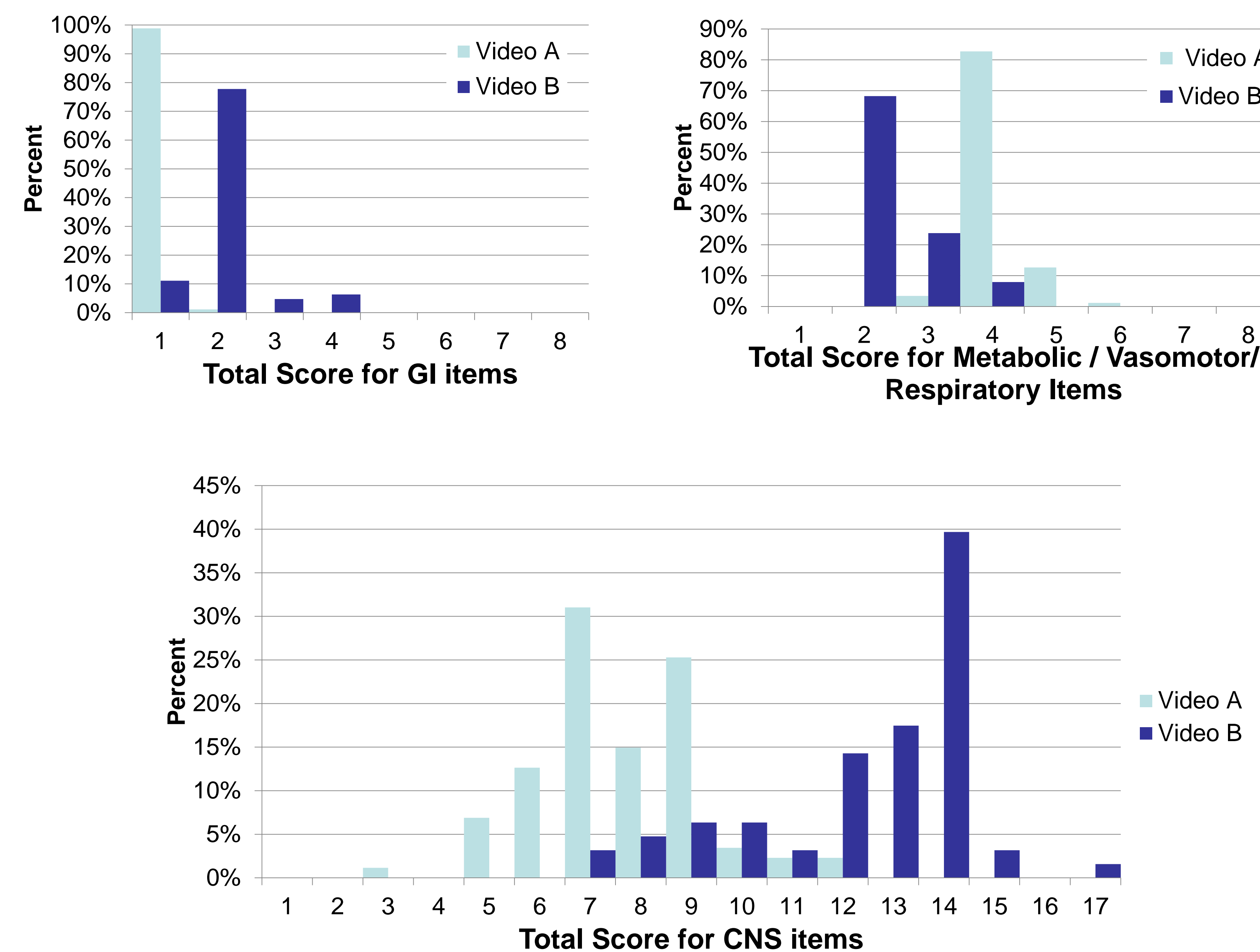
Further examination of specific items scored by the nurses showed the lowest rates of correctly identified items were:

A. Hyperactive Moro reflex (correctly endorsed by 49% for video A and 70% for video B.

B. Moderate-severe tremors when undisturbed (correctly endorsed by 29% for video A and 65% for video B.

C. The remaining FNAST items were selected correctly by 84-100% in both video vignettes.

Results

Number of Modified Finnegan Scores Above Treatment Threshold (≥ 8) for Standardized Video vignettes*

	Video A		Video B	
	N	%	N	%
Modified Finnegan Total Score < 8	8	9.2%	0	0%
Modified Finnegan Total Score ≥ 8	79	90.8%	63	100%
Total N	87		63	

*The correct total score for Video A = 10
The correct total score for Video B = 14

Conclusion

The items that were least likely to be scored correctly were subjective items from the central nervous system disturbances category. Further training or additional clarification on these signs and symptoms may increase the number of infants with neonatal abstinence syndrome that are correctly identified and treated.

Next Steps

A team of care providers will review and develop further clarification for these items to decrease variability for FNAST scoring at our institution.

In addition we have focused on standardized management of neonates with Abstinence syndrome:
- Standardized screening for prenatal substance use or abuse.
- Standardized non-pharmacological management.
- Standardized pharmacological treatment.
- Teaching parents non-pharmacological strategies for care.