

## Evaluating the Effects of Changing the Treatment of Neonatal Abstinence Syndrome from Methadone to Morphine

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#### Published In/Presented At

Oumarbaeva, Y. Kowalski, W. Furry, W. (2018, March), *Evaluating the Effects of Changing the Treatment of Neonatal Abstinence Syndrome from Methadone to Morphine*. Poster Presented at: 2018 SELECT Capstone Posters and Presentations Day. Kasych Family Pavilion, Lehigh Valley Health Network, Allentown, PA.

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# Evaluating the Effects of Changing the Treatment of Neonatal Abstinence Syndrome from Methadone to Morphine

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## Background

Neonatal abstinence syndrome (NAS) is a withdrawal syndrome that develops as newborns experience an abrupt discontinuation of in utero exposure from abused drugs by the mother. With the growing opioid epidemic in the United States, NAS is a rapidly growing public health concern. Currently, methadone and morphine are the two most common pharmacological methods used to treat NAS. Methadone requires a longer taper, but can be completed at home if the environment is conducive. Morphine on the other hand is a faster taper, but must be completed in the hospital. Furthermore, iatrogenic administration of opioids during treatment may lead to further CNS damage. Therefore, physicians aim to limit total drug administration while maintaining adequate treatment and ensuring a safe transition to home off medications. To hopefully reduce the amount of neonatal opioid exposure, the Neonatal Intensive Care Unit (NICU) at Lehigh Valley Health Network (LVHN) changed the standard NAS treatment from a methadone protocol to a morphine based pathway. This project aims to compare the hospital length of stay (LOS), days of opioid exposure (DOE), and total opioid administration (mg/kg) using the two different standards of treatment.

## AIMS

This project aims to compare the hospital length of stay (LOS), days of opioid exposure (DOE), and total opioid administration (mg/kg) using the two different standards of treatment.

**SMART AIM:** Reduce total days of drug exposure for NAS babies admitted to CC NICU from 55 days to less than 30 days by December 31, 2017.

**Balancing AIM:** LOS to not increase more than 30 days.

**Intervention:** New morphine based NAS protocol

## Methodology

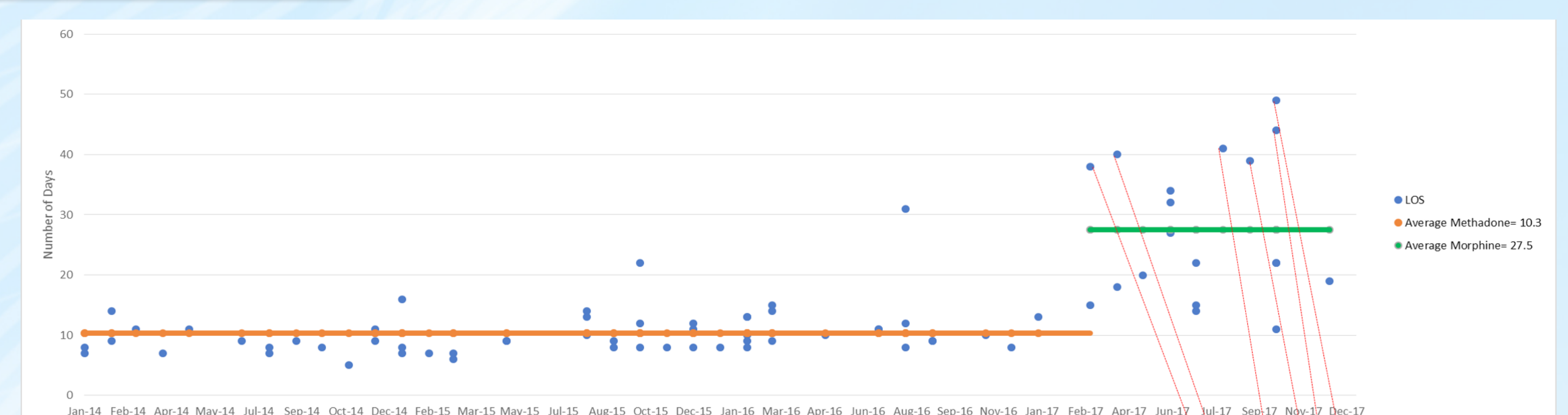
- Quality improvement project
- Retrospective and prospective chart review January 2014- December 2017
- Included all charts with diagnosis NAS code P 96
- One PDSA cycle completed
- Exclusion criteria:
  - no treatment with methadone or morphine
  - incomplete treatment due to medical illness
  - transfer to outside hospital prior to completion of treatment
- Analyzed averages of methadone and morphine: LOS, DOE, and total mg/kg opioid exposure using ANOVA

## Results

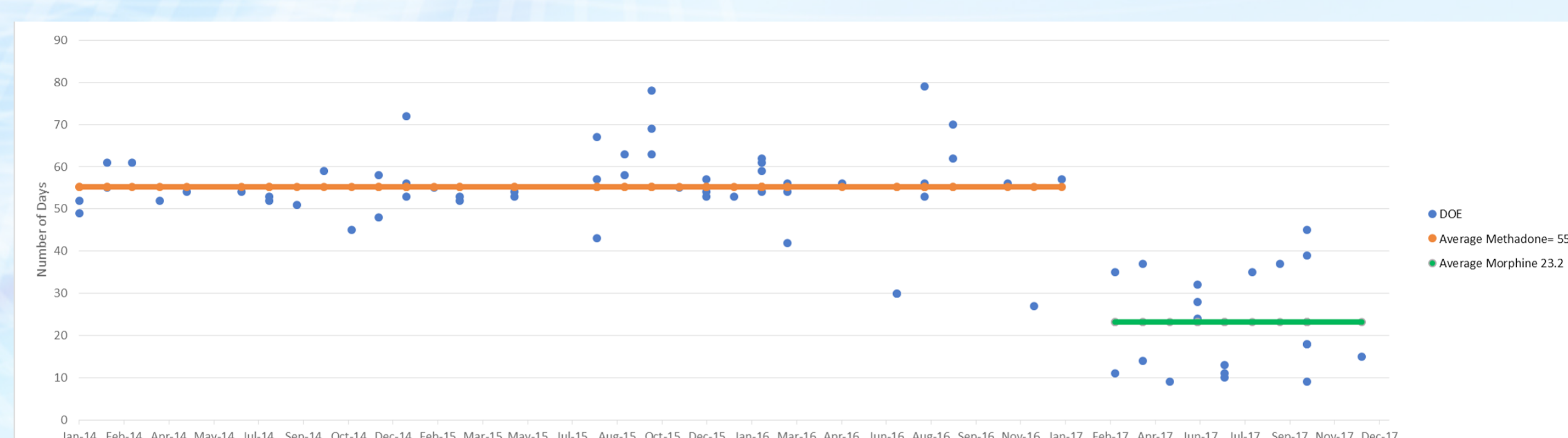
Chart Review	
Number of charts flagged with NAS code	112
Number of charts analyzed	74
Number of charts excluded*	38
Number of methadone charts	55
Number of morphine charts	19

\*exclusion criteria – not receiving methadone or morphine, stopping treatment early, transfer to outside hospital during treatment.

Length of NICU Stay



Days of Exposure to Opioids



- 3/2017 Start of Morphine Protocol
- RSV complicating NAS scoring
- Difficulty figuring out initial doses
- Failed weaning pathway x3
- Failed the weaning pathway x2
- Failed weaning pathway x1
- Failed the weaning pathway x2
- 8/2017 1st- PDSA cycle intervention

- 3/2017 Start of Morphine Protocol
- 8/2017 1st- PDSA cycle intervention

## Conclusions

- Aim to continue improving quality and efficacy of care while understanding costs and constraints of the health care system.

### Moving from a methadone to a morphine based protocol

- Reached goal of reducing DOE: on average decreased by 32 days (58%)
- As a result, increased LOS by 17.2 days (167%)
- Future PDA cycles/ interventions:
  - Compliance to pathway non-pharmacological measures
    - Ex: Increase breast feeding in moms who are not taking other illicit drugs
  - Compare LOS at LVHM with rooms vs. CC NICU rooms
  - Weaning faster than q24 for scores <3-4
  - Nurse re-education with parent/nurse dual scoring

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