Neonatal Abstinence Syndrome
or
Narcotic Abstinence Syndrome
NAS

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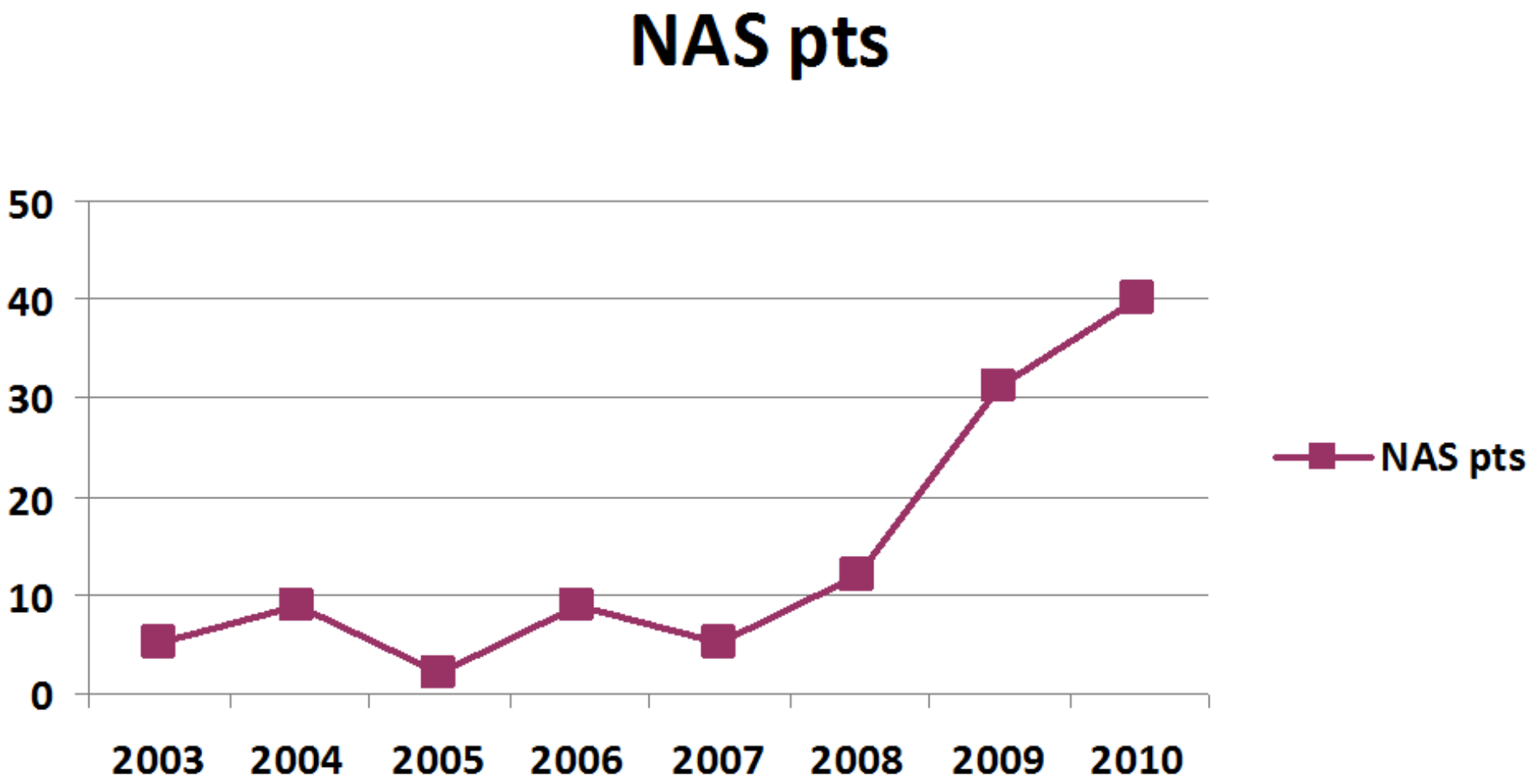
Why Me

- I care for sick and healthy term and preterm infants in Jacksonville
- I chair a performance improvement project which began in late 2010 in Jacksonville to help shorten treatment time for NAS infants and help improve our safety
- I also Chair the Florida Society of Neonatology

Our Review of NAS



Narcotic Abstinence Syndrome NAS

- A constellation of signs and symptoms exhibited by newborns exposed to narcotics in utero
- ONLY well described and treatable neonatal withdrawal syndrome
- Infants exposed to cocaine, phenobarbital, nicotine, anxiolytics and antidepressants may display some abnormal signs and symptoms after birth inconsistently*

*: AAP Policy statement 2011

The treatment of NAS infants includes?

- Non-pharmacologic measures
- Narcotic administration
- Non-narcotic administration
- NO best pharmacologic regimen has been described*

* Hudak, Mark. Narcotic Abstinence Syndrome. Committee of Fetus and Newborn, Am American Academy of Pediatrics 2012

Non-Pharmacologic Management of NAS

- EXTREMELY IMPORTANT
- Should be instituted soon after birth
- Started before pharmacologic treatment
- Treatment should continue after discharge

NAS Nursing Protocols

Reduce environmental stimuli:

- Place infant in a quiet room with dim lighting and low activity
- Move infant away from telephone, sink, high traffic areas; slamming doors
- Use slow movements and avoid talking at the bedside
- Prepare everything prior to disturbing the infant to minimize handling
- Present one stimulus at a time (rocking, voice, soft music, etc)

Supportive therapy

- Wrap or swaddle infant
- Hold newborn infant firmly and close to the body
- Promote skin to skin contact
- Massage infant or try relaxation baths
- Play heart beat sounds
- Decrease stimulation at first signs of distress
- Consult with mother re use of pacifier for excessive sucking

use mittens to prevent trauma to fingers & wrists

- Feed on demand – give frequent small feeds with rests between sucking
- Assess coordination of suck/swallow reflex – support cheeks and jaw if necessary
- Change diaper frequently, use barrier cream to protect skin/prevent damage; do not use commercial wipes (saline and 4x4's should be used)
- Use gentle suction if nasal secretions cause obstruction to ensure adequate respiratory function

NAS

- It is estimated that 52-94% of infants exposed to methadone in utero may experience NAS that requires treatment
- Not related to dose
- Genetic answers may soon be forthcoming to help explain why fetuses exposed to similar amounts of opioids in utero may experience different withdrawal symptoms
- CDC has recently reported that narcotic use during pregnancy is associated with increased risk of birth defects
- FDA summit in 2010 raised concern about anesthetic use in young infants

S & S of NAS (1)

Early

- Increased VS
- Increased muscle tone
- Inconsolable crying
- Increased yawning
- Increased sneezing
- Increased moro reflex
- Increased stooling
- Increased sucking but discoordinated

SYSTEMS	SIGNS AND SYMPTOMS	SCORE	AM 2	4	6	8	10	12	PM 2	4	6	8	10	12	DAILY WT.
CENTRAL NERVOUS SYSTEM DISTURBANCES	High Pitched Cry Continuous High Pitched Cry	2 3													
	Sleeps < 1 Hour After Feeding Sleeps < 2 Hours After Feeding	3 2													
	Hyperactive Moro Reflex Markedly Hyperactive Moro Reflex	2 3													
	Mild Tremors Disturbed Moderate Severe Tremors Disturbed	2 3													
	Mild Tremors Undisturbed Moderate Severe Tremors Undisturbed	1 2													
	Increased Muscle Tone	2													
	Excoriation (specify area): _____	1													
	Myoclonic Jerks	3													
	Generalized Convulsions	3													
METABOLIC VASOMOTOR/ RESPIRATORY DISTURBANCES	Sweating	1													
	Fever < 101°F (39.3°C) Fever > 101°F (39.3°C)	1 2													
	Frequent Yawning (> 3-4 times/interval)	1													
	Mottling	1													
	Nasal Stuffiness	1													
	Sneezing (> 3-4 times/interval)	1													
	Nasal Flaring	2													
	Respiratory Rate > 60/min Respiration Rate > 60/min with Retractions	1 2													
GASTROINTESTINAL DISTURBANCES	Excessive Sucking	1													
	Poor Feeding	2													
	Regurgitation Projectile Vomiting	2 3													
	Loose Stools Watery Stools	2 3													
SUMMARY	TOTAL SCORE														
	SCORER'S INITIALS														
	STATUS OF THERAPY														

Adapted from Finnegan L. Neonatal abstinence syndrome: assessment and pharmacotherapy. Neonatal Therapy: An update, F. F. Rubaltelli and B. Granti, editors. Elsevier Science Publishers B. V. (Biomedical Division). 1986: 122-146

Figure. Modified Finnegan's Neonatal Abstinence Scoring Tool (98)

Baseline Findings

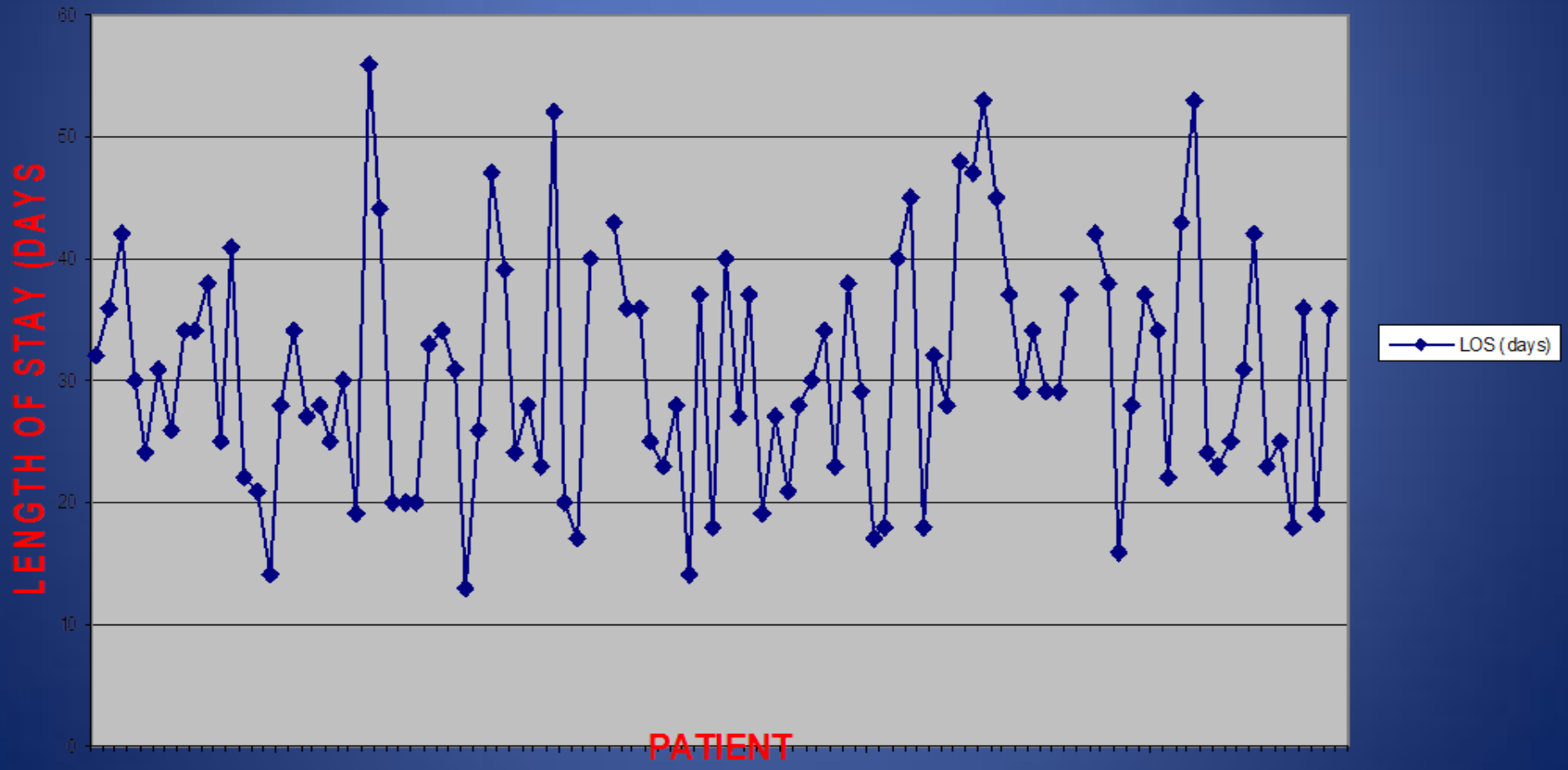
- Average maternal methadone dose is 102 mg+/-35 mg (range: 10-210mg)
- 74 infants were exposed to methadone alone
- 29 infants exposed to other narcotics
- 64% of the mothers smoked
- 20% of mothers were on antidepressants
- Only 68 mothers could we verify Rx

Preliminary Findings: Old Protocol

- Average length of RX 26 +/- 10 days (range 4-51)
- Average length of stay 31+/-10days (range 14-56 days)
- Average GA: 38.5 weeks and BW: 3069g
- First dose of morphine given at 66 +/-39 hours (range 4-251 hours)
- 25% of patients also received phenobarbital

OLD Treatment Protocol

MORPHINE 6 HOUR DOSING LENGTH OF STAY



2nd PROTOCOL

- Same total daily morphine dose but divided every three hours
- If scores still high we use clonidine as second line drug rather than phenobarbital
- At 2 of our facilities all RNs completed an educational update on NAS

2nd Protocol results (n=46)

- Decreased treatment time to mean of 20.3 days
- Clonidine: is an excellent rescue medication: used in 20% of patients
- Only 3 infants have required phenobarbital: all had birth defects

3rd protocol

- Just started: use ½ the starting dose of the other two protocols
- Clonidine is rescue medication

Other protocols

- Children's Miracle Network Grant to study Acupuncture as a primary or adjunctive therapy for NAS infants

FSN Meeting in 2012

- Collaboration with 3 major NICUs in Tampa area, Sarasota area
- Work with UF statisticians to design appropriate protocols at each center
- Goal is to reduce in-hospital treatment time to under 3 weeks
- Work with FL Perinatal Quality collaborative and other stakeholders to reduce the Narcotic use in pregnancy women
- Collaborate with FPQC & potentially MOD to develop an information pamphlet to give to expectant mothers about NAS