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Improving the Bone Health Screening of Premature Infants

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Improving the Bone Health Screening of Premature Infants

SELECT Community-Based Clinical Mentoring Action Research Project Rachel Appelbaum, B.S. & Alexandra Printz, B.S.

ISF MORSANI COLLEGE OF MEDICINE UNIVERSITY OF SOUTH FLORIDA

The Chronic Complex Pediatrics Clinic

- Patients must have at least 2 chronic medical problems
- Ages 5-21 years
- >50% Hispanic population
- Team of several pediatric hospitalists (MD,DO), nurses, nurse practitioners, child life specialist, and social worker

Osteopenia Of Prematurity at the Chronic Complex Pediatric Clinic

- Increased number of discharges from local NICU with undiagnosed VitD deficiency
- Delay of treatment leading to rickets and leg bowing



Osteopenia Of Prematurity

- 55% of infants with BW <1000g and 23% of infants with BW <1500g have low bone mineralization
- Low bone mineralization leads to respiratory distress, rickets, bowing of legs, and poor growth in childhood.
- Very diverse clinical approaches to diagnosis and treatment
- Limited research on screening protocol

Protocol developed to improve osteopenia of prematurity bone health screenings of high risk neonates in NICU. At Risk Neonates: <1500 grams, <29 weeks gestation, TPN >4 weeks, Steroid or Diuretic Use

phosphate measurements Bi-Weekly

Alkaline Phosphate >1000 IU/L

Obtain 25(OH)D levels and radiograph of wrist/knee to evaluate for neonatal rickets

Alkaline Phosphate >500 IU/L
Obtain 25(OH)D 5 levels

25(OH)D WNL

Alkaline Phosphate/ Ca/ Serum

No clinical Suspicion of rickets

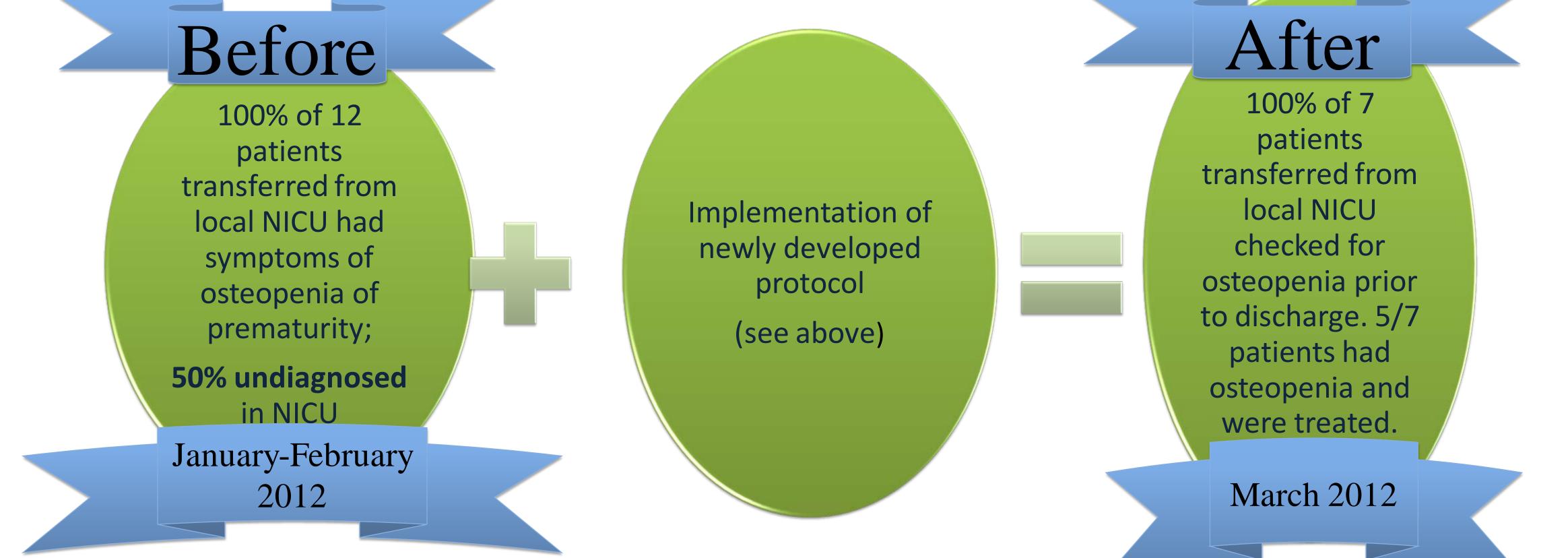
Continue to monitor Alkaline
Phosphate levels until normal
or discharge from NICU

25(OH)D level insufficient
Start Supplementation

Monitor labs bi-weekly if Alkaline Phosphate and Vitamin D levels are not improving order radiograph and consult endocrinology for further management

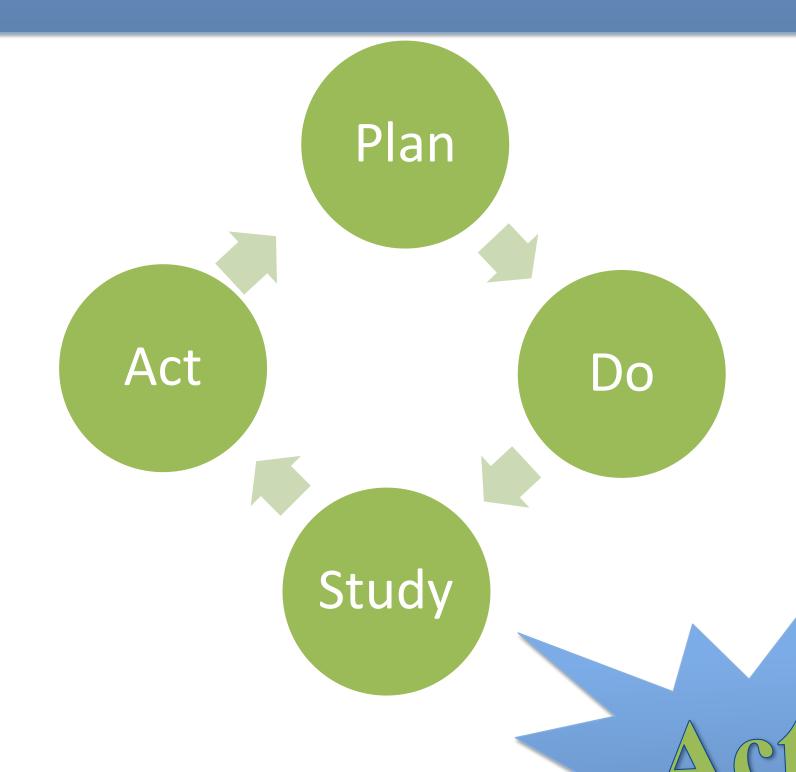
Study Objectives:

- Observe negotiations between healthcare leaders during the implantation of protocol for osteopenia of prematurity
- Research current osteopenia of prematurity
 literature and review current protocols
- Measure the current rate of NICU transfers with undetected Osteopenia of prematurity
- Present all research to healthcare team members working to implement protocol
- Follow the process of protocol development and implementation until the completion of the academic year.



Protocol Outcomes

- Leadership meeting resulted in organizational buyin
- Protocol presented to local NICU was implemented
- Since March all patients transferred from NICU have been screened and appropriately treated for VitD deficiency



Further Inquiry

- Analyze the impact on the hospital from improved Osteopenia of prematurity prevention, detection, and treatment
- Analyze the impact on the patient from improved Osteopenia of prematurity prevention, detection, and treatment
- Measure the success of the protocol implementation:

Conclusions

Development of a protocol for bone health screening of at risk neonates has allowed for improved detection and treatment of osteopenia of prematurity in the NICU, preventing complications of low bone mineralization such as rickets.

