

BACKGROUND

- \succ Excessive exposure to iodine can cause thyroid dysfunction through the Wolff-Chaikoff effect. Thyroid hormone is critical for normal neurocognitive development in neonates
- There are case reports of neonates developing hypothyroidism postsurgery and/or contrast exposure with previous normal thyroid function tests
- In March 2022, the FDA issued a guideline recommending "newborns through three years old have followup thyroid monitoring within three weeks after receiving injections of contrast media containing iodine"

PROJECT AIM

- *Global Aim*: To achieve uniform screening of thyroid dysfunction of neonatates after iodine exposure.
- Specific Aim: Achieve 80% thyroid function screening 7-10 days post iodine exposure in neonates at ECU Health Neonatal Intensive Care Unit and Special Care Nursery, over 12 months beginning from 08/01/2022

Increasing Testing for Thyroid Dysfunction in Neonates Post lodine Exposure

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CHANGES MADE (PDSA CYCLES)

- >1: Screening algorithm was disseminated to providers and staff via email and posted in provider's workrooms
- **2:** Providers were asked to create iodine exposure as a problem list in the electronic health record (EHR) that serves as a reminder to order labs
- **3:** Common iodine contrast procedures were linked to order thyroid labs

4: We sent weekly reminders to providers about screening protocols

RESULTS/OUTCOMES



 \triangleright Out of 180 iodine-exposed neonates, thyroid labs were completed in 71% of cases

> 5 neonates who were initially euthyroid, developed hypothyroidism post-iodine exposure and are being treated (3 after percutaneous exposure during surgery, 1 from multiple GI exposures)

> 3 of these neonates ultimately passed away due to severity of sickness

> The problem list was updated in **61%** of cases



PROJECT DESIGN/STRATEGY

NEXT STEPS

Surgical exposure patients were identified from pediatric surgery. Contrast exposure patients were identified by NICU pharmacist. All patients were pulled to an EHR list and followed for labs and results.

> Data collected included thyroid function screening and development of hypothyroidism

 \triangleright Our outcome measure was the percentage of patients screened for thyroid dysfunction post iodine exposure. Other measures included the number of patients that tested positive for hypothyroidism postiodine exposure.

 \succ We did not meet the initial goal of screening for thyroid dysfunction after iodine exposure > We found that the number of neonates requiring treatment was very low, and not clinically relevant

>More robust screening guidelines and higher risk neonates should be identified and flagged for further testing through clinical research

In April 2023, the FDA revised its guidelines to recommend screening infants based on individualized factors, confirming the conclusion we came to with our QI project