

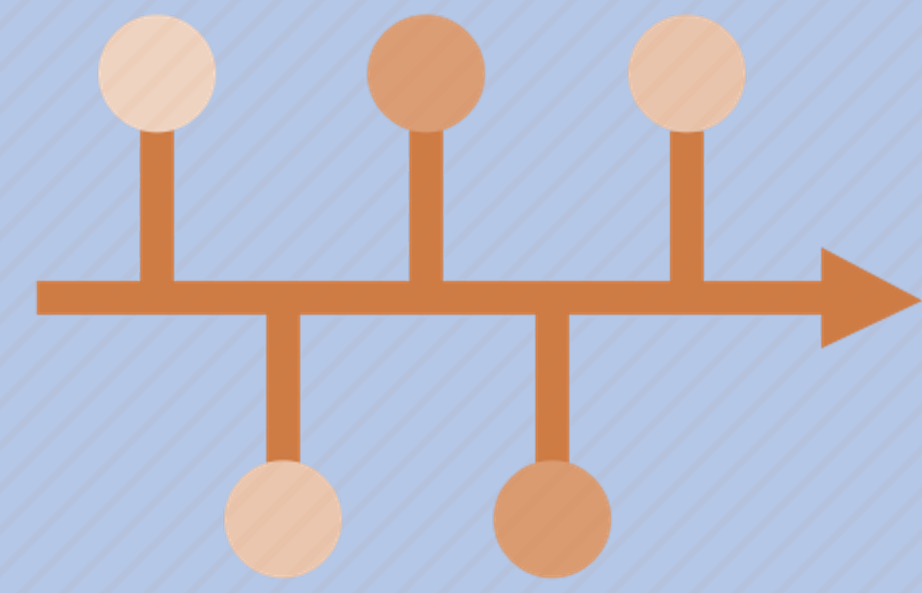


Harnessing Clinical Informatics to Improve Survivorship Care: A Case Study of Radiation-Induced Hypothyroidism

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ABSTRACT

CDSS have promise for head & neck cancer survivorship,¹ given patient-specific best practices at multiple time points



However, CDSS have not been formally studied in most of Otolaryngology-Head & Neck Surgery¹



We show that CDSS can increase monitoring for radiation-induced hypothyroidism



KEY TERMS

- **BPA (Best Practice Advisory)** – a form of CDSS that informs and guides clinicians to perform a specific clinical action based on patient characteristics
- **CDSS (Clinical Decision Support Systems)** – clinician-facing computer-based programs that provide patient-specific data and relevant institution- or specialty-specific information to optimize health care delivery at the point of care
- **EHR (Electronic Health Record)** – digitized patient health information record



SCAN ME
for a review of
CDSS
In Otolaryngology
*Standiford et al,
OHNS 2021x*

RADIATION-INDUCED HYPOTHYROIDISM

- Radiation can cause fibrosis, vascular damage, and autoimmune reactivity, causing long-term ongoing sequelae like **radiation-induced hypothyroidism**
- The National Comprehensive Cancer Network thus **recommends q6-12mo post-radiation hypothyroidism screening (TSH)**

20-40%

Estimated incidence of radiation-induced hypothyroidism²

HR 1.05

Increased mortality for untreated hyper/hypothyroid patients³

AIMS

GOAL 1: Improve monitoring of thyroid function in patients who have had head & neck radiation and follow up in ambulatory clinics at our institution

GOAL 2: To ease cognitive burden on providers by reminding them when patients are due for TSH blood test screening

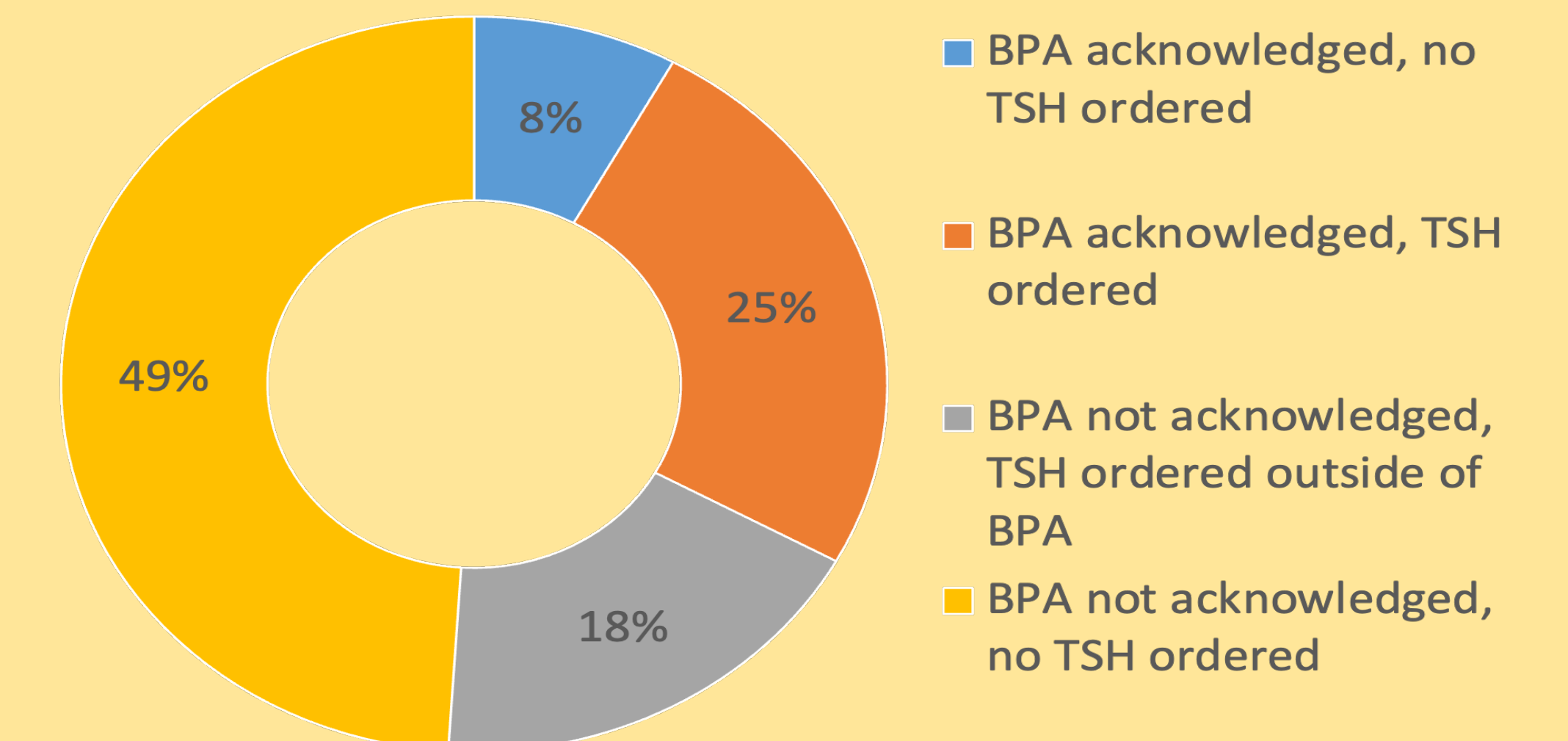
METHODS

- A multidisciplinary team drafted a BPA to flag patients who:
 - Presented to Otolaryngology or Radiation Oncology outpatient clinics
 - Had a history of head & neck radiation therapy (ICD10 codes)
 - Did not have a TSH result within 365 days nor an active TSH order placed within the last week of the encounter
- Non-interruptive BPA then displays on EHR side navigator that:
 - Links to a prefilled TSH order
 - Offers choice to acknowledge or dismiss the advisory for 6 months if another provider was managing the patient's TSH
- Pilot approved by hospital CDSS committee and run from May to November 2019
- Automated data pull for BPA firing and resultant action exported
- Patient charts were manually reviewed for BPA-selected patients

RESULTS

- BPA fired for **92 patients** across **1601 unique encounters**
- Primary users of the BPA were **newer nursing personnel** who were less likely to have established processes for monitoring TSH
- 44% of the cohort was on thyroid replacement hormone during the study period

CLINICIAN ACTIONS AFTER BPA FIRING



DISCUSSION

- Post-radiation hypothyroidism screening is a well-established best practice that is not universally performed
- CDSS, specifically a non-interruptive BPA, shows promise for improving thyroid function screening after head & neck radiation
- Future directions include:
 - Further tailoring the BPA to clinician workflow
 - Incorporating patient records from outside the institution
 - Measuring clinician satisfaction of the tool
 - Evaluating patient outcomes as a result of tool implementation
 - Creating a suite of CDSS tools that target other opportunities for improving survivorship care



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3. Lillevang-Johansen, Abrahamsen, Jorgensen, et al. Over- and under-treatment of hypothyroidism is associated with excess mortality: A register-based cohort study. Thyroid 2018;28(5):566-574.