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Increasing Ultrasound-Guided Thyroid Biopsy Yield

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Background



- Conduct Plan-Do-Study-Act (PDSA) performance improvement project to improve thyroid biopsy yield
- Short-term -> reduce unsuccessful biopsies by 50%

Long-term eliminate unsuccessful biopsies

Degirmenci B, Haktanir A, Albayrak R, Acar M, Sahin DA, Sahin O, et al. Sonographically guided fine-needle biopsy of thyroid nodules: the effects of nodule thyroid nodules. Ann Surg Oncol. 2012; 19: 2304–2309. characteristics, sampling technique, and needle size on the adequacy of cytological material. Clin Radiol. 2007; 62: 798-803.

Increasing Ultrasound-Guided Thyroid Biopsy Yield

Team Member: T. Conor McKee, MD Faculty Mentor: Christopher G Roth, MD, MS-HQS

Methods and Materials

- \succ Unsuccessful biopsies reviewed for underlying causal factors
- \geq 2 major factors \rightarrow 1) lack of cytology availability and 2) operator variability
- Schedule adjusted to accommodate all patients into thyroid clinic conducted by single subspecialist
- > Coordination with TJUH pathology department to provide tele-cytopathology services for review of all ultrasound guided thyroid biopsies. Resident team member collects and analyzes
- inadequate thyroid biopsies for future improvement events (PDSA)

Results

 \geq In the first two quarters of FY 2016 there were 1 and 0 inadequate biopsies, respectively (100%, 97.6%)

Fallout - unexpected lack of tele-cytopathology



Graph 1. Thyroid Biopsy Successful Sample Rate.

Choi SH, Han KH, Yoon JH, Moon HJ, Son EJ, Youk JH, et al. Factors affecting inadequate sampling of ultrasound-guided fine-needle aspiration biopsy of thyroid nodules. Clin Endocrinol (Oxf) 2011; 74: 776–782. De Fiori E, Rampinelli C, Turco F, Bonello L, Bellomi M. Role of operator experience in ultrasound-guided fine-needle aspiration biopsy of the thyroid. Radiol Med. 2010; 115: 612-618.

Alexander EK, Heering JP, Benson CB, Frates MC, Doubilet PM, Cibas ES, et al. Assessment of nondiagnostic ultrasound-guided fine needle aspirations of thyroid nodules. J Clin Endocrinol Metab. 2002; 87: 4924–4927. Mahony GT, Mahony BS. Low nondiagnostic rate for fine-needle capillary sampling biopsy of thyroid nodules: a singular experience. J Ultrasound Med. 2013; 32: 2155-2161.

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Graph 2. MHD Thyroid Biopsy Volume.

Significance/Lessons Learned

- \succ In the first two quarters since quality successful biopsies
- improved care patient care
- performance
- increases adequate biopsy yield

verify improvement (PDSA)



improvement measures have been implemented there has been improvement in the the rate of

>Leveraging provider experience can provide

 \succ Standardizing the approach improves team

Support staff better understand their role with less variability on the part of the proceduralist Inter-disciplinary collaboration and technology leveraging allow involvement of cytopathology

Future Direction

 \succ Continue to analyze adequate biopsy rates to Periodically review fallouts to identify common cause to implement future improvements (PDSA)

Jefferson

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