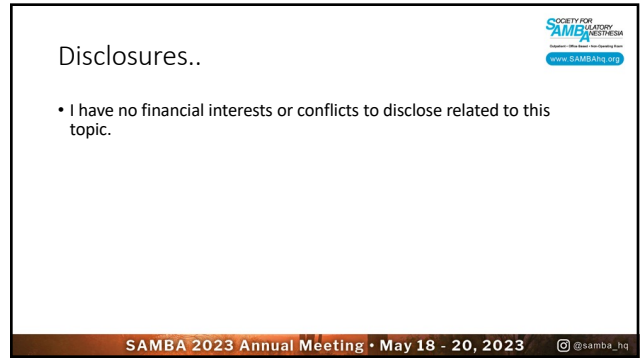


Coming Soon to an ASC Near You
Outpatient Thyroid Surgery

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1

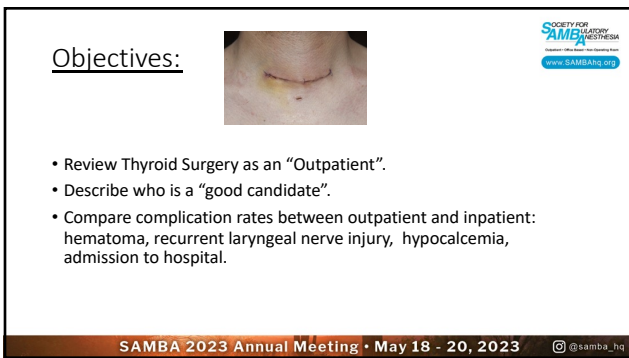


Disclosures..

- I have no financial interests or conflicts to disclose related to this topic.

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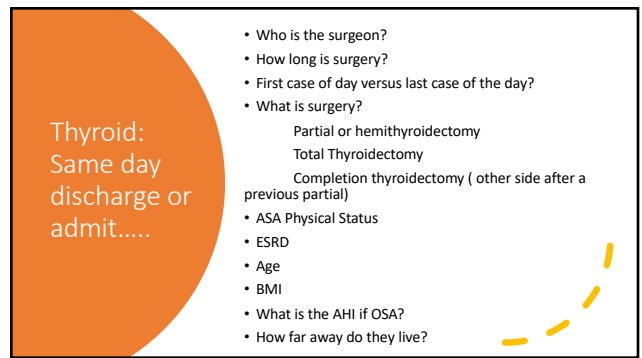


Objectives:

- Review Thyroid Surgery as an "Outpatient".
- Describe who is a "good candidate".
- Compare complication rates between outpatient and inpatient: hematoma, recurrent laryngeal nerve injury, hypocalcemia, admission to hospital.

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3

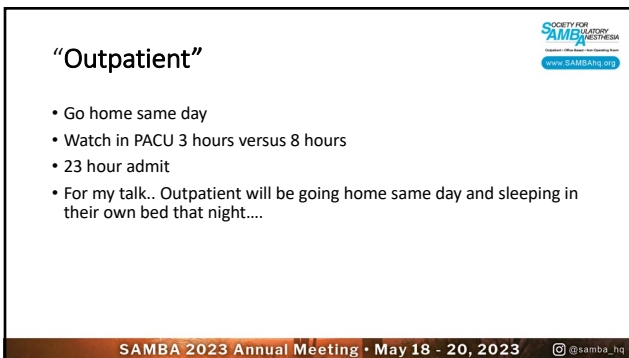


Thyroid: Same day discharge or admit....

- Who is the surgeon?
- How long is surgery?
- First case of day versus last case of the day?
- What is surgery?
 - Partial or hemithyroidectomy
 - Total Thyroidectomy
 - Completion thyroidectomy (other side after a previous partial)
- ASA Physical Status
- ESRD
- Age
- BMI
- What is the AHI if OSA?
- How far away do they live?

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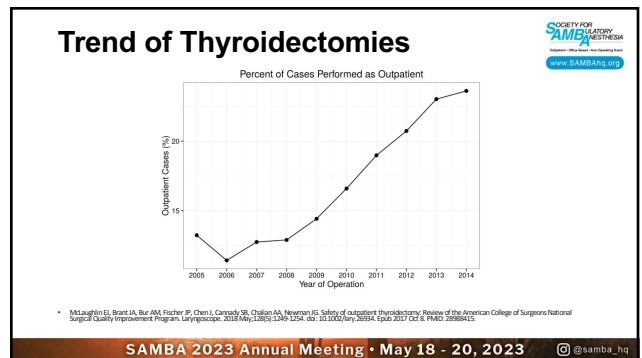


"Outpatient"

- Go home same day
- Watch in PACU 3 hours versus 8 hours
- 23 hour admit
- For my talk.. Outpatient will be going home same day and sleeping in their own bed that night....

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Trend of Thyroidectomies

Percent of Cases Performed as Outpatient

| Year of Operation | Outpatient Cases (%) |
|-------------------|----------------------|
| 2005 | 13.5 |
| 2006 | 12.5 |
| 2007 | 13.0 |
| 2008 | 13.5 |
| 2009 | 14.5 |
| 2010 | 16.5 |
| 2011 | 18.5 |
| 2012 | 20.5 |
| 2013 | 22.5 |
| 2014 | 24.0 |

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Partial versus Total (Most are not outpatient)

The chart shows two stacked bar graphs. The top graph is for 'Partial' thyroidectomies and the bottom is for 'Total' thyroidectomies. The x-axis represents the 'Year of Operation' from 2005 to 2014. The y-axis represents 'Cases' from 0 to 6000. Each bar is divided into 'Outpatient' (white) and 'Inpatient' (black) cases. In both categories, the total number of cases increases over time, and the proportion of outpatient cases also increases.

McLaughlin EJ, Brent JA, Bur AM, Fischer JP, Chen J, Connolly SB, Chutkan AA, Newman JG. Safety of outpatient thyroidectomy: Review of the American College of Surgeons National Surgical Quality Improvement Program. *Laryngoscope*. 2016 May; 126(5):1249-1254. doi: 10.1002/lary.26934. Epub 2017 Oct 8. PMID: 28988415.

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American Thyroid Association (2013 Statement)

Outpatient advantages: patient comfort, conservation of resources, patient safety (less nosocomial infections or patient harm related to medical errors)

- **Outpatient disadvantages:** bleeding, low calcium, PONV
- **Anesthesia Technique:**
 - local/regional cervical plexus blocks
 - Laryngeal nerve monitor with dual channel electromyographic ETT
- Dressing and drains-pressure dressings and routine drains if uncomplicated surgery do not prevent hematomas
- Deep extubation- when possible is useful
- Parathyroid-inspect resected tissue for inadvertently removed parathyroid, autotransplant does not preclude outpatient status.

Tennis DJ, Snyder S, Carneiro-Pia D, Inghet WB 3rd, Kandil E, Orloff L, Shindo M, Tufano RP, Tuttle RM, Uken M, Yeh MW. American Thyroid Association Surgical Affairs Committee Writing Task Force. American Thyroid Association statement on outpatient thyroidectomy. *Thyroid*. 2013 Oct 23;23(10):1193-202. doi: 10.1089/thy.2013.0049. Epub 2013 Sep 14. PMID: 23742254.

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American Thyroid Association (2013 Statement)

PACU:

- recovery head up 45 degrees
- PONV
- Calcium-routine oral calcium after surgery
- Check vocal cord function-look for dystonia, dyspnea, aspiration while drinking
- On studies patients **keep at least 2 hours** (range 2-6 hours)
- Bleeding (risk 1%, **most occur within first 6 hours**) Increased bleeding (age, male, extent of resection, surgeon experience, recurrent disease, bilateral procedures)

Tennis DJ, Snyder S, Carneiro-Pia D, Inghet WB 3rd, Kandil E, Orloff L, Shindo M, Tufano RP, Tuttle RM, Uken M, Yeh MW. American Thyroid Association Surgical Affairs Committee Writing Task Force. American Thyroid Association statement on outpatient thyroidectomy. *Thyroid*. 2013 Oct 23;23(10):1193-202. doi: 10.1089/thy.2013.0049. Epub 2013 Sep 14. PMID: 23742254.

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Requirement for Discharge Following Ambulatory Thyroidectomy (from 2013 statement):

- Ability to take liquids and postoperative medications
- Adequate pain control on oral medications
- Ability to void satisfactorily
- Ability to ambulate as preoperatively and perform essential activities of daily living
- Satisfactory postoperative assessment with attention to surgical wound, neck swelling/hematoma, dysphonia, dyspnea, and dysphagia
- Adequate social support and understanding of instructions
- Adequate oxygenation, vital signs and blood pressure control.

Tennis DJ, Snyder S, Carneiro-Pia D, Inghet WB 3rd, Kandil E, Orloff L, Shindo M, Tufano RP, Tuttle RM, Uken M, Yeh MW. American Thyroid Association Surgical Affairs Committee Writing Task Force. American Thyroid Association statement on outpatient thyroidectomy. *Thyroid*. 2013 Oct 23;23(10):1193-202. doi: 10.1089/thy.2013.0049. Epub 2013 Sep 14. PMID: 23742254.

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Safety of Outpatient Thyroidectomy: Review of the American College of Surgeons National Surgical Quality Improvement Program (NSQIP)

- NSQIP data (2005 to 2014)
- 76,604 cases, 35,264 between 2012-2014
- 14,187 done as outpatient (18.5%)
- 1,473 (1.9%) patients who underwent reoperation and 477 unplanned 30-day readmissions (1.4%)
- 78% by general surgeons, 22 by ENT surgeons
- Trend to increasing outpatient partial and total thyroidectomy
- Yet Totals still most likely to be treated as inpatient.
- Outpatient surgery was not an independent risk factor for readmission or re-operation.

McLaughlin EJ, Brent JA, Bur AM, Fischer JP, Chen J, Connolly SB, Chutkan AA, Newman JG. Safety of outpatient thyroidectomy: Review of the American College of Surgeons National Surgical Quality Improvement Program. *Laryngoscope*. 2016 May; 126(5):1249-1254. doi: 10.1002/lary.26934. Epub 2017 Oct 8. PMID: 28988415.

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Safety of Outpatient Thyroidectomy: Review of the American College of Surgeons - (NSQIP)

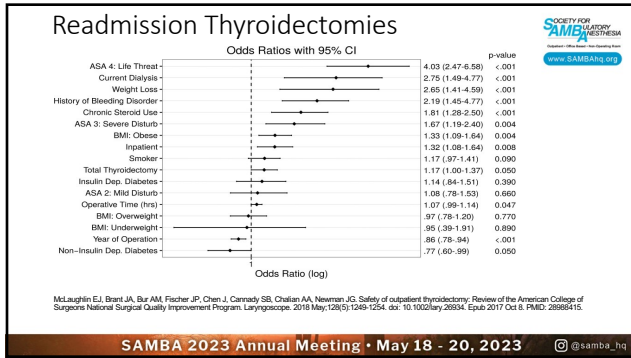
Risk factors for unplanned readmission and reoperation:

- Dialysis
- Chronic steroid use
- Unintentional weight loss
- ASA 3 and 4
- History of bleeding disorder

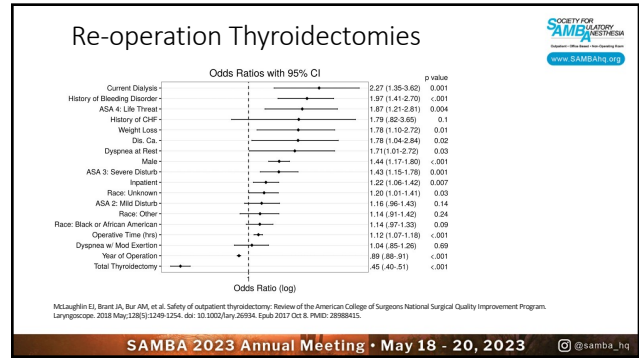
McLaughlin EJ, Brent JA, Bur AM, Fischer JP, Chen J, Connolly SB, Chutkan AA, Newman JG. Safety of outpatient thyroidectomy: Review of the American College of Surgeons National Surgical Quality Improvement Program. *Laryngoscope*. 2016 May; 126(5):1249-1254. doi: 10.1002/lary.26934. Epub 2017 Oct 8. PMID: 28988415.

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Outpatient versus Inpatient Thyroidectomy: a systematic review and meta-analysis

- Outpatient (home the same day, not overnight or 23 observation)
- Age: 18 and above
- 10 studies were included, 1665 records
- **Outcome measures:** 30-day mortality, readmission, hematoma, hypocalcemia, recurrently laryngeal nerve paresis

Lee DJ, Chen C, Hong CJ, Peters S, Witterick LJ. Outpatient versus inpatient thyroidectomy: A systematic review and meta-analysis. *Head Neck*. 2018 Jan;40(1):192-202. doi: 10.1002/hed.24934. Epub 2017 Nov 9. PMID: 29120517

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Outpatient versus Inpatient Thyroidectomy: a systematic review and meta-analysis

- Hypocalcemia-more common in inpatients , rates: Outpatient 4% vs. Inpatient 8%
- The outpatients are sent home on oral calcium and vitamin D prophylactically; routine labs caught it?
- Hematoma-7/1802 cases in outpatient, 8/1136 inpatient, not statistically different

Lee DJ, Chen C, Hong CJ, Peters S, Witterick LJ. Outpatient versus inpatient thyroidectomy: A systematic review and meta-analysis. *Head Neck*. 2018 Jan;40(1):192-202. doi: 10.1002/hed.24934. Epub 2017 Nov 9. PMID: 29120517

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Outpatient versus Inpatient Thyroidectomy: a systematic review and meta-analysis

- Recurrent laryngeal nerve injury- no statically significant difference
- **Overall-**
- Two deaths- 1 outpatient due to toxic thyroid crisis from undetected goiter and 1 due to myocardial ischemia as inpatient
- Overall few complication rates as outpatients
- No difference in readmission rates
- They do note high risk of bias, could not adjust for confounders.

Lee DJ, Chen C, Hong CJ, Peters S, Witterick LJ. Outpatient versus inpatient thyroidectomy: A systematic review and meta-analysis. *Head Neck*. 2018 Jan;40(1):192-202. doi: 10.1002/hed.24934. Epub 2017 Nov 9. PMID: 29120517

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Outpatient versus inpatient thyroidectomy: A systematic review and meta-analysis

Overall Complication Rates:

| Study or Subgroup | Outpatients | Inpatients | Total | Weight | Risk Ratio | Risk Ratio (M-H, Random, 95% CI) |
|-----------------------|-------------|------------|------------|---------------|--------------------------|----------------------------------|
| Choi 2007 | 5 | 2 | 7 | 0.35 | 0.77 (0.13, 4.78) | |
| Terris 2007 | 1 | 1 | 2 | 0.75 | 0.75 (0.16, 3.53) | |
| Shaw 2010 | 4 | 20 | 24 | 9.25 | 0.49 (0.05, 6.90) | |
| Arredondo 2010 | 8 | 50 | 58 | 12.25 | 0.80 (0.24, 2.60) | |
| Wang 2011 | 6 | 6 | 12 | 1.25 | 0.39 (0.02, 7.21) | |
| Wang 2012 | 6 | 41 | 47 | 12.96 | 0.47 (0.12, 2.03) | |
| Wang 2013 | 5 | 2 | 7 | 0.89 | 1.10 (0.12, 10.21) | |
| Ryan 2015 | 39 | 241 | 280 | 26.48 | 0.19 (0.08, 0.46) | |
| Wang 2015 | 6 | 30 | 36 | 8.88 | 0.73 (0.25, 2.09) | |
| Total (95% CI) | 100 | 332 | 432 | 100.00 | 0.58 (0.40, 0.82) | |

Total events: 123 / 158
 Heterogeneity: Tau² = 0.09; I² = 11.94; H₂ = 8.9; P = 0.10; I² = 11%
 Test for overall effect: Z = 3.02; P = 0.003

Lee DJ, Chen C, Hong CJ, Peters S, Witterick LJ. Outpatient versus inpatient thyroidectomy: A systematic review and meta-analysis. *Head Neck*. 2018 Jan;40(1):192-202. doi: 10.1002/hed.24934. Epub 2017 Nov 9. PMID: 29120517

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CLINICAL

- UN-COMPENSATED CARDIAC, RENAL OR RESPIRATORY DISEASE
- ANTI-THROMBOTIC THERAPY
- SEVERE OR ANXIETY DISORDER
- OBSTRUCTIVE SLEEP APNEA
- HEARING LOSS, VISUAL IMPAIRMENT, MENTAL IMPAIRMENT

SOCIAL

- EXCESSIVE DISTANCE FROM SKILLED FACILITY
- NO ONE ALONE WITH NO PERSON TO ACCOMPANY
- LACK OF TRANSPORTATION
- PATIENT PREFERENCE
- COMMUNICATION BARRIERS

PROCEDURAL

- MASSIVE GOITER
- EXTENSIVE SUBCUTANEOUS GOITER
- SOCIALLY ADVANCED CANCER
- CHALLENGING HEMOSTASIS
- DIFFICULT THYROIDECTOMY WITH PARATHYROID'S THYROIDITIS OR GRAVES DISEASE

Philleos J, Baran E, Noel CW, Pasternak JD, Higgins KM, Freeman JL, Chiodo A, Eskander A. Feasibility and Safety of Outpatient Thyroidectomy: A Narrative Scoping Review. *Front Endocrinol (Lausanne)*. 2021 Jul 28;12:717427. doi: 10.3389/fendo.2021.717427. PMID: 34394008; PMCID: PMC8355596.

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Signs and Symptoms of Post-Op Complications

| Bleeding | Airway | Hypocalcemia | Other |
|---------------|--------------------|--------------------|-----------------|
| Neck swelling | Dyspnea | Paresthesias | Fever |
| Bleeding | Dysphonia | Extremity cramping | Nausea/vomiting |
| Drainage | Stridor | | |
| Dysphagia | Hoarseness | | |
| Pressure | Aspiration/choking | | |

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Patient Satisfaction- so favors outpatient but still some dissatisfaction

| Patient satisfaction | Yes | No |
|---|------------|-----------|
| Did my family agree with my undergoing surgery in the outpatient setting? | 16 (69.5%) | 7 (30.4%) |
| Would I recommend outpatient thyroid surgery to others? | 15 (65.2%) | 8 (34.8%) |
| If I were to undergo this operation again, would I do it in day hospital? | 15 (65.2%) | 8 (34.8%) |

Patients were monitored for 6 hours in PACU

Cozaglio I, Molzani R, Succarilli A, Canaco F, Scotti F, Ruggi L, Quaglino V. Quality of life and patient satisfaction in outpatient thyroid surgery. *Updates Surg*. 2022 Feb;74(1):17-23. doi: 10.1007/s13344-021-01196-5. Epub 2021 Oct 27. PMID: 34677759.

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Drain or No Drain....

Fig. 3: thyroidectomy with insertion of drain

Ibrahim, Ayman Helmy. "Assessment of Routine Drainage in Elective Thyroid Surgery. A Prospective Randomized Study." *The Egyptian Journal of Hospital Medicine* 74 (2019): 147-155.

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Use of Drains after thyroid or parathyroid surgery

- Does not change risk of hematoma/reoperation
- More discomfort for patient
- Increased LOS if in hospital
- Excluding neck dissections, retrosternal goiters- may need drains
- Negative pressure versus natural wound drainage

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Ideas if you are doing Outpatient Thyroid Surgery

- Brochure about complications for patient
- POD 1 visit for drain removal and check in
- Another visit post op 7-10 days
- Drain was reason for discomfort (Drains decrease risk of airway compromise but not risk of bleeding)

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Outpatient Thyroidectomy




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| | |
|---|--|
| <p>Pros:</p> <ul style="list-style-type: none"> • Low complication rates • Less cost (maybe \$2,500 less) • Less nosocomial infections • Less iatrogenic injury • You can monitor laryngeal nerve during and after resection to help make decision. | <p>Cons:</p> <ul style="list-style-type: none"> • Less satisfaction? • Could miss a hematoma • Risk stratification is not standardized |
|---|--|

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American Academy of Otolaryngology and Head and Neck Surgery (April 2021)



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Position Statement on exclusion for Ambulatory Surgery Center (ASC) :

- Extensive blood loss
- Emergency cases
- Directly involve major blood vessels
- Require systemic thrombolytic therapy

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