2021 ACG / FGS ANNUAL SPRING SYMPOSIUM
FEBRUARY 27, 2021 | Virtual!

Register online: meetings.gi.org

2021 ACG / LGS REGIONAL POSTGRADUATE COURSE
MARCH 5–6, 2021 | Virtual!

Register online: meetings.gi.org
Participating in the Webinar

All attendees will be muted and will remain in Listen Only Mode.

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.

How to Receive CME and MOC Points

LIVE VIRTUAL GRAND ROUNDS WEBINAR

ACG will send a link to a CME & MOC evaluation to all attendees on the live webinar.

ABIM Board Certified physicians need to complete their MOC activities by December 31, 2021 in order for the MOC points to count toward any MOC requirements that are due by the end of the year. No MOC credit may be awarded after March 1, 2022 for this activity.
MOC QUESTION

If you plan to claim MOC Points for this activity, you will be asked to: Please list specific changes you will make in your practice as a result of the information you received from this activity.

Include specific strategies or changes that you plan to implement.
THESE ANSWERS WILL BE REVIEWED.

ACG Virtual Grand Rounds

Join us for upcoming Virtual Grand Rounds!

Week 8, 2021
Complementary Therapies in GI and Hepatic Disease/Medical Cannabis - Sifting Through the Weeds
David J. Hass, MD, FACG
February 25, 2021 at Noon Eastern

Week 9, 2021
Evaluation of Liver Masses
Catherine T. Frenette, MD
March 4, 2021 at Noon Eastern

Visit gi.org/ACGVGR to Register
Disclosures:

Speaker:
Nicholas J. Shaheen, MD, MPH, MACG
Research grants from Medtronic, Pentax, Steris, CDx Medical and Lucid; Consultant for Cook Medical, Cernostics and Boston Scientific

Moderator:
Allon Kahn, MD
Dr. Kahn has no conflicts of interest related to this talk.

Preventing Esophageal Cancer
Nicholas J. Shaheen, MD, MPH, MACG
Center for Esophageal Diseases and Swallowing
University of North Carolina

American College of Gastroenterology
“Food Getting Stuck”

- 73-year-old retired Wilmington man who spends his time on his boat
- Food sticking in mid-chest with most meals
- Symptoms progressive, now associated with 23 lb weight loss
- GERD symptoms for >20 yrs, medicated daily with PPI x 15 yrs
- Overweight, o/w in good health
Barium Swallow

Upper Endoscopy
Case, con’t

- Diagnosed with stage IV esophageal adenocarcinoma
- Received chemo/RT
- Poor response with ongoing weight loss
- Wants to make it to his granddaughter’s wedding

Upper Endoscopy/Stent Palliation
Adenocarcinoma – A Disease with a Rapidly Increasing Incidence

Not Much Progress Being Made...


Trends in EAC

Kong CY et al. CEBP, 2014.
We are Losing the Battle Against Esophageal Adenocarcinoma
Most Presentation is Late-Stage


Barrett’s Esophagus-Through the ‘Scope

American College of Gastroenterology
Barrett’s is Thought to Be the Precursor of Adenocarcinoma

Non-Dysplastic BE  →  Low-Grade Dysplasia  →  Adenocarcinoma

What About the Epidemiology of BE?


Why is all this happening?

No one knows for sure.

Some Postulate that the Increasing Cancer Incidence Could Be Secondary to the Epidemic of Obesity
Obesity is Strongly Associated with the Risk of AdenoCa of the Esophagus

Adjusted Odds Ratio
189 Cases, 820 Controls
Adjusted for age, sex, tobacco smoking, alcohol use, socioeconomic status, reflux symptoms, intake of fruit and vegetables, energy intake, and physical activity.


Obesity Trends* Among U.S. Adults
BRFSS, 1985
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

No Data           <10%          10%–14%

American College of Gastroenterology
Obesity Trends* Among U.S. Adults
BRFSS, 1990
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5′4″ person)

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<th>No Data</th>
<th>&lt;10%</th>
<th>10%–14%</th>
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<td>Obesity Trends* Among U.S. Adults</td>
<td>BRFSS, 1995</td>
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<td>No Data</td>
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American College of Gastroenterology
Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥30, or ~30 lbs. overweight for 5’4” person)

<table>
<thead>
<tr>
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<th>2000</th>
<th>2005</th>
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<td>15%–19%</td>
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<tr>
<td>≥20%</td>
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American College of Gastroenterology
Obesity Trends* Among U.S. Adults
BRFSS, 2010
(*BMI ≥ 30, or ~ 30 lbs. overweight for 5’4” person)

Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2017

1 Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011 (added cell phones and changed statistical weighting).

*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.
What is our Current Approach to Esophageal Cancer Prevention and Why Doesn’t It Work?

Endoscopists try to lower the risk of cancer death in those with chronic reflux by performing screening and surveillance endoscopy.

We scope those with chronic heartburn (screening), then periodically re-scope those with Barrett’s (surveillance).
Current Society Guidelines for BE Screening

<table>
<thead>
<tr>
<th>Society</th>
<th>Year</th>
<th>Screening Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG</td>
<td>2016</td>
<td>Men ≥5 years GERD or with &gt;weekly symptoms + ≥2 risk factors: &gt;50 yrs, central obesity (waist circ &gt;102cm or WHR &gt;0.9), Caucasian, smoking, first-degree relative w/ BE or EAC</td>
</tr>
<tr>
<td>BSG</td>
<td>2014</td>
<td>GERD with ≥3 risk factors: &gt;50 yrs, Caucasian, male, obesity +/- (+)FHx</td>
</tr>
<tr>
<td>ASGE</td>
<td>2012</td>
<td>Multiple risk factors: male, Caucasian, &gt;50 yrs, duration of reflux symptoms, smoking, obesity, (+) FHx</td>
</tr>
<tr>
<td>AGA</td>
<td>2011</td>
<td>Multiple risk factors: &gt;50 yrs, Caucasian, male, chronic GERD, hiatal hernia, obesity</td>
</tr>
</tbody>
</table>

We are not getting to the people we need

Proportion of EAC Patients with Known BE

Proportion of EAC Patients with Known BE

Dulai GS, Gastroenterology 2002.
Cooper GS, GIE, 2009.
Current management strategies for EAC detection are not successful

We Must Find a Better Way to Detect at risk Patients!
Is there a better way to screen patients with heartburn for BE?
How Good is the Sponge?

- 501 subjects screened in a general medicine population, EGD used as gold standard
- For BE of ≥ 1 cm:
  - Sensitivity – 73.3% (44.9-92.2%)
  - Specificity – 93.8% (91.3-95.8%)
- For BE of ≥ 2 cm:
  - Sensitivity – 90.0% (55.5-99.7%)
  - Specificity – 93.5% (90.9-95.5%)


Cytosponge-trefoil factor 3 versus usual care to identify Barrett's oesophagus in a primary care setting: a multicentre, pragmatic, randomised controlled trial

Interpretation In patients with gastro-oesophageal reflux, the offer of Cytosponge-TFF3 testing results in improved detection of Barrett's oesophagus. Cytosponge-TFF3 testing could also lead to the diagnosis of treatable dysplasia and early cancer. This strategy will lead to additional endoscopies with some false positive results.
How Well does EsoCheck Work?
Electronic Nose Device

- Detects and characterizes volatile organic compounds (VOCs)
- 5 minute continuous breath sample
- Measures conductance of aggregate exhaled VOCs via a neural network


Barrett's Breath Detection: ROC Curve

- 82% Sensitivity
- 80% Specificity
- 81% Accuracy
- AUC 0.79

What Do We Do If We Find Dysplasia in Barrett’s Esophagus?

What Do Guidelines Say?

<table>
<thead>
<tr>
<th></th>
<th>IMC</th>
<th>HGD</th>
<th>LGD</th>
<th>NDBE</th>
<th>Last Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACG</td>
<td>X</td>
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<td>ASGE</td>
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<td>BSG</td>
<td>X</td>
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American College of Gastroenterology
Nodular Disease Must Be Removed First!

Pech O, Algahtani SA, Ther Adv Gastrointest Endosc 2020

Choices for Endoscopic Ablation, 2021

American College of Gastroenterology
RFA

**The AIM-D Trial**

RCT of 127 Subjects with LGD & HGD
- **Intervention**: RFA+PPI or Sham+PPI (2:1)
- **Follow-up**: 12 mos
- **Assessment**: Bx’s q3 mos (HGD)/ 6 mos (LGD)

**1st Outcomes**:
- Ablation of all dysplasia:
  - 81% of HGD
  - 91% of LGD
  - app 20% of controls
- Complete eradication of IM (77% of Rx, 2% Sham)

**SE’s**: Strictures in 6% of subjects

Balloon Cryo Results

11 Center US Trial of Balloon Cryo
(The “ColdPlay3 Trial”)

- Efficacy n=120 patients
  - CR-D = 76%, CR-IM = 72%
  - Per Protocol CR-D = 97%, CR-IM = 91%
- One patient with neoplastic progression
- Safety
  - Serious adverse events: 3 (2.5%)
  - Median pain score day 1: 2 out of 10,
    8% narcotic analgesic
  - Strictures: 15/120 (12.5%), half within
    30 days

Canto M et al. Am J Gastro 2020
Complications with Ablation

5,516 Patients
15,665 FAs

Complications:
- 283 Per Patient: 5.4%
- Per RFA: 1.8%

- Strictures: 233
  - Per Patient: 4.5%
  - Per RFA: 1.5%

- Bleeding: 28
  - Per Patient: 0.5%
  - Per RFA: 0.2%

- Hospitalization: 47
  - Per Patient: 0.9%
  - Per RFA: 0.3%

- Perforation: 2
  - Per Patient: 0.04%
  - Per RFA: 0.01%

- Deaths: 0

Wolf A et al. DDW 2014.

What are Cancer Rates after Ablation?

<table>
<thead>
<tr>
<th>Baseline Histology</th>
<th>No. of Patients n (%)</th>
<th>Patient Years of Follow-up</th>
<th>No. Incident EAC</th>
<th>EAC Incidence Rate per 1000 person-years [95% CI]</th>
<th>No. Deaths from EAC</th>
<th>EAC Mortality Rate per 1000 person-years [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>NDBE 2,473 (48)</td>
<td>5,691</td>
<td>3</td>
<td>0.5 [0.1, 1.4]</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>IND 385 (8)</td>
<td>883</td>
<td>2</td>
<td>2.3 [0.4, 7.5]</td>
<td>0</td>
<td>0</td>
<td></td>
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<tr>
<td>LGD 1049 (21)</td>
<td>2,563</td>
<td>14</td>
<td>5.5 [3.1, 8.9]</td>
<td>0</td>
<td>0</td>
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<tr>
<td>HGD 972 (19)</td>
<td>2,591</td>
<td>81</td>
<td>31.3 [25.0, 38.7]</td>
<td>3</td>
<td>1.15 [0.29, 3.15]</td>
<td></td>
</tr>
<tr>
<td>Total, non-malignant 4,879 (95)</td>
<td>11,729</td>
<td>100</td>
<td>8.5 [7.0, 10.3]</td>
<td>3</td>
<td>0.26 [0.07, 0.70]</td>
<td></td>
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<tr>
<td>IMC 178 (4)</td>
<td>459</td>
<td>--</td>
<td>--</td>
<td>1</td>
<td>2.18 [0.11, 10.7]</td>
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</tr>
<tr>
<td>IAC 60 (1)</td>
<td>155</td>
<td>--</td>
<td>--</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total 5,117 (100)</td>
<td>12,343</td>
<td>--</td>
<td>--</td>
<td>4</td>
<td>0.32 [0.10, 0.78]</td>
<td></td>
</tr>
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</table>

Wolf WA & Shaheen NJ, Gastroenterology 2015.
When Is Endoscopic Rx Inadequate?

- Lesion too deep
  - Anything SM1 or deeper deserves consideration of esophagectomy
  - SM1 may be managed endoscopically if the patient is a poor surgical cancer
- Lesion too aggressive
  - Poor differentiation
  - Lymphovascular invasion
- Lesion not amenable to endoscopic Rx
  - Won’t raise, too large

This is all Pie in the Sky. What Can We Do Now?

- Select your candidates for screening appropriately
- GIs must take enough biopsies
- Minimize loss to follow-up
- Correctly treat positive studies
- Don’t over-utilize surveillance
- Make sure you have the best pathology service possible
Conclusions

- The epidemiology of both BE and EAC is unfavorable
- Current screening and surveillance practices in BE are limited by poor risk stratification
- Self-congratulation for improved care in subjects with known BE is largely unwarranted
- Doing we have been doing, but harder, is unlikely to result in success
- Relatively small changes in our current paradigm would result in incremental improvements
- A “disruptive technology” is needed to improve our approach to preventing esophageal adenocarcinoma

One Great Team!

- UNC CEDAS
  - Evan Dellon
  - Swathi Eluri
  - Craig Reed
  - Cary Cotton
  - Will Bulsiewicz
  - Asher Wolf
  - Susie Moist
  - Ariel Watts
  - Lama Moussa
  - Helen Barrett

- JHU
  - Mimi Canto
  - Burt Vogelstein

- CWRU
  - Amitabh Chak
  - Kishore Guda
  - Sandy Markowitz

- Columbia
  - Julian Abrams

- Mayo
  - Ken Wang
Thanks!

El Arroyo

MY BODY’S ABSORBED
SO MUCH SANITIZER
THAT WHEN I PEE, IT
CLEANS THE TOILET

Thanks!
Questions?

Speaker:
Nicholas J. Shaheen, MD, MPH, MACG

Moderator:
Allon Kahn, MD

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