

High School Outreach Curriculum and “Blueprint” for Session Titled: “The Tools of a Gastroenterology Practice”

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- I. **Concept:** Early exposure in high school helps students develop interest in possible medical careers
- II. **Initial step:** Establish a relationship with a high school. We established a relationship with the Director of Science of a local urban high school comprised of predominantly African American and Latinx students. New program sites will need local leads within the target schools.
- III. **Materials:** Colonoscopy and endoscopy equipment and therapeutic material. We received a grant from Pentax. Stethoscopes and Microscope with projector.
- IV. **Program Design:**
 - a. Target audience: Junior or Senior high school students from underrepresented minority groups
 - b. Group size: 30-35 students (adjustable based on physician availability)
 - c. Program duration 90-minutes, divided into three 25-minute mini sessions and a 10–15-minute wrap up/ Q and A
 - d. Number of physician providers: 3-4 per station (dependent on student volume)
 - e. Three stations with opportunities to handle instruments used in GI medicine.
- V. **Station descriptions:**
 - a. Colonoscopy and Endoscopy station with scopes and video tower. (2 endoscopes and 2 colonoscopes) we need one doc on each scope.

Physicians: 4 physicians (and **Pentax** rep)

At this station, students engage in a supervised, hands-on didactic where they hold the endoscope and colonoscope, understand their specialized features, and see the optics of how this equipment works.

We demonstrate how to perform an upper endoscopy and colonoscopy procedure using rubber/plastic models of the stomach and colon. Through this, students explore the anatomy of the gastrointestinal tract.

Brief discussion of diseases that are commonly diagnosed with these procedures: ulcers, inflammation, polyps, cancer.

Students learn about the importance of conducting these procedures and their particular significance for underserved minority communities.

- b. Pathology station with microscope tower with slides and screen presentation.

Physicians: pathologist

The students will be able to see and use the microscope with supervision.

We present pathology slides showing normal tissue in the upper and lower GI tract and slides of various conditions affecting these tissues.

We focus on colon cancer which is more prevalent in the African American community and under screened in the African American and Latinx communities. We show the students examples of liver cirrhosis and discuss the relationship to some causative behaviors such as alcoholism.

We review slides demonstrating esophagitis from Gastroesophageal reflux disease, helicobacter pylori infection of the stomach (a condition more prevalent in the Latinx community), and bacteria that cause diarrhea. There is a presentation with a projector on a screen.

- c. **A stethoscope station with 10 stethoscopes for the students and 4 stethoscopes for gastroenterologists.** (14 stethoscopes)

Physicians: 4 physicians

This station focuses on the diagnostic capabilities available to GI doctors at the bedside. It focuses on simple physical exam findings and the use of the stethoscope.

Students receive a guided tutorial on how to use a stethoscope, how to listen for bowel sounds, and the significance of the various types of sounds and other physical exam findings such as heart rate, abdominal tenderness, etc. This is taught and supervised by the gastroenterologists.

Using their own individual stethoscopes, students listen to their own hearts.

Topics and suggested questions for physician leaders: Discuss what it means when your heart beats fast or slow. Why is heart rate important when we give anesthesia or “put patients to sleep”?

Students listen to their own bowel sounds and learn to palpate their own abdomen.

Questions to consider: What does it mean when you hear bowel sounds and when you don't hear bowel sounds? What do hyperactive bowel sounds mean?

VI. **Panel discussion about diversity in medicine.** Prior to didactic, students prepare questions to ask.

- a. After completing each of the 3 above rotations, the full group meets for a round up session.
- b. We engage students in asking questions.

Points of discussion: There is under-representation of African American and Latinx individuals in medicine, in general, and GI, in particular.

We share statistics on this issue and ask students to engage in a discussion about the causes of this and ways to address it. We believe all these students can change these statistics.

What does a career in medicine mean? What do you have to think about now if you are considering a career in medicine?