Clinical Niche Fellowship Track in Aerodigestive Medicine

~ 20 to 25% effort directed to the clinical niche

Scholarly Activities:

1. Identify a patient-based (clinical) or translational research project by the end of 1st year of fellowship, under the mentorship of Aerodigestive M.D. faculty. Conduct and completion of project to take place during 2nd and 3rd years of fellowship.
2. Review of core Aerodigestive topics. Each topic should be researched and summarized into a 10-15 minute presentation. Fellows will be expected to prepare 6 topics in each of the 2nd and 3rd years of fellowship:
    - Maturation of Infant Oral Feeding Skills
    - Clinical Feeding-Swallowing Evaluation
    - Videofluoroscopic Swallow Study (VFSS) and Fiberoptic Evaluation of Swallowing
    - Biomarkers of Pulmonary Aspiration
    - Gastroesophageal Reflux Disease
    - Extra-esophageal Reflux Disease (e.g. Reflux and Asthma, Reflux and Recurrent Croup)
    - Esophageal pH and Impedance Monitoring – Indications for testing and analysis
    - Medical Management of GERD
    - Complications of Proton Pump Inhibitor Therapy
    - Surgical Management of GERD
    - Esophageal Motility Disorders
    - Aerodigestive Manifestations of Eosinophilic Esophagitis
    - Diagnosis and Management of Oral Aversion
    - Tracheoesophageal Fistula and Esophageal Atresia
    - Cricopharyngeal Dysfunction
    - Laryngeal Clefts
    - Laryngomalacia
    - Laryngotracheal Reconstruction
    - Non-oral Feeding Methods
3. Prepare didactic conferences with Aerodigestive focus under mentor oversight:
    - Tuesday Case Conference (twice per year)
    - GHN Grand Rounds (once in 3rd year)
    - Morbidity and Mortality Conference (at least once)
4. Review of current top 15-20 seminal articles in the field of Aerodigestive Medicine (list to be provided by mentors). Actively participate in updating the curriculum content (addition of at least 5 additional articles each year in their 2nd and 3rd year of their fellowship – must have been published within 2 years of the date of contribution to the curriculum)

5. Write a review paper or textbook chapter during 2 years of Aerodigestive-focused fellowship. Either with primary or secondary mentor.
6. Review of one manuscript in the field of Aerodigestive Medicine with primary or secondary mentor.

Clinical Training:

Identification of secondary clinical mentor in the field of Aerodigestive Medicine. Role of mentor will be primarily clinical oversight/education. Participation as able in all available multidisciplinary clinics and procedures relevant to GI motility over the course of 2nd and 3rd years of fellowship. Minimum of 1 additional specialty clinic per month with primary focus in participation in the Aerodigestive Clinic:

- Aerodigestive program (GI/ENT/Pulmonary)
- Upper GI tract surgical/motility program (GI/Surgery)

Procedural Training:

Training in the procedural aspects of Aerodigestive assessments, as well as in interpretation of studies will take place twice per month:

1. Combined Aerodigestive Endoscopy (EGD, Direct Laryngobronchoscopy, Flexible Bronchoscopy with BAL – i.e. “triple scope”).
2. EGD with balloon dilation of esophageal stricture
3. Esophageal pH/impedance and Bravo pH (wireless esophageal pH telemetry)
4. Esophageal manometry
5. Videofluoroscopic Swallow Study (Swallow Function Study)
6. Clinical Feeding Evaluation (Speech Language Pathology)
7. Pulmonary Function Testing (Pulmonary Lab)
8. Botulinum toxin (Botox) injections to pylorus – case-by-case basis

Conference Attendance:

In addition to current section-wide didactic and research conferences, fellows will be expected to attend the monthly Aerodigestive Conference.

Attendance at the Aerodigestive Society Annual Meeting is encouraged in the 2nd year, which will be the fellow’s paid conference for that academic year.

Endoscopy Frontiers

This curriculum complements the investigator track with adjustment in time and effort to accommodate ~20-25% effort directed towards an endoscopy niche. Potential for 2 tracks 1) Gastrointestinal* 2) Pancreaticobiliary^, and the items listed below may be modified based on Track choice (*^ are suggestions for each of the subtracks, these are not definitive but a guide to proper selection).

1. Choose Endoscopy specific clinical or developmental project during 1st year of fellowship that will be offered by endoscopy and/or pancreaticobiliary faculty.

2. Attend all GHN Section Conferences with expectation of special attention to Endoscopy/Pancreaticobiliary case conferences: Review/update on focused Endoscopy/PB topics every other month (10 minute presentation with 6 slides maximum) from following topics (eg. 6 topics per year):

a. Basic Colonoscopy technique*
b. Polyposis syndrome*
c. Endoscopic management of non-variceal bleeding*
d. Pharmacologic management of non-variceal UGI bleeding*
e. Endoscopic management of variceal bleeding*
f. Pharmacologic management of variceal bleeding*
g. New technology*^
h. Capsule endoscopy*
i. Imaging of the small intestine*
j. Endoscopy of the small intestine*
k. Quality in endoscopy*^
l. Foreign body updates*
m. Endoscopic Ultrasound*^
n. Basics of ERCP^
o. Management of CBD Stones^
p. Endoscopic management of recurrent and chronic pancreatitis^
q. Procedural training*^
r. Fluoroscopy safety/training*^
s. The Difficult Polyp*
t. Management of caustic ingestions*
u. Endoscopy in the IBD patient*^
v. Endoscopy in the Liver Transplant patient*^
w. Endoscopy in Short Bowel Syndrome*
x. Management of pancreatic pseudocysts^
y. Colon cancer in pediatric patients*
z. Endoscopy for obesity*^

aa. Endoscopy and anti-coagulation*^
bb. Endoscopy in the oncology/BMT patient*^
cc. Endoscopy imaging (NBI, confocal)*
dd. Pancreaticobiliary anomalies^
ee. Wound closure*
ff. Luminal stenting^

3. Identification of secondary mentor in advanced endoscopy (TBD) or pediatric surgery*^

4. Monthly attendance of Monday morning clinic or other TBD*^. Minimum of 12 extra clinics per year.

5. Quarterly attendance of Tuesday Vascular Anomaly (VA)* Conference (noon meeting conflicts with GHN Section Conference).

6. Vascular Anomaly Clinic* when GI patients are being seen (Tuesday afternoons)

7. Attend One Texas Live*^; TASGE rotating annual meeting (funding typically available)

8. Submit at least 1 DDW abstract to ASGE/Pediatric Endoscopy and/or other relevant during years 2 and 3.

9. Actively aid development of curriculum content (addition of at least 5 additional articles each year (2 and 3)*^.

10. 4 weeks of procedural shadowing at SLEH with Raijman, Othman, Patel, Abidi (pending commitment)*^.

11. Write review paper or conduct retrospective chart review on an aspect of advanced endoscopy. Either with primary or other advanced endoscopy mentor*^.

12. 3rd year GHN Grand Rounds needs to be endoscopy/PB niche*^

13. 2 morbidity and mortality conferences per year (* see others)*^

14. Service: PB Track Participate in 2 Texas or US based-NPF patient based activities in 2nd and 3rd year^. GI Track: Participate in other activity related to GI Advanced Endoscopy; (eg. PTEN, Polyp support group, Vascular Anomaly Family activity)^

15. One Friday fellows conference per year on endoscopy/PB topic*^

16. The fellow should participate in the pre-operative, perioperative and post-operative management in patients with:

a. pancreatic pseudocyst^
b. common bile duct stones^
c. duodenal ulcer*
d. variceal bleeding*
e. difficult foreign body*
f. small bowel polyp*
g. esophageal stricture*

17. Minimum procedural participation. (estimate case volumes over year 2 and 3*)

I. GI Track*
a. hemostatic clipping (3)
b. band ligation (3)
c. stricture dilation (5)
d. balloon enteroscopy (5)
e. Injection therapies (5)
f. Argon plasma coagulation (3)
g. Endoscopic suturing (2)
h. PB Track cases (5 ERCP, 5 EUS per year*)

II. PB Track^
a. Intraductal endoscopy (5)
b. ERCP (15)
c. EUS (15)
d. GI Track cases (1-2 of each type)

Clinical Niche Fellowship Track: HEPATOLOGY

This track is not intended to replace Transplant Hepatology Fellowship and is not recommended for individuals who are considering that fellowship. Participation in this track will require adjustment in time and effort to accommodate ~ 20 to 25% effort directed to the Hepatology niche.

1. Choose a Hepatology-specific rigorous academic project (clinical, translational or basic science) during the 1st year of fellowship mentored by a Hepatology-oriented faculty. A minimum of 4 potential projects (from at least 2 different mentors) will be available each year.

2. Attend all GHN Section Conferences with special attention to Hepatology case conferences. These include but are not limited to:
   a. Liver Pathology and Liver Transplant Pathology Conference on the 1st and 3rd Wednesday of each month
   b. Liver transplant patient care conference q Monday (monthly attendance only)
   c. Liver Educational Conference (guest speakers) on select Mondays at 1 pm each month

3. Review/update on focused Hepatology topics every other month (10 minute presentation with 6 slides at maximum) from the following topics (i.e. 6 topics per year):
   a. Pathophysiology of portal hypertension (pre/intra/post hepatic)
   b. Use of non-selective beta blockers for pediatric portal hypertension
   c. Management of acute variceal hemorrhage
   d. Morbidity and mortality of variceal hemorrhage in children
   e. Primary prophylaxis of esophageal varices
   f. Secondary prophylaxis of esophageal varices
   g. Medical management of ascites
   h. Management and treatment of peritonitis
   i. Diagnostic approaches to neonatal cholestasis
   j. Diagnostic approaches to adolescent cholestasis
   k. Optimizing medical care in acute liver failure
   l. Multi-disciplinary management of chronic liver failure
   m. Nutritional management of cholestasis in infants and children
   n. Treatment approaches for primary sclerosing cholangitis
   o. First and second line therapies in autoimmune hepatitis
   p. Therapeutic monitoring of cellcept and azathioprine
   q. Most common agents that cause drug-induced liver injury
   r. Liver complications and disease in the immunocompromised
   s. Pathophysiology and medial management of CF associated liver disease
   t. Medically treatable inborn errors of carbohydrate metabolism
   u. Treatment and monitoring of Wilson disease
   v. Pharmacologic options for NAFLD

w. Natural liver history of urea cycle disorders
x. Diagnosis and treatment of cholangitis
y. Hepatoblastoma management (Resection, chemotherapy, TARE/TACE)
z. Liver masses: monitoring and management
aa. Transition of pediatric hepatology care to adult care
bb. Direct-acting antivirals (DAA's) for pediatric HCV
cc. Nucleos(t)ide analogues for pediatric HBV
dd. The intestinal microbiome and pediatric liver disease (CF, NASH, BA)
ee. Serum biomarkers of liver fibrosis
ff. Imaging biomarkers (SWE, TE, MRE, US) of liver fibrosis

4. Identification of secondary mentor in the field of Clinical Pediatric Hepatology: role of mentor will be primarily clinical oversight/education during monthly Hepatology clinic

5. Monthly attendance of either Mon am/pm OR Wednesday am/pm Hepatology clinics, rotating between Hepatology providers who can provide unique clinical expertise and variation in clinical care. Minimum of 12 extra clinics per year.

6. Perform a minimum of 2 liver biopsies with a Hepatology faculty and 2 with IR during the 2 years of Hepatology focused fellowship.

7. Participate in at least 2 medical review board (MRB) meetings per year.

8. Present 1 liver-focused M&M case per year

9. Present 3 unique hepatology clinical cases with brief literature review at Liver pathology conference during the 2 years of Hepatology focused fellowship.

10. Attend the American Association of the Study of Liver Diseases (AASLD) Annual Meeting during the 2nd year of fellowship, preferably with first author abstract as the reimbursed conference for that academic year.

11. Actively participate in building a library of Hepatology curriculum (addition of at least 5 seminal pediatric hepatology articles/year in the last 2 years of fellowship – must have been published within 2 years of the date of contribution to the curriculum)

12. 4 week rotation with BCM adult hepatologists focusing on non-transplant hepatology care and research (Drs. Vierling, Sood, Jalal, Khaderi [pending commitment])

13. Write a review paper, book chapter or conduct a retrospective study on a clinically significant pediatric hepatology topic pertinent to either screening, monitoring, or clinical treatment during the last 2 years of Hepatology focused fellowship. This may be done either with primary or secondary mentor.
14. 3rd year GHN Grand Rounds topic within the Hepatology niche

Clinical Niche Fellowship Track for Inflammatory Bowel Diseases

This curriculum complements the Investigator Track with adjustment in time and effort to accommodate ~ 20 to 25% effort directed to the IBD niche.

1. Choose IBD specific clinical or translational project during 1st year of fellowship that will be offered by IBD focused M.D. faculty. A minimum of 5 topics (from at least 2 different mentors) will be available each year.
2. Attend all GHN Section Conferences with expectation of special attention to IBD case conferences: Review/update on focused IBD topics every other month (10 minute presentation with 6 slides at maximum) from following topics (i.e. 6 topics per year):
    a. Transition of pediatric IBD care to internal medicine based practice
    b. Clostridium difficile in pediatric IBD
    c. Infliximab versus calcineurin inhibitors to treat fulminant colitis
    d. Anti-TNF agents versus thiopurines to treat moderately active UC
    e. Mono-therapy versus combination-therapy for pediatric CD
    f. Top down versus escalating therapy for pediatric CD
    g. Thiopurines versus methotrexate for CD/pediatric CD
    h. Thiopurines versus methotrexate for UC/pediatric UC
    i. Do thiopurines alter the lifetime course of CD
    j. Do biologics alter the lifetime course of CD
    k. Therapeutic monitoring of biologics
    l. Vaccination recommendations for patients on biologics or immunomodulators
    m. Screening recommendations prior to initiation of biologics
    n. Short and long term side effects of immunomodulators and biologics
    o. Fertility and IBD
    p. Therapeutic monitoring of thiopurine therapy and optimization with allopurinol
    q. New biologics for CD
    r. New biologics for UC
    s. Alternative medications in IBD
    t. Dietary management and diet based treatments in IBD
    u. Thalidomide in IBD
    v. The microbiome of pediatric CD
    w. The microbiome of pediatric UC
    x. Antibiotics to treat UC
    y. Antibiotics to treat CD
    z. Nutritional therapy in IBD
    aa. Mycobacterium avium subspecies paratuberculosis (MAP) in CD (myth or reality?)
    bb. Fecal microbiota transplantation (FMT) in IBD
    cc. Postsurgical management of CD
    dd. Postsurgical management of UC, pouchitis
    ee. Risks of thiopurine and/or methotrexate therapy
    ff. Indeterminant colitis

gg. VEOIBD

3. Identification of secondary mentor in the field of Clinical Pediatric IBD: role of mentor will be primarily clinical oversight/education during monthly IBD clinic

4. Monthly attendance of Thursday afternoon IBD clinics, rotate between IBD providers to experience variation in clinical care. Minimum of 12 extra clinics per year. Perform the consequent endoscopies of patients seen by fellow.

5. Participate in at least 2 advanced endoscopy procedures (enteroscopy or lower intestinal endoscopic dilation) in pediatric IBD patients/year

6. Attend Crohn’s & Colitis Congress (or equivalent) during the 2nd year of fellowship, preferably with first author abstract as the reimbursed conference for that academic year.

7. Actively aid development of curriculum content (addition of at least 5 additional articles each year in their 2nd and 3rd year of their fellowship – must have been published within 2 years of the date of contribution to the curriculum)

8. 4 week shadowing of BCM Internal Medicine gastroenterologist focusing on IBD care (Drs. Kaur or Hou [pending commitment])

9. Write review paper, chapter or conduct retrospective chart review on advanced biologic pharmacology or basic scientific topic (such as animal models of IBD) during 2 years of IBD focused fellowship. Either with primary or secondary mentor.

10. 3rd year GHN Grand Rounds need to be in IBD niche

11. One IBD specific M&M during 2 years of IBD focused fellowship

12. Contribute to 2 IBD family support group meetings per year (Saturday morning commitment) in the 2nd and 3rd year of their fellowship

Clinical Niche Fellowship Track for Intestinal Rehabilitation

This curriculum complements the Investigator Track with adjustment in time and effort to accommodate ~ 20 to 25% effort directed to the Intestinal Rehabilitation (IR) niche.

13. Choose IR specific clinical or translational project during 1st year of fellowship that will be offered by IR focused M.D./PhD faculty.
14. Attend all GHN Section Conferences with expectation of special attention to IR case conferences: Review/update on focused IR topics every other month (10 minute presentation with 6 slides at maximum) from following topics (i.e. 6 topics per year):
    a. Transition of pediatric IR care to internal medicine based practice
    b. Treatment for small bowel bacterial overgrowth in pediatric IR.
    c. Alternative lipids: SMOF
    d. Alternative lipids: Omegaven
    e. Total Parenteral related liver disease (PNALD)
    f. STEP procedure for dilated bowel in Short Bowel Syndrome (SBS)
    g. Long-term adverse events related to STEP procedure
    h. Treatment of long-term adverse events related to STEP procedure
    i. Vitamin Deficiency in SBS: Vitamin D3
    j. Vitamin Deficiency in SBS: Vitamin B12
    k. Mineral deficiency in SBS: zinc
    l. Mineral deficiency in SBS: copper
    m. Mineral deficiency in SBS: selenium
    n. Treatment of SBS with teduglutide
    o. Adverse effects of teduglutide treatment
    p. Effects of SBS on linear growth
    q. Use of growth hormone in patients with SBS
    r. Bone mineral density in patient with SBS
    s. Effects of total body depletion of sodium on growth
    t. Effects of acidosis on growth
    u. Treatment of anastomotic ulcers in SBS
    v. Motility disorders in gastroschisis
    w. Inflammatory Bowel Disease in Hirschsprung disease patients
    x. Parenteral nutrition and gastrostomy tube feeds in the school
    y. Prevention of central line associated blood stream infections (CLABSI) with ethanol locks
    z. Predictors of CLABSI infections
    aa. Central line care in prevention of CLABSI infections
    bb. Silicone versus polyurethane central venous catheters
    cc. Treatment with antidiarrheal agents in SBS
    dd. Iron deficiency anemia in SBS
    ee. Treatment with ferric carboxymaltose in iron deficiency anemia for SBS
    ff. Hydrolyzed versus amino acid based formula in SBS
    gg. Oral/feeding aversion in SBS patients

hh. Bolus versus continuous feeds in SBS

15. Identification of secondary mentor in the field of Clinical Pediatric IR: role of mentor will be primarily clinical oversight/education during monthly IR clinic

16. Monthly attendance of IR clinics, rotate between IR providers to experience variation in clinical care. Minimum of 12 extra clinics per year.

17. Be primary physician for at least one TPN dependent IR patient during Fellow's Continuity Clinic and manage weekly TPN labs and TPN.

18. Attend ASPEN (American Society for Parenteral and Enteral Nutrition) (or equivalent) during the 2nd year of fellowship, preferably with first author abstract as the reimbursed conference for that academic year.

19. Actively aid development of curriculum content (addition of at least 5 additional articles each year in their 2nd and 3rd year of their fellowship – must have been published within 2 years of the date of contribution to the curriculum)

20. Write review paper, chapter or conduct retrospective chart review on Intestinal Rehabilitation, Short Bowel Syndrome or parenteral or enteral nutrition with either primary or secondary mentor.

21. 3rd year GHN Grand Rounds need to be in IR niche

22. One IR specific M&M during 2 years of IR focused fellowship

Clinical Niche Fellowship Track in Motility/Neurogastroenterology

~ 20 to 25% effort directed to the clinical niche

Scholarly Activities:

1. Identify a patient-based (clinical) or translational research project by the end of 1st year of fellowship, under the mentorship of Motility/Neurogastroenterology M.D. faculty. Conduct and completion of project to take place during 2nd and 3rd years of fellowship.

2. Review of core Motility/Neurogastroenterology topics. Each topic should be researched and summarized into a 10-15 minute presentation. Fellows will be expected to prepare 6 topics in each of the 2nd and 3rd years of fellowship:

- Enteric Nervous System Development
- Visceral Sensitivity
- Esophageal Manometry – Indications for testing and analysis
- Antroduodenal Manometry – Indications for testing and analysis
- Colonic Manometry – Indications for testing and analysis
- Anorectal Manometry – Indications for testing and analysis
- Esophageal pH and Impedance Monitoring – Indications for testing and analysis
- Gastrointestinal Transit Testing (Radionuclide scintigraphy, Breath Tests, Smart Pill)
- Esophageal Motility Disorders
- Gastric Motility Disorders
- Chronic Intestinal Pseudo-obstruction
- Hirschsprung Disease
- Gastroesophageal Reflux Disease
- Functional Dyspepsia
- Irritable Bowel Syndrome
- Functional Abdominal Pain
- Cyclic Vomiting Syndrome
- Rumination Syndrome
- Functional Constipation/Fecal Incontinence
- Advanced Pharmacology
- Electrical Stimulation of the GI Tract
- Cognitive Behavioral Therapy for Functional Gastrointestinal Disorders
- Animal Models of Motility/Neurogastroenterology

3. Prepare didactic conferences with Motility/Neurogastroenterology focus under mentor oversight:

- Tuesday Case Conference (twice per year)
- GHN Grand Rounds (once in 3rd year)
- Morbidity and Mortality Conference (once)

4. Review of current top 15-20 seminal articles in the field of Motility/Neurogastroenterology (list to be provided by mentors). Actively participate in updating the curriculum content (addition of at least 5 additional articles each year in their 2nd and 3rd year of their fellowship – must have been published within 2 years of the date of contribution to the curriculum)
5. Write a review paper or textbook chapter during 2 years of Motility/Neurogastroenterology-focused fellowship. Either with primary or secondary mentor.
6. Review of one manuscript in the field of Motility/Neurogastroenterology with primary or secondary mentor.

Clinical Training:

Identification of secondary clinical mentor in the field of Motility/Neurogastroenterology. Role of mentor will be primarily clinical oversight/education. Participation as able in all available multidisciplinary clinics and procedures relevant to GI motility over the course of 2nd and 3rd years of fellowship. Minimum of 1 additional specialty clinic per month, with primary focus on Motility/Neurogastroenterology Clinics:

- Motility/Neurogastroenterology (Chumpitazi/Chiou)
- Combined Surgery/Motility Colorectal program (GI/Surgery/Bowel management)
- Combined Surgery/Motility program (GI/Surgery)
- Gastric neurostimulation program (GI/Surgery)
- Rumination program (inpatient and outpatient) (GI/PT/Psychology)
- Multidisciplinary Abdominal Pain Program (GI/Psychology/Anesthesiology/Dietitian)

Procedural Training:

Training in the procedural aspects of motility studies/assessments, as well as in interpretation of studies will take place twice per month:

1. Anorectal manometry – every Monday
2. Esophageal manometry – every Monday
3. Esophageal pH/impedance and Bravo pH (wireless esophageal pH telemetry) – case-by-case basis
4. Hydrogen breathe testing – case-by-case basis
5. Wireless motility capsule (SmartPill) – case-by-case basis
6. Antroduodenal catheter placement and manometry (high resolution) – case-by-case basis
7. Colonic catheter placement and manometry (high resolution) – case-by-case basis
8. Electrogastrography – case-by-case basis
9. Temporary gastric neurostimulation – case-by-case basis
10. Placement of auricular percutaneous nerve field stimulator – case-by-case basis

11. Botulinum toxin (Botox) injections to anal sphincter and/or pylorus – case-by-case basis
12. Combined aerodigestive procedures ("Triple Scope") – every Wednesday
13. Exposure to novel therapies in adult patients at collaborating institutions (peroral endoscopic myotomy (POEM), etc.)

Conference Attendance:

In addition to current section-wide didactic and research conferences, fellows will be expected to attend the following Motility/Neurogastroenterology conferences (once monthly):

- Monthly Motility/Neurogastroenterology Clinical Conference - Fridays
- Monthly Combined Colorectal Conference (TCH, Nationwide, Seattle Children's)
- Monthly Physical therapy conference (GI/PT/Psychology)

Attendance at NASPGHAN Annual Meeting, Digestive Disease Week, or the American Neurogastroenterology and Motility Society (ANMS) Annual Meeting encouraged in the 2nd year, which will be the fellow's paid conference for that academic year.