California Pacific Medical Center
Gastroenterology Fellowship Curriculum

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V1.0 06/2015
Liu, J
Holt, E.W.
Wong, R
Lin, M
Overview

The 3 year gastroenterology fellowship curriculum is designed to provide the fellow a well-rounded, cutting edge clinical and academic experience with the goal to become an expert clinical and scholarly gastroenterologist.

Emphasis in the first 18-27 months is placed on building fundamental skills and knowledge grounded in pathophysiology and core concepts to the depth expected of a tertiary consultant. Educational experiences are structured to allow for supervised independence, leading to full autonomy at a pace appropriate for the trainee. The process of becoming an independent, expert consultant occurs through a variety of learning environments, from traditional hospital based and outpatient clinic rotations to innovative multidisciplinary electives.

During the 3 year fellowship, fellows spend 9 months on the inpatient GI consult service, 6 months on the inpatient hepatology service, and 6+ months on outpatient endoscopy rotations. 5 months of training are focused on developing the knowledge and skills necessary to manage functional bowel diseases. Fellows participate in outpatient GI and hepatology continuity clinic one half day a week throughout the 3 years of training.

As the fellow matures into a junior attending, each is encouraged to adopt an area of focus within general or subspecialty gastroenterology/hepatology. As such, the curriculum provides flexibility to be tailored to the individual’s interests and career aspirations. 4-6 months of elective time over the second and third year may be tailored to the fellow’s curricular goals. The program director and faculty mentors work closely with each fellow to insure that their educational needs are being met throughout the training process.

Fellows are encouraged to explore themes that are of personal interest in a longitudinal fashion throughout the course of training. Critical thinking and participation in research and new discovery is expected. As such, 6 months are set aside for research over the course of 3 years. Self reflective learning and participation in quality improvement initiatives is emphasized in order to prepare fellows to be responsible clinicians and lifelong learners.

The curriculum is reviewed regularly to identify areas for innovation and improvement by the program evaluation committee (PEC), which fellows are an integral part of.
<table>
<thead>
<tr>
<th>Dates</th>
<th>F1</th>
<th>F2</th>
<th>F2</th>
<th>F3</th>
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<td>July 7/1 (Wed)-8/2*</td>
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<td>HEPATOLOGY</td>
<td>MOTILITY</td>
<td>GI CONSULTS</td>
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<td>OUTPATIENT ENDOSCOPY</td>
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Sample Schedule
Conferences and Didactics

Fellows are expected to participate in a full complement of conferences and didactics. Fellows actively contribute to the content and planning of weekly grand rounds. Each fellow is expected to present 5 grand round lectures per year within an area of clinical focus in order to explore topics of personal interest in greater depth and/or to fill gaps in knowledge.

Representative List of conferences:
1. CPMC Gastroenterology Grand Rounds - Weekly
2. CPMC Transplant Hepatology Grand Rounds - Monthly
3. UCSF Gastroenterology Fellows Course - Weekly
4. UCSF Gastroenterology Grand Rounds - Weekly
5. Inpatient Gastroenterology Service Teaching Rounds - Tri-Weekly
6. IBD Conference - Bi-Monthly
7. Hepatology Case Conference - Monthly
8. Hepatology Fellows Course
9. GI Tumor Board - Monthly
10. GI pathology Conference - Monthly
11. Liver pathology Conference -Weekly
12. Liver Transplant Selection Committee
13. GI Research Conference - Quarterly
14. GI Journal Club - Monthly
15. Research/QI project development course - Annual
16. Approved GI CME programs (ie. DDW, ACG, AASLD) - Annual
17. ASGE First Year Fellow’s course -Annual
18. GME Committee -Monthly
19. Program Evaluation Committee - Quarterly
20. QI conference - Bi-monthly
Rotations linked to Entrustable Professional Activities and Educational Milestones

Entrustable professional activities (EPA) are defined as professional life activities that define that specialty. It is the core of the profession that a patient or another provider could identify as what constitutes that physician’s professional tasks and role. Thirteen EPA have been identified for gastroenterology as described by Rose et al. Gastroenterology 2014;147:233–242.

Table 1 summarizes the primary EPA to be mastered during each rotation throughout training. Specific milestones to be used for evaluating competency are “linked” to each rotation.

Faculty and Fellows are strongly encouraged to review and reference the EPA supplementary materials, rotation specific evaluation forms and subspecialty milestones at the beginning of each rotation to set teaching and educational goals for the month.

The program evaluation committee (PEC) will regularly assess the curriculum to determine whether EPA and curricular objectives are adequately covered within the course of the 3 year fellowship. Supplemental reading/learning activities and elective rotations shall be developed to meet new educational objectives as they arise.

<table>
<thead>
<tr>
<th>Table 1.</th>
<th>EPA</th>
<th>Milestone</th>
<th>Faculty Champion</th>
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<td>Gastroenterology Continuity Clinic/Outpatient Clinics</td>
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*Varies depending on the Fellow’s area of focus*
Inpatient Gastroenterology Rotation

Overview:

The main purpose of the Inpatient Gastroenterology Rotation is for the fellow to gain the knowledge and technical skills necessary to fulfill the role of an independent gastroenterology consultant in the acute care setting. The primary site for learning is the California Pacific Medical Center Pacific Campus Hospital. The fellow is responsible for maintaining the gastroenterology consult service for inpatients. The consult service team may include rotating internal medicine residents and/or students which the fellow is expected to directly supervise and teach.

Fellows are expected to participate in every aspect of patient care, including but not limited to initial evaluation of the patient, daily follow up and endoscopic evaluation. Fellows are encouraged to strive for independence when formulating an assessment and plan and when performing procedures. The faculty shall consist of credentialed, active staff gastroenterologists at CPMC. Fellows may not consult or perform procedures on patients without faculty supervision throughout their training. Fellows are excused to attend the weekly GI conference at UCSF and are expected to be present at the weekly CPMC GI conference and teaching rounds.

Fellows are responsible for coordinating the tri-weekly teaching rounds with the attending of the month. Topics or cases for review should be derived from the care of patients on the consult service. Ancillary topics for discussion are determined after faculty and fellow review of the EPA in order to identify gaps in knowledge for further study at the beginning of each rotation. Every effort should be made to involve the other fellows, residents and students in the educational process. Discussion of pertinent radiologic and pathologic findings should be a priority.

Fellows are expected to follow the duty hour regulations outlined by the ACGME. Regular training in fatigue management and maintenance of duty hour logs are required. There is no cap on the number of patients that may be followed on the inpatient consult service. However, the inpatient list is regularly monitored by the program director and dialogue with the fellow encouraged to ensure that the goals and and objectives of the rotation are being met within the practice parameters of the ACGME.

Learning Objectives: Fellows are strongly encouraged to review the resources provided on Entrustable Professional Acitivities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.
Rotation Core Entrustable Professional Activities (EPA)
1,4,6,7,8,9,10,11,12,13 (Specific requirements outlined in materials provided in the reference section of the curriculum guide)

General Knowledge
1) Given the breadth and depth of knowledge covered on the inpatient rotation, an complementary list of knowledge and skills objectives (beyond those listed in the EPA) is impractical. A list of high yield topics for review are included. Fellows are encouraged to refer to the EPA references regularly throughout the rotation to choose additional topics pertinent to their patients for further study. It is not expected that all aspects of each EPA will be covered during the course of a single rotation.

Endoscopy
1) Diagnose and treat mechanical obstruction/foreign body and food impaction of the esophagus (EPA 6)
2) Diagnose and manage acute variceal and non-variceal upper GI bleeding (EPA 7)
3) Know the indications and proper technique for PEG tube placement (EPA 13)
4) Identify high risk patients in need of monitored anesthesia care (EPA 6)

Colonoscopy
1) Know the indications and proper application of colonoscopy in the setting of acute lower GI bleeding (EPA 7)
2) Know the indications, risks, benefits and alternatives to colonoscopy for the diagnosis and management of acute colitis (EPA 6,10,11)
3) Manage acute colonic obstruction and/or colonic volvulus (EPA 7)
4) Identify high risk patients in need of monitored anesthesia care (EPA 7)

Evaluation:
Supervising faculty and the attending of the month will be asked to evaluate the fellow’s endoscopic and cognitive skills using the Endoscopy and Colonoscopy evaluation forms and clinical evaluation forms outlined in the evaluation section of the curriculum guide. Evaluation from the nursing and support staff will be solicited. Fellows will be given the opportunity to evaluate the faculty. Informal evaluation and feedback on a day to day basis is an expected part of the program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME’s NAS.
Selected Topics For Review: 
(Additional topics included in EPA supplemental reference)

1) Proton Pump Inhibitor Use in Acute Upper GI Bleeding (EPA 1)
2) Ulcer prophylaxis in the hospitalized patient (EPA 1)
3) Caustic Ingestion (EPA 6)
4) Esophageal Cancer (EPA 1,12)
5) Peptic Ulcer Disease - H. pylori, NSAIDs (EPA 1,6)
6) Management of acute non variceal hemorrhage (EPA 7)
7) Management of variceal hemorrhage (EPA 7)
8) Gastric Cancer (EPA 1, 12)
9) gastric GIST, carcinoid (EPA 12)
10) Acute pancreatitis (EPA 9)
11) gallstone pancreatitis (EPA 8,9)
12) cholecystitis/cholangitis (EPA 8)
13) cholangiocarcinoma (EPA 8,12)
14) pancreatic cancer (EPA 9,12)
15) pancreatic neuroendocrine tumors (EPA 9,12)
16) Ulcerative Colitis (EPA 6,11)
17) Crohns Disease (EPA 6,11)
18) ischemic colitis (EPA 6,11)
19) acute mesenteric ischemia (EPA 11)
20) Protein losing enteropathy (EPA 6,11)
21) diverticular bleeding (EPA 7)
22) acute diverticulitis (EPA 10)
23) ileus (EPA 3,11)
24) pseudoobstruction (EPA 3,11)
25) C difficile colitis (EPA 10)
26) TPN complications (EPA 13)
27) Graft versus Host disease (EPA 11)
28) HIV associated GI disorders (EPA 10)

Learning Resources:

The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively manage gastroenterology disorders and apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran) and online resources such as Up To Date is highly encouraged. Regular reflection upon cases performed should prompt directed study and literature review. Topic reviews and guidelines published by the AGA, ACG and ASGE in their journals should serve as
primary references for review. Recent clinical trials and pertinent studies in from the Gi journals should be reviewed to address patient management questions.
Gastroenterology Continuity Clinic/Outpatient Clinics

Overview:
The main purpose of the gastroenterology continuity clinic experience is to enable the fellow to develop the knowledge and skills required to practice as an independent gastroenterology consultant. The emphasis will be on accumulating the clinical experience, skills and fund off knowledge necessary to manage common outpatient gastroenterology and hepatology disorders. The primary site for learning is the gastroenterology clinic at the Sutter Family Health Center.

Fellows are assigned a one half day a week continuity clinic throughout the course of their training. 104 weeks are assigned to the gastroenterology continuity clinic and 52 weeks are assigned to the hepatology continuity clinic (curriculum described separately). Fellows are expected to develop longitudinal relationships with their panel of patients in order to observe disease processes over time. The faculty shall consist of credentialed, active staff gastroenterologists who provide regular longitudinal care for patients at the Family Health Center Gastroenterology Clinic.

During the second and third year, fellows may obtain additional outpatient clinic experience in the private offices of faculty gastroenterologists. Dedicated clinic electives and opportunities for clinic experience during outpatient endoscopy rotations are available. Detailed goals and objectives are determined on an individual basis depending on the needs and goals of the interested fellow.

Learning Objectives: Fellows are strongly encouraged to review the resources provided on Entrustable Professional Activities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.

Rotation Core Entrustable Professional Activities (EPA)
1,2,4,8,9,10,11,12 (Specific requirements outlined in materials provided)

General Knowledge
Fellows should regularly review the pertinent EPA with focus on topics pertinent to outpatient gastroenterology and hepatology practice. Review of topics with co-fellows and attendings during clinic is strongly encouraged. Topics that are not directly covered in clinic should serve as topics for didactic sessions or grand rounds. A short list of high yield topics for review is included to initiate studies.

Evaluation:
Faculty will evaluate the fellows monthly using the evaluation instruments provided. Fellows will be given the opportunity to evaluate the faculty. “360” evaluations and direct observation of patient care activities should also form part of the evaluation. Informal evaluation and feedback on a day to day basis is expected and part of the
program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME’s NAS.

**Topics For Review:**
1) GERD (EPA 1)
2) Barretts Esophagus (EPA 1)
3) Dysphagia (EPA 3)
4) Eosinophilic Esophagitis (EPA 1,11)
5) H. pylori (EPA 1)
6) Peptic Ulcer Disease (EPA 1)
7) Atrophic Gastritis/Intestinal Metaplasia (EPA 1)
8) Gastric Cancer (EPA 1,12)
9) Functional Dyspepsia (EPA 2)
10) PPI usage/complications (EPA 1)
11) Functional abdominal pain syndrome (EPA 2)
12) Celiac Disease (EPA 11)
13) Colorectal Cancer Screening (EPA 6)
14) Colorectal Cancer Surveillance (EPA 6,12)
15) Chronic Diarrhea (EPA 11)
16) Microscopic Colitis (EPA 11)
17) Ulcerative Colitis (EPA 11)
18) Crohns Disease (EPA 11)
19) Polyposis Syndromes (EPA 6,12)
20) Rectal Bleeding (EPA 7,11)
21) Hemorrhoids/Anal Fissure (EPA 11)
22) Hepatitis B (EPA 4)
23) Hepatitis C (EPA 4)
24) SIBO (EPA 11)
25) Bloating (EPA 2)
26) Evaluation of Abnormal Liver enzymes (EPA 4)
27) Gilbert’s Syndrome (EPA 4)
28) Irritable Bowel Syndrome (EPA 2)
29) Chronic Constipation (EPA 3)
30) Biliary cholic (EPA 8)
31) Chronic Pancreatitis (EPA 9)

**Learning Resources:**

The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran) and online resources such as Up To Date is highly encouraged. Regular reflection upon cases performed should prompt directed study and literature review. Topic reviews and guidelines published by the AGA, ACG and ASGE in their journals should serve as primary references for review. The habit of reviewing recent clinical trial and recent basic science data in the GI
literature in order to make evidence based, informed patient care decisions should be cultivated.
First Year Outpatient Endoscopy Rotation

Overview:

The main purpose of the outpatient endoscopy rotation is to allow the first year fellow time to learn and develop the basic technical skills and cognitive knowledge required to perform upper endoscopy and colonoscopy. The primary site for learning is the Outpatient Endoscopy Lab at the California Campus at California Pacific Medical Center. Fellows are expected to participate in the daily activities of the GI lab. Fellows are excused to attend the weekly GI conference at UCSF and are expected to be present at the weekly CPMC GI conference and teaching rounds. The faculty shall consist of credentialed, active staff gastroenterologists at CPMC who utilize the California Campus for outpatient procedures. In addition to participating in the endoscopic activities at the California campus, fellows are expected to perform independent study on topics related to the fundamental practice of endoscopy and colonoscopy.

Learning Objectives: Fellows are strongly encouraged to review the resources provided on Entrustable Professional Activities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.

Rotation Core Entrustable Professional Activities (EPA)
1,2,3,6,10,11,12 (Specific requirements outlined in materials provided)

General Knowledge
1) Describe the operation and features of the diagnostic and therapeutic upper endoscopes, colonoscopes and pediatric scopes. (EPA 6)
2) Fellow is able to connect the endoscope to the processor to ensure its safe and proper use. (EPA 6)
3) Describe the risks benefits and alternatives of upper endoscopy and colonoscopy. (EPA6)
4) Describe the proper indications for upper endoscopy and colonoscopy (EPA 6)
5) Describe the mechanism of action and risks of commonly administered sedatives for endoscopic procedures. (EPA 6)
6) Administer reversal agents for sedatives when appropriate (EPA 6)

Upper Endoscopy
7) Accurately assess the patient’s ASA class and monitor the patient’s level of consciousness throughout the procedure to maintain a safe and effective level of sedation. (EPA 6)
8) Safely and routinely intubate the esophagus (EPA 6)
9) Perform a controlled and thorough evaluation of the body and antrum of the stomach (EPA 6)
10) Perform a complete evaluation of the cardia, fundus and incisura of the stomach under retroflexion (EPA 6)
11) Intubate the duodenum routinely (EPA 6)
12) Completely evaluate the duodenum to the 2nd and 3rd portions (EPA 6)
13) Describe the indications for biopsy on upper endoscopy (EPA 6)
14) Complete targeted biopsies on upper endoscopy (EPA 6)
15) Describe endoscopic findings to patients and prescribe proper follow up (EPA 1,2,3,6,10,11,12)

Colonoscopy
16) Accurately assess the patient’s ASA class and monitor the patient’s level of consciousness throughout the procedure to maintain a safe and effective level of sedation. (EPA 6)
17) Perform a complete digital rectal exam and safely insert the colonoscope into the rectum (EPA 6)
18) Skillfully remove liquid contents from the colon in order to ensure proper mucosal visualization (EPA 6)
19) Intubate the sigmoid colon routinely (EPA 6)
20) Intubate the descending colon routinely (EPA 6)
21) Intubate the transverse colon routinely (EPA 6)
22) Intubate the ascending colon routinely (EPA 6)
23) Intubate the cecum routinely (EPA 6)
24) Intubate the cecum in a timely fashion (8-12 min) (EPA 6)
25) Intubate the terminal ileum when appropriate (EPA 6)
26) Examine the rectum under retroflexion (EPA 6)
27) Know the indications for colon biopsies (EPA 6)
28) Recognize the endoscopic features of hyperplastic and adenomatous polyps(EPA 6)
29) Perform snare polypectomy safely and effectively (EPA 6)
30) Describe the rate of post polypectomy bleeding and its management (EPA 6,7)
31) Describe colonoscopic findings to patients and prescribe proper follow up (EPA 2,3,6,10,11,12)

Evaluation:
Fellows are expected to keep a running procedure log throughout the rotation. Supervising faculty will be asked to evaluate the fellow’s endoscopic and cognitive skills using the Endoscopy and Colonoscopy evaluation forms referenced in the curriculum guide. Evaluation from the nursing and support staff will be solicited. Fellows will be given the opportunity to evaluate the faculty. Informal evaluation and feedback on a day to day basis is an expected part of the program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME’s NAS.
Topics For Review:
(Additional topics for review included in EPA supplementary materials)

1) GERD (EPA 1,6)
2) Barretts Esophagus (EPA 1,6)
3) Dysphagia (EPA 2,3,6)
4) Eosinophilic Esophagitis (EPA 1,6,11)
5) H. pylori (EPA 1,10)
6) Peptic Ulcer Disease (EPA 1,6)
7) Atrophic Gastritis/Intestinal Metaplasia (EPA 1,6)
8) Gastric Cancer (EPA 6,12)
9) Functional Dyspepsia (EPA 2,6)
10) PPI usage/complications (EPA 1)
11) Gastric Polyps (EPA 1,6,11)
12) Celiac Disease (EPA 6,11)
13) Colorectal Cancer Screening (EPA 6)
14) Colorectal Cancer Surveillance (EPA 6,12)
15) Chronic Diarrhea (EPA 6,11)
16) Microscopic Colitis (EPA 6,11)
17) Ulcerative Colitis (EPA 6,11)
18) Crohns Disease (EPA 6,11)
19) Polyposis Syndromes (EPA 6,12)
20) Serrated Adenomas (EPA 6)
21) Rectal Bleeding (EPA 6,7)
22) Hemorrhoids/Anal Fissure (EPA 6,7)
23) Procedural Complications (EPA 6,7)
24) Quality measures for EGD and Colonoscopy (EPA 6)

Learning Resources:

The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran) and online resources such as Up To Date is highly encouraged. Regular reflection upon cases performed should prompt directed study and literature review. Topic reviews and guidelines published by the AGA, ACG and ASGE in their journals should serve as primary references for review. Fellows are encouraged to review instructional videos available in the training program’s video library.
Second and Third Year Outpatient Endoscopy Rotation

Overview:

The main purpose of the outpatient endoscopy rotation is to afford second and third year fellows time to learn and develop the basic and advanced technical skills and expand the cognitive knowledge required to perform upper endoscopy and colonoscopy independently. The primary sites for learning are at the Sutter ambulatory surgical sites (San Francisco Endoscopy Center, Golden Gate Endoscopy Center) and the Outpatient Endoscopy Lab at the California Campus at California Pacific Medical Center. Prior to the rotation, fellows are expected to work with the outpatient endoscopy course director to determine an appropriate weekly schedule. Fellows are excused to attend the weekly GI conference at UCSF and are expected to be present at the weekly CPMC GI grand rounds and teaching rounds. The faculty shall consist of credentialed, active staff gastroenterologists at CPMC who utilize the aforementioned labs for outpatient procedures. In addition to participating in endoscopic activities, fellows are expected to perform independent study on topics related to the fundamental practice of endoscopy and colonoscopy. Fellows who wish to evaluate patients in outpatient clinics in addition to performing endoscopy are able to do so, provided the scheduled times in clinic are approved by the supervising attendings and course director prior to the start of the rotation.

Learning Objectives: Fellows are strongly encouraged to review the resources provided on Entrustable Professional Activities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.

Rotation Core Entrustable Professional Activities (EPA)
1,2,3,6,10,11,12 (Specific knowledge and skill requirements outlined in materials provided)

General Knowledge
1) General knowledge requirements outlined in the first year fellow outpatient endoscopy rotation description
2) Understand the proper billing and coding for routine screening and diagnostic endoscopic procedures. (EPA 6)
3) Know and apply the quality measures being applied to endoscopic practices (EPA 6)
**Upper Endoscopy**
4) Master skills outlined in the first year fellow outpatient endoscopy rotation description
5) Safely and Effectively dilate the esophagus when indicated (EPA 6)
6) Use dye, narrow band imaging and other advanced imaging tools when appropriate to aid in diagnosis and clinical decision making. (EPA 6)
7) Describe endoscopic findings to patients and prescribe proper follow up (EPA 1,2,3,6,10,11,12)

**Colonoscopy**
8) Master skills outlined in the first year fellow outpatient endoscopy rotation description
9) Recognize the endoscopic features of hyperplastic and adenomatous polyps (EPA 6)
10) Perform snare polypectomy safely and effectively - includes proper equipment choice and management of the endoscopic team required for independent practice (EPA 6)
11) Describe the rate of post polypectomy bleeding and its management (EPA 6,7)
12) Perform saline lift prior to polypectomy when indicated (EPA 6)
13) Perform submucosal injection for tattoo/marking when indicated (EPA 6)
14) Apply endoclip effectively when indicated for post polypectomy bleeding prophylaxis or treatment (EPA 7)
15) Describe colonoscopic findings to patients and prescribe proper follow up (EPA 2,3,6,10,11,12)

**Evaluation:**
Fellows are expected to keep a running procedure log throughout the rotation. Supervising faculty will be asked to evaluate the fellow’s endoscopic and cognitive skills using the Endoscopy and Colonoscopy evaluation forms provided. Evaluation from the nursing and support staff will be solicited. Fellows will be given the opportunity to evaluate the faculty. Informal evaluation and feedback on a day to day basis is a expected part of the program culture.

**Topics For Review:**
(Additional topics for review included in EPA supplementary materials)
1) GERD (EPA 1,6)
2) Barretts Esophagus (EPA 1,6)
3) Dysphagia (EPA 2,3,6)
4) Eosinophilic Esophagitis (EPA 1,6,11)
5) H. pylori (EPA 1,10)
6) Peptic Ulcer Disease (EPA 1,6)  
7) Atrophic Gastritis/Intestinal Metaplasia (EPA 1,6)  
8) Gastric Cancer (EPA 6,12)  
9) Functional Dyspepsia (EPA 2,6)  
10) PPI usage/complications (EPA 1)  
11) Gastric Polyps (EPA 1,6,11)  
12) Celiac Disease (EPA 6,11)  
13) Colorectal Cancer Screening (EPA 6)  
14) Colorectal Cancer Surveillance (EPA 6,12)  
15) Chronic Diarrhea (EPA 6,11)  
16) Microscopic Colitis (EPA 6,11)  
17) Ulcerative Colitis (EPA 6,11)  
18) Crohns Disease (EPA 6,11)  
19) Polyposis Syndromes (EPA 6,12)  
20) Serrated Adenomas (EPA 6)  
21) Rectal Bleeding (EPA 6,7)  
22) Hemorrhoids/Anal Fissure (EPA 6,7)  
23) Procedural Complications (EPA 6,7)  
24) Quality measures for EGD and Colonoscopy (EPA 6)

Learning Resources:

The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran) and online resources such as Up To Date is highly encouraged. Regular reflection upon cases performed should prompt directed study and literature review. Topic reviews and guidelines published by the AGA, ACG and ASGE in their journals should serve as primary references for review. Fellows are encouraged to review instructional videos available in the training program’s video library.
Guidelines for Clinical Service at Alameda Health System
Highland Hospital Campus
CPMC GI Fellowship

Overview
Highland Hospital is an urban county safety-net teaching hospital that provides care to the indigent population of Alameda County. Highland Hospital is a Level II Trauma referral center for the Alameda Health System Network and includes a busy urban Emergency Department, a high volume general and trauma surgery service, and a comprehensive medical service providing complex medical subspecialty care. The Division of Gastroenterology provides comprehensive medical consultation in the following areas:

- **Inpatient Consultation** – The inpatient GI consult service is a full teaching service that includes one internal medicine resident, one internal medicine intern, and 1-3 fourth year medical students supervised by the inpatient attending. Inpatient consultations requiring endoscopic examination/intervention will be managed by the inpatient service.

- **Outpatient Endoscopy** – Elective outpatient endoscopy services are provided Monday – Friday by GI faculty. Procedures include diagnostic flexible sigmoidoscopy, diagnostic and therapeutic esophagogastroduodenoscopy, diagnostic colonoscopy, percutaneous endoscopic gastrostomy tubes, endoscopic mucosal resection, esophageal dilation via balloon guided dilation and Savory dilation techniques, and video capsule endoscopy.

- **Outpatient Clinics** – Outpatient clinic consultations include teaching clinics that incorporate medical residents and medical students, faculty clinics staffed by our gastroenterology faculty, and additional clinics by our physician assistants. Our gastroenterology clinics provide comprehensive management for complex gastroenterology and hepatology disorders including inflammatory bowel disease, chronic viral hepatitis, hepatobiliary disorders, cirrhosis, gastrointestinal malignancies, functional and motility disorders.

During the first year, gastroenterology fellows will spend one - two months at Highland Hospital during which time the primary focus will be on outpatient endoscopy. During the second and third years, fellows will spend two months per year at Highland Hospital during which time the focus will be on outpatient endoscopy and outpatient clinic. During the third year, fellows will be provided with the option of spending a portion of their second month at Highland as a junior attending/clinician educator, running the inpatient consultation service under the supervision of GI faculty. During this experience, the fellow is expected to directly supervise and teach the residents and medical students.

Fellows are expected to participate in every aspect of patient care, including but not limited to pre-operative history and physical examinations, initial evaluation of the patient, endoscopic evaluation, post-procedural planning and education of patients.
Fellows are encouraged to strive for independence when formulating an assessment and plan and when performing procedures. The goal of the endoscopic experience is to learn and develop the basic and advanced technical skills and expand the cognitive knowledge required to perform upper endoscopy and colonoscopy independently. The goal of the outpatient clinic experience is to learn and develop the skills necessary for providing comprehensive consultation services for patients with complex gastroenterology and hepatology disorders. The goal of the inpatient experience is to develop the knowledge, experience and technical skills necessary to fulfill the role of an independent gastroenterology consultant in the acute care setting.

During their clinical rotation at Highland Hospital, fellows may not consult or perform procedures on patients without faculty supervision. Fellows are excused to attend weekly fellows continuity clinic at CPMC, weekly GI conference at UCSF, and are expected to be present at the weekly CPMC GI conference and teaching rounds. Any exceptions to this policy must be approved by the program director. In addition, while the fellow is at Highland, he/she is required to attend weekly Wednesday afternoon GI teaching/research conferences, and the fellow is expected to give a formal presentation at this conference during the last week of each 4-week rotation.

During their rotations at Highland, fellows are expected to follow the duty hour regulations outlined by the ACGME. Regular training in fatigue management and maintenance of duty hour logs are required.

**Learning Objectives**

Fellows are strongly encouraged to review the resources provided on Entrustable Professional Activities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.

**Rotation Core Entrustable Professional Activities (EPA) (Specific knowledge and skill requirements outlined in materials provided)**

**Outpatient Endoscopy:** 1,2,6,10,11,12  
**Outpatient Clinics - IBD:** 2,10,11,13  
**Inpatient Service –** 2,3,4,5,6,7,8,9,10,11,12

**General Knowledge**

Given that the Highland Hospital experience provides the opportunity to engage in outpatient endoscopy, outpatient clinic, and inpatient consultations, a complementary list of knowledge and skills objectives (beyond those listed in the EPA) is impractical. A major focus of the Highland Hospital experience will be outpatient endoscopy, and thus specific objectives for this are listed below. In addition, high yield topics specific to the outpatient endoscopy experience are listed below. Fellows are encouraged to refer to the EPA references regularly throughout the rotation to choose additional topics pertinent to their patients for further study. It is not expected that all aspects of each EPA will be covered during the course of a
single rotation.

- Describe the operation and features of the diagnostic and therapeutic upper endoscopes, colonoscopes and pediatric scopes
- Basic understanding of endoscope processing before and after procedures
- Fellow is able to connect the endoscope to the processor to ensure its safe and proper use.
- Describe the risks benefits and alternatives of upper endoscopy and colonoscopy
- Describe the proper indications for upper endoscopy and colonoscopy
- Describe the mechanism of action and risks of commonly administered sedatives for endoscopic procedures
- Accurately assess the patient’s ASA class and monitor the patient’s level of consciousness throughout the procedure to maintain a safe and effective level of sedation
- Administer reversal agents for sedatives when appropriate
- Understand the proper billing and coding for routine screening and diagnostic endoscopic procedures
- Understanding appropriate documentation to meet endoscopy quality measures and to support proper procedural billing
- Know and apply the quality measures being applied to endoscopic practices

**Upper Endoscopy**

- Safely and routinely intubate the esophagus
- Perform a controlled and thorough evaluation of the body and antrum of the stomach
- Perform a complete evaluation of the cardia, fundus and incisura of the stomach under retroflexion
- Intubate the duodenum routinely
- Completely evaluate the duodenum to the 2nd and 3rd portions
- Describe the indications for biopsy on upper endoscopy
- Complete targeted biopsies on upper endoscopy
- Safely and effectively dilate the esophagus when indicated
- Use dye, narrow band imaging and other advanced imaging tools when appropriate to aid in diagnosis and clinical decision making
- Describe endoscopic findings to patients and prescribe proper follow up, including appropriate actions based on biopsy results

**Colonoscopy**

- Perform a complete digital rectal exam and safely insert the colonoscope into the rectum
- Skillfully remove liquid contents from the colon in order to ensure proper mucosal visualization
- Intubate the sigmoid colon routinely
- Intubate the descending colon routinely
- Intubate the transverse colon routinely
- Intubate the ascending colon routinely
• Intubate the cecum routinely
• Intubate the cecum in a timely fashion (8-12 min)
• Intubate the terminal ileum when appropriate
• Examine the rectum under retroflexion
• Know the indications for colon biopsies
• Recognize the endoscopic features of hyperplastic and adenomatous polyps
• Perform snare polypectomy safely and effectively – includes proper equipment choice and management of the endoscopic team required for independent practice
• Describe the rate of post polypectomy bleeding and its management
• Perform saline lift prior to polypectomy when indicated
• Perform submucosal injection for tattoo/marking when indicated
• Apply endoclip effectively when indicated for post polypectomy bleeding prophylaxis or treatment
• Describe colonoscopic findings to patients and prescribe proper follow up, including appropriate actions based on biopsy results

Evaluation
Fellows are expected to keep a running procedure log throughout the rotation. Supervising faculty will be asked to evaluate the fellow’s endoscopic and cognitive skills using the Endoscopy and Colonoscopy evaluation forms and clinical evaluation forms provided. Evaluation from the nursing and support staff will be solicited. Fellows will be given the opportunity to formally evaluate the faculty. Informal evaluation and feedback on a day to day basis is an expected part of the program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME.

Topics for Review (outpatient endoscopy)
1) GERD
2) Barrett’s Esophagus
3) Dysphagia
4) Eosinophilic Esophagitis
5) H. pylori
6) Peptic Ulcer Disease
7) Atrophic Gastritis/Intestinal Metaplasia
8) Gastric Cancer
9) Functional Dyspepsia
10) PPI usage/complications
11) Gastric Polyps
12) Celiac Disease
13) Colorectal Cancer Screening
14) Colorectal Cancer Surveillance
15) Chronic Diarrhea
Learning Resources
The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran, Cotton’s Practical Endoscopy) and online resources such as topic reviews and guidelines published by the AGA, ACG, AASLD, and ASGE. Recent clinical trials and pertinent studies in from the GI journals should be reviewed to address patient management questions. Fellows are encouraged to actively seek out primary literature to supplement their clinical experience and to enhance their clinical knowledge and management skills.

Additional Resources
AGA – GI SAM Self-Assessment Modules (free to trainee members)
ACG – ACG Education Universe: Online modules, presentations available to ACG members
AASLD – Liver Learning: Online presentations, podcasts, available to AASLD members or recent attendees of AASLD annual liver meeting
ASGE – Online Learning Center: selected free presentations on endoscopic techniques
## Gastroenterology Weekly Schedule
### Highland Hospital – Outpatient Rotation (Years 1 – 3)

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<tr>
<th>TIME</th>
<th>MON</th>
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<td>AM</td>
<td>GI Fellows Continuity Clinic at CPMC*</td>
<td>Outpatient Endoscopy</td>
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* Fellow continuity clinic days may vary depending on schedule.
# Gastroenterology Weekly Schedule

**Highland Hospital – Inpatient Rotation (Year 3 – Clinician Educator)**

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<td>GI Teaching Clinic</td>
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<td>Inpatient Rounding and Procedures</td>
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Note: Year 3 Fellows on inpatient rotation as junior attending are expected to actively participate in case-based didactics with the housestaff on the GI consult service.

* Fellow continuity clinic days may vary depending on schedule.
Inpatient Hepatology Rotation

Overview:
The main purpose of the Inpatient Hepatology Rotation is to foster in each GI fellow the knowledge and skills necessary to independently practice consultative Hepatology. The primary site for learning is the California Pacific Medical Center Pacific Campus Hospital. The fellow is responsible for evaluating patients on the inpatient service and participating in medical decision-making related to each case. The liver service may also include rotating fellows or internal medicine residents; when this is the case the fellow will also participate in teaching.

Fellows are expected to participate in every aspect of pre-transplant care, including but not limited to initial evaluation of the patient, daily follow-up, endoscopic evaluation and multidisciplinary liver transplant evaluation. Fellows are encouraged to strive for independence when formulating an assessment & plan and when performing procedures. Teaching attendings are fully credentialed members of the CPMC medical staff and members of the Department of Transplantation. Fellows at all levels will not perform consults or procedures without faculty supervision.

GI fellows are excused from service on weekends and on Wednesday mornings for educational activities at UCSF. They are expected to attend Tuesday selection conference, Wednesday tumor board and pathology rounds, Thursday case conference, M&M, Journal Club and GI conference at CPMC. Each fellow is expected to follow the duty hour regulations outlined by the ACGME. Regular training in fatigue management and maintenance of duty hour logs are required. There is no cap on the number of patients that may be followed on the inpatient consult service but this number will be monitored the attending physician.

Learning Objectives:
Fellows are strongly encouraged to review the Entrustable Professional Activities (EPA) provided by the multidisciplinary Oversight Working Network (OWN), as well as the Competencies and Subcompetencies outlined by the American College of Graduate Medical Education (ACGME). A complementary list of objectives and topics for review are provided below as an additional learning tool.

Rotation Core EPAs
4 – Liver disease
5 – Cirrhosis
6 – Colonoscopy
7 – GI bleeding
8 – Biliary disorders
9 – Pancreatic disease
12 – Malignancy

Complete knowledge and skill requirements are outlined in the materials provided.
General Knowledge and skills:

Fellows should regularly review the pertinent EPAs, focusing on topics pertinent to the management of hospitalized patient with liver disease. Review of topics with co-fellows and attendings during clinic is strongly encouraged. Topics that are not directly covered on rounds can serve as topics for case conference, grand rounds or independent study. A summary of high-yield topics for review is included below.

1. Obtain and perform an appropriately detailed and disease-specific history and physical exam, including cirrhotic patients. (EPA4, EPA5)
2. Understand liver anatomy, including the location of each hepatic segment, variants seen after biliary surgery and important congenital malformations (Caroli’s disease). Understand pancreatic and biliary anatomy and common variants. (EPA4, EPA8, EPA9)
3. Understand liver histology, including normal contents and function of the portal triad and lobule. (EPA4)
4. Recognize patterns of common liver diseases on liver biopsy. (EPA4)
5. List the indications, contraindications, limitations, complications and techniques of both invasive and noninvasive assessments of liver disease (i.e., liver biopsy and transient elastography). (EPA4)
6. Provide a general overview of the mechanism of liver injury in the most common liver and biliary diseases (HBV, HCV, AIH, PBC, PSC, ALD, NAFLD, A1AT deficiency, Hemochromatosis, Wilson’s disease, vascular and cystic diseases of the liver and cirrhosis of any etiology). (EPA4, EPA5, EPA9)
7. Interpret genetic and serologic markers used in the diagnosis of the most common liver diseases. (EPA4)
8. Provide appropriate and disease-specific advice – including dietary recommendations – for patients with each of the most common liver diseases, including cirrhosis. (EPA4, EPA5, EPA13)
9. Outline the approach to treatment and list specific therapies for each of the most common liver, biliary and pancreatic diseases in hospitalized patients. (EPA4, EPA5, EPA8, EPA9)
10. Recognize, diagnose, treat and give prognostic information for the most common pregnancy-related liver diseases (Hyperemesis gravidarum, intrahepatic cholestasis of pregnancy, HEELP, AFLP, subcapsular hematoma/capsular rupture). (EPA4)
11. Appropriately order and interpret common liver, biliary and pancreatic imaging studies (US with doppler, CT, MRI, MRCP, EUS, ERCP, HIDA and angiography). (EPA4, EPA8, EPA9, EPA12)
12. Assess pre- and perioperative risk for patients with liver diseases undergoing surgery, including patients with cirrhosis. (EPA4, EPA5)
13. Recognize patients with advanced or decompensated liver disease and make timely and appropriate referrals to Hepatology, including for liver transplant evaluation. (EPA4, EPA5)
14. Screen for, evaluate and treat the complications of cirrhosis: hepatic encephalopathy, ascites, portal hypertensive bleeding, renal failure and hepatocellular carcinoma (HCC). (EPA5, EPA12)
15. Accurately interpret ascites fluid analysis, including cell count, differential and SAAG. List the differential diagnosis and workup for low-gradient (low SAAG) ascites. (EPA5)

16. Understand the screening, evaluation and treatment of HCC, including screening methods and intervals, staging (including Milan and UCSF criteria) and metastatic workup. Choose appropriate candidates for HCC therapy, including palliative care, participation in clinical trials, sorafenib, TABE, thermal ablation, resection and transplantation. (EPA5, EPA12)

17. Apply the MELD score, calculate the Child’s score and understand their prognostic significance. (EPA5)

18. Evaluate patients for liver transplantation, considering medical, surgical, social and nutritional factors. (EPA5)

19. Summarize the appropriate indications for upper and lower endoscopy and liver biopsy in the patient with liver disease. List the risks of each procedure (including EGD, colonoscopy, EUS, ERCP and both percutaneous and transjugular liver biopsy. (EPA5, EPA7)

20. Appropriately screen for and manage portal hypertensive bleeding; understand the pathophysiology of portal hypertensive bleeding (including common causes), which patients should be screened, at what intervals; outline an approach to the management of nonbleeding and bleeding gastric and/or esophageal varices; demonstrate proficiency with variceal band ligation. (EPA5, EPA7)

21. Demonstrate comprehensive evaluation and management the cirrhotic patient with GI bleeding, including initial evaluation, resuscitation, testing, medical treatment and endoscopic management (including the decision to perform endoscopy and the choice of endoscopic (or IR) procedure). (EPA7)

22. Differentiate between HCC and cholangiocarcinoma with regard to etiology, imaging characteristics, prognosis and treatment. (EPA5, EPA12)

23. Determine which non-neoplastic liver lesions require surveillance and/or treatment based on risk of neoplastic transformation (including hemangiomas, adenomas, FNH and NRH). (EPA5, EPA12)

Evaluation:
Faculty will evaluate the fellows monthly using the evaluation instruments provided. Fellows will be given the opportunity to formally evaluate the faculty. “360” evaluations and direct observation of patient care activities will also form part of the evaluation. Informal evaluation and feedback on a day to day basis is incorporated into daily liver rounds. Evaluations will be rooted in the core competencies and subcompetencies outlined by the ACGME’s Next Accreditation System (NAS).
Topics For Review:

1) Abnormal Liver tests (Giannini, CMAJ 2005)
   a) DILI (Davern, Clin Liv Dis 2012)
   b) Acute liver failure (Lee, AASLD PG, Hepatology 2011)
2) Chronic Viral hepatitis
   a) HBV (Lok, Hepatology, AASLD PG, 2009)
   b) HCV (hcvguidelines.org)
3) Alcoholic liver disease, including alcoholic hepatitis (O’Shea, AASLD PG, Hepatology 2010)
4) NAFLD (Chalasani, AASLD PG, Hepatology, 2012)
5) Complications of cirrhosis
   a) Ascites (Runyon, AASLD PG, Hepatology 2013)
   b) Hepatic Hydrothorax (Cardenas, Aliment Pharmacol Ther 2004)
   c) Hepatic Encephalopathy (Frederick, Gastroenterol Hepatol 2011)
   d) Hepatorenal Syndrome (Garcia-Tsao, Hepatology 2008)
   e) Gastroesophageal Varices (Garcia-Tsao, AASLD PG, Hepatology 2007)
   f) Hepatopulmonary Syndrome (Grace, J Gastroenterol Hepatol 2013)
   g) Portopulmonary Hypertension (Safdar, Liver Transpl 2013)
6) Liver Masses
   a) HCC (Guy, Clin Gastroenterol Hepatol 2012)
   b) Benign liver tumors (Paradis, Clin Liv Dis 2010)
7) Vascular Disorders of the Liver (DeLeve, AASLD PG, Hepatology 2009)
8) Metabolic liver disease
   a) Wilson Disease (Roberts, AASLD PG, Hepatology 2008)
   b) Hemochromatosis (Bacon, AASLD PG, Hepatology 2011)
   c) Alpha 1 Antitrypsin Deficiency (Nelson, Clin Gastroenterol Hepatol 2012)
9) Cholestatic and Autoimmune Liver Disease
   a) PSC (Chapman, AASLD PG, Hepatology 2010)
   b) PBC (Lindor, AASLD PG, Hepatology 2009)
   c) AIH (Manns, AASLD PG, Hepatology 2010)
10) Liver disease in pregnancy (Mufti, Clin Liv Dis 2012)
12) Pre-op risk stratification (Im, Clin Liv Dis 2014)
13) Screening colonoscopy
14) Acute pancreatitis
15) Choledocholithiasis

Learning Resources:
The main goal of independent study, following the topics for review outlined above, is to reinforce and augment the fellow’s fund of knowledge and provide a strong background for clinical decision-making. Regular reflection upon cases from the clinic should prompt directed study and literature review.

**Hepatology Continuity Clinic**

**Overview:**
The main purpose of the Hepatology continuity clinic is to enable the fellow to develop the knowledge and skills required to recognize, diagnose and treat a broad spectrum of routinely seen acute and chronic liver diseases. The primary site for learning is the Hepatology clinic on the CPMC campus at 2340 Clay St. For a total of 9 months during their training, fellows will spend one half day per week in general Hepatology clinic. Whenever possible, fellows will develop longitudinal relationships with patients in order to observe the natural history and effects of treatment on liver disease. The faculty shall consist of credentialed, active staff hepatologists who provide regular longitudinal care for patients at the aforementioned clinics. Additionally, specialized clinics, including HCC clinic and Fatty Liver Clinic, are available for fellows to attend outside of their regularly scheduled general Hepatology clinic.

**Learning Objectives:**
Fellows are strongly encouraged to review the Entrustable Professional Activities (EPA) provided by the multidisciplinary Oversight Working Network (OWN), as well as the Competencies and Subcompetencies outlined by the American College of Graduate Medical Education (ACGME). A complementary list of objectives and topics for review are provided below as an additional learning tool.

**Rotation Core EPAs:**
4 – Liver disease  
5 – Cirrhosis  
12 – Malignancy  
13 – Nutrition  
Complete knowledge and skill requirements are outlined in the materials provided.

**General Knowledge and skills:**
Fellows should regularly review the pertinent EPA with focus on topics pertinent to outpatient Hepatology practice. Review of topics with co-fellows and attendings during clinic is strongly encouraged. Topics that are not directly covered in clinic can serve as topics for didactic sessions, grand rounds topics or independent study. A summary of high-yield topics for review is included below.

1. Obtain and perform an appropriately detailed and disease-specific history and physical exam, including cirrhotic patients. (EPA4, EPA5)  
2. Understand liver anatomy, including the location of each hepatic segment, variants seen after biliary surgery and important congenital malformations (Caroli’s disease). (EPA4)
3. Understand liver histology, including normal contents and function of the portal triad and lobule. (EPA4)
4. Recognize patterns of common liver diseases on liver biopsy. (EPA4)
5. List the indications, contraindications, limitations, complications and techniques of both invasive and noninvasive assessments of liver disease (i.e., liver biopsy and transient elastography). (EPA4)
6. Provide a general overview of the mechanism of liver injury in the most common liver diseases (HBV, HCV, AIH, PBC, PSC, ALD, NAFLD, A1AT deficiency, Hemochromatosis, Wilson’s disease, vascular and cystic diseases of the liver and cirrhosis of any etiology). (EPA4, EPA5)
7. Interpret genetic and serologic markers used in the diagnosis of the most common liver diseases. (EPA4)
8. Provide appropriate and disease-specific advice – including dietary recommendations – for patients with each of the most common liver diseases, including cirrhosis. (EPA4, EPA5, EPA13)
9. Outline the approach to treatment and list specific therapies for each of the most common liver diseases. (EPA4, EPA5)
10. Recognize, diagnose, treat and give prognostic information for the most common pregnancy-related liver diseases (Hyperemesis gravidarum, intrahepatic cholestasis of pregnancy, HEELP, AFLP, subcapsular hematoma/capsular rupture). (EPA4)
11. Appropriately order and interpret common liver imaging studies (US with doppler, CT, MRI, MRCP, HIDA and angiography). (EPA4)
12. Assess pre- and perioperative risk for patients with liver diseases undergoing surgery, including patients with cirrhosis. (EPA4, EPA5)
13. Recognize patients with advanced or decompensated liver disease and make timely and appropriate referrals to Hepatology, including for liver transplant evaluation. (EPA4, EPA5)
14. Screen for, evaluate and treat the complications of cirrhosis: hepatic encephalopathy, ascites, portal hypertensive bleeding, renal failure and hepatocellular carcinoma (HCC). (EPA5, EPA12)
15. Accurately interpret ascites fluid analysis, including cell count, differential and SAAG. List the differential diagnosis and workup for low-gradient (low SAAG) ascites. (EPA5)
16. Understand the screening, evaluation and treatment of HCC, including screening methods and intervals, staging (including Milan and UCSF criteria) and metastatic workup. Choose appropriate candidates for HCC therapy, including palliative care, participation in clinical trials, sorafenib, TACE, thermal ablation, resection and transplantation. (EPA5, EPA12)
17. Apply the MELD score, calculate the Child’s score and understand their prognostic significance. (EPA5)
18. Appropriately screen for and manage portal hypertensive bleeding; understand which patients should be screened, at what intervals; outline an approach to the management of nonbleeding and bleeding gastric and/or esophageal varices. (EPA5)
19. Differentiate between HCC and cholangiocarcinoma with regard to etiology, imaging characteristics, prognosis and treatment. (EPA5, EPA12)
20. Determine which non-neoplastic liver lesions require surveillance and/or treatment based on risk of neoplastic transformation (including hemangiomas, adenomas, FNH and NRH). (EPA5, EPA12)

Evaluation:
Faculty will evaluate the fellows monthly using the evaluation instruments provided (MedHub). Fellows will be given the opportunity to formally evaluate the faculty. “360” evaluations and direct observation of patient care activities will also form part of the evaluation. Informal evaluation and feedback on a day to day basis is incorporated into the general Hepatology clinic. Evaluations will be rooted in the core competencies and subcompetencies outlined by the ACGME’s Next Accreditation System (NAS).

Topics For Review:
1) Abnormal Liver tests (Giannini, CMAJ 2005)
   a) DILI (Davern, Clin Liv Dis 2012)
   b) Acute liver failure (Lee, AASLD PG, Hepatology 2011)
2) Chronic Viral hepatitis
   a) HBV (Lok, Hepatology, AASLD PG, 2009)
   b) HCV (hcvguidelines.org)
3) Alcoholic liver disease, including alcoholic hepatitis (O’Shea, AASLD PG, Hepatology 2010)
4) NAFLD (Chalasani, AASLD PG, Hepatology, 2012)
5) Complications of cirrhosis
   a) Ascites (Runyon, AASLD PG, Hepatology 2013)
   b) Hepatic Hydrothorax (Cardenas, Aliment Pharmacol Ther 2004)
   c) Hepatic Encephalopathy (Frederick, Gastroenterol Hepatol 2011)
   d) Hepatorenal Syndrome (Garcia-Tsao, Hepatology 2008)
   e) Gastroesophageal Varices (Garcia-Tsao, AASLD PG, Hepatology 2007)
   f) Hepatopulmonary Syndrome (Grace, J Gastroenterol Hepatol 2013)
   g) Portopulmonary Hypertension (Safdar, Liver Transpl 2013)
6) Liver Masses
   a) HCC (Guy, Clin Gastroenterol Hepatol 2012)
   b) Benign liver tumors (Paradis, Clin Liv Dis 2010)
7) Vascular Disorders of the Liver (DeLeve, AASLD PG, Hepatology 2009)
8) Metabolic liver disease
   a) Wilson Disease (Roberts, AASLD PG, Hepatology 2008)
   b) Hemochromatosis (Bacon, AASLD PG, Hepatology 2011)
   c) Alpha 1 Antitrypsin Deficiency (Nelson, Clin Gastroenterol Hepatol 2012)
9) Cholestatic and Autoimmune Liver Disease
   a) PSC (Chapman, AASLD PG, Hepatology 2010)
   b) PBC (Lindor, AASLD PG, Hepatology 2009)
   c) AIH (Manns, AASLD PG, Hepatology 2010)
10) Liver disease in pregnancy (Mufti, Clin Liv Dis 2012)
12) Pre-op risk stratification (Im, Clin Liv Dis 2014)

Learning Resources:
The main goal of independent study, following the topics for review outlined above, is to reinforce and augment the fellow's fund of knowledge and provide a strong background for clinical decision-making. Regular reflection upon cases from the clinic should prompt directed study and literature review.
Neurogastroenterology & Motility

Overview:

The main purpose of the Neurogastroenterology and Motility Rotation is for the fellow to develop the knowledge, experience and technical skills necessary to manage common functional disorders encountered in every day gastroenterology practice. To that end, a thorough understanding of the indications, basic theory and practice behind commonly used neurogastroenterology and motility tests is vital to providing sound care and anticipatory guidance to prospective patients.

A total of 5 months throughout the 3 year curriculum are dedicated to the study of neurogastroenterology and motility. Fellows interested in achieving level 2 training in motility testing (i.e. esophageal manometry, anorectal manometry, 24 hour pH testing) may devote additional elective time during the third year, to achieve mastery of these skills.

The fellow’s time will be split between the outpatient and inpatient setting depending on the educational objectives for the month, which should be reviewed with the neurogastroenterology faculty prior to the start of each rotation. The primary sites for learning are the California Pacific Medical Center Pacific campus hospital, outpatient motility lab and the Center for Neurogastroenterology at 2340 Clay Street.

Fellows are expected to participate in every aspect of patient care, including initial patient evaluation, endoscopic evaluation and physiologic testing. Fellows are encouraged to strive for independence when formulating an assessment and plan and when performing procedures. Fellow supervision will be provided for all patients by an active, credentialed gastroenterology staff member experienced in the diagnosis and management of neurogastroenterologic disorders.

In addition to evaluating and managing inpatients, fellows are encouraged to participate in outpatient clinics and motility testing, including but not limited to, esophageal manometry, anorectal manometry, capsule endoscopy and ambulatory pH testing. Prior to starting the rotation, fellows are encouraged to define specific outpatient educational goals for the month after reviewing the selected core EPA and learning objectives for the rotation. Fellows should focus on a different aspect of neurogastroenterology and motility each time on the rotation. Both inpatient and outpatient experiences should serve to meet the specific educational goals for the month.

Fellows are excused to attend the weekly GI conference at UCSF and are expected to be present at the weekly CPMC GI conference and teaching rounds. Fellows are expected to follow the duty hour regulations outlined by the ACGME (reference provided for review). Regular training in fatigue management and maintenance of
duty hour logs are required. There is no cap on the number of patients that may be followed on the inpatient neurogastroenterology service. However, the inpatient list is regularly monitored by the program director and dialogue with the fellow is encouraged to insure that the goals and and objectives of the rotation are being met within the practice parameters of the ACGME. Fellows, with the assistance of the supervising faculty, are asked to balance their inpatient and outpatient schedule to mimic a real life practice experience.

**Learning Objectives:** Fellows are strongly encouraged to review the resources provided on Entrustable Professional Activities (EPA) and the Competencies and Subcompetencies outlined by the ACGME. A complementary list of objectives and topics for review are also provided below as a learning tool.

**Rotation Core Entrustable Professional Activities (EPA)**

1, 2, 3, 6, 8

Goals:
- Acquire the fundamental core information outlined below.
- Understand the indications and potential pitfalls in the performance of motility studies and the limitations of interpretation.
- Understand the indications and contraindications to testing
- Understand the basics about how testing is performed
- In-depth knowledge of pathophysiology, clinical presentation, diagnosis, epidemiology, and therapy of gastrointestinal motility and functional disorders.

Aspirational Goals:
- Be familiar with the logistics of performing studies, potential technical problems with the techniques that might affect the interpretation of the studies, and the nuances of interpreting these studies. Be able to interpret motility studies without relying on computer analyses alone.
- Be familiar with emerging technologies, such as intraluminal impedance measurements, advanced scintigraphic transit measurements and assessments of accommodation, and gastrointestinal wall movements

**Topics**

1. Organization of the contractile apparatus of the gastrointestinal tract including smooth muscle and interstitial cells of Cajal.
2. Anatomy and physiology of the enteric nervous system: fasting and postprandial programs of motility and secretion.
3. Anatomical and physiological basis of visceral afferent signaling, including vagal and spinal pathways, neurobiology of pain signaling, and visceral sensitization.
5. Pharmacology of agents modulating motility and sensation, including prokinetic drugs, antidiarrheals, and laxatives
6. Development of the enteric nervous system and congenital disorders of motility such as Hirschsprung’s Disease and hypertrophic pyloric stenosis.
7. Physiology of deglutition and neural control mechanisms and disorders of swallowing, including secondary and primary etiologies.
8. Esophageal motor physiology, esophageal dysmotility, including achalasia, diffuse esophageal spasm and other spastic disorders, noncardiac chest pain.
9. Physiology and pathophysiology of gastroesophageal reflux, singultus, and belching.
11. Small bowel physiology, congenital and acquired disorders of small bowel motility, including diabetes, scleroderma, and pseudo-obstruction.
12. Colonic and defecatory physiology and pathophysiology, colonic inertia, anorectal and pelvic outlet/floor disorders, irritable bowel syndrome, and diverticular disease.
13. Motility of the biliary tract, Sphincter of Oddi dysfunction, and gallbladder dyskinesia
14. Systemic disorders affecting gastrointestinal motility (diabetes mellitus, scleroderma, thyroid disease, paraneoplastic syndromes, and neurologic disorders including dysautonomia).
15. Principles of clinical psychology as it relates to the management of patients with chronic disorders including an understanding of cognitive behavioral therapy, hypnosis, and other forms of alternative medicine indications and appropriate use of psychopharmaceuticals.
16. Microbiome and IBD, IBS
17. Diet and functional bowel disease
18. Pharmacologic management of functional dyspepsia/functional abdominal pain
19. Evaluation and management of bloating
20. Gastroparesis

Procedures: (Exposure will vary depending on the month. Mastery of selected procedures may be obtained during an advanced motility rotation elective in the third year, if desired and approved by the program director and neurogastroenterology faculty)

- Breath test – lactulose, fructose, lactose
- Esophageal manometry
- 24h pH-Impedance study
- Anorectal manometry
• Anal sphincter biofeedback training
• Antroduodenal manometry
• Pyloric manometry/Endoflip
• Colonic manometry
• Gastric Barostat study
• Smart Pill
• Electrogastrogram
• Gastric stimulator – interrogation, programming.
• Pneumatic dilation
• Capsule endoscopy
• Double/single balloon enteroscopy

**Evaluation:**
Supervising faculty will be asked to evaluate the fellow’s endoscopic and cognitive skills using the Endoscopy and Colonoscopy evaluation forms and clinical evaluation forms provided. Evaluation from the nursing and support staff will be solicited. Fellows will be given the opportunity to formally evaluate the faculty. Informal evaluation and feedback on a day to day basis is an expected part of the program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME’s NAS.

**Learning Resources:**
The main goal of independent study should be to learn and reinforce the basic and core fundamental knowledge required to effectively apply endoscopy and colonoscopy in clinical practice. Therefore, review of the above topics using textbooks (ie. Sleisenger and Fordtran) and online resources such as Up To Date is highly encouraged. Regular reflection upon cases performed should prompt directed study and literature review. Topic reviews and guidelines published by the AGA, ACG, ASGE and Neurogastroenterology Society in their journals should serve as primary references for review. Recent clinical trials and pertinent studies in from the Gi journals should be reviewed to address patient management questions.
Research/Quality Improvement

Overview and Objectives

Research

The main objectives of the research experience are to develop critical thinking skills, to cultivate healthy practice based learning and improvement habits and to advance medical knowledge within our field. Fellows are expected to participate in scholarly activity throughout training leading to publications in peer reviewed journals and presentation of original work at local and national meetings. 6 months of protected time are set aside for this purpose. Fellows who have developed a clearly defined project and have demonstrated tangible progress in the first and second year may be granted additional research time in the third year upon approval by the program director and faculty mentor.

During the first year, fellows are expected to identify and define a research question, plan for study and faculty research mentor. Fellows are strongly encouraged to participate in the research design course offered by the California Pacific Medical Center Research Institute. During this course, the fellow is given individualized support and guidance in designing their study.

During the second and third year, fellows are expected to make progress with IRB approval, study execution, data analysis and writing. Fellows are encouraged to submit their work for presentation at national meetings and completed manuscripts for publication. Support and guidance should be provided by the faculty mentor and program director. Fellows who are in need of additional support may be required to attend the research design course during the second year, if they haven’t already.

A running list of faculty and fellow research projects shall be maintained for reference and to be used as a resource for fellows seeking new projects.

Rotation Core Entrustable Professional Activities (EPA)
1,2,3,4,5,6,7,8,9,10,11,12,13*

*Varies depending on the fellow’s area of focus

Fellows are expected to meet with their faculty mentor prior to their protected research time to discuss goals and objectives for the month. These should be submitted to the program director in writing for review prior to the start of each research rotation. Objectives should be measurable and specific to insure that adequate progress is being made.
Fellows are required to report on their progress biannually at the quarterly research conference (2 fellows per conference). This conference serves as a forum for fellows to obtain feedback from multiple faculty members on their research design and data.

**Quality Improvement**

Fellows are expected to participate in quality improvement projects throughout training. All fellows are required to attend the QI course offered by the California Pacific Medical Center Research Institute to learn the basic knowledge and skills required to execute a QI project independently. Those interested in additional training may participate in the QI project design elective offered through the California Pacific Medical Center Internal Medicine Residency Program. Fellows may also participate in institutional QI initiatives which are readily available. All fellows participate in the quarterly GI QA committee meetings. Progress in QI projects will be monitored by the program director and faculty mentors well versed in the QI process. Fellows are expected to satisfy the QI requirements for trainees outlined by the ACGME.

**Evaluation:**
Supervising faculty will be asked to evaluate the fellow’s research skills using the evaluation forms provided. Fellows will be given the opportunity to evaluate the faculty. Informal evaluation and feedback on a regular basis is an expected part of the program culture. Evaluations will be rooted in the core competencies and sub-competencies outlined by the ACGME’s NAS.
Fellow Grand Rounds Lecture Series

**Overview and Objectives:** Every academic year, each fellow presents a series of 5 lectures covering a topic or theme of interest. The objectives of these presentations are to develop thinking and teaching skills that all clinical gastroenterologists will use during their practice, with patients and colleagues. Exploring a specific theme yearly allows the fellow to become an expert in their own right and is an opportunity for gaps in knowledge to be filled.

Prior to each academic year, fellows should review the results of their in training exam scores and prior year’s experience to determine what theme they want to explore. Guidance will be provided by the program director to make sure that a broad spectrum of topics are covered each year and over the course of training.

**Rotation Core Entrustable Professional Activities (EPA)**

1,2,3,4,5,6,7,8,9,10,11,12,13*

*Varies depending on the fellow’s area of focus

**Evaluation:** Faculty present for the fellow’s lectures will be asked to provide written feedback on content and presentation skills using the evaluation forms referenced. Fellows are expected progress from summarizing pertinent literature to synthesizing, interpreting and formulating educated opinions throughout the course of training.