

Goals and Objectives and Curriculum for University of California San Francisco GI Fellowship Training Program

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Goals and Objectives and Curriculum for University of California San Francisco GI Training Program

Introduction and overall goals and objectives of the fellowship program:

The overarching goal of the UCSF GI/Hepatology training program is to train highly competent gastroenterologists and hepatologists. The training provided will prepare the trainee for a future career with either an investigative, teaching, or clinical focus, or a combination of these. Specifically, the goals and objectives and curriculum of the training program are structured so that the trainee achieves a level of excellence in the areas of:

- patient care: perform appropriate, effective patient care activities, work effectively with other health care professionals to provide care
- medical knowledge: use medical knowledge to think through medical problems
- communication skills: collaborate and communicate effectively with patients and their families
- practice-based learning and improvement: appraise and apply scientific evidence to patient care activities, self monitor and improve the effectiveness of patient care activities
- professionalism: act in accordance with professional and ethical principles, respond sensitively to patients' culture, age, gender and disabilities
- systems-based practice: identify ways delivery systems affect care quality and patient safety, use system resources to provide cost-conscious care.

The goals and objectives of the program are reviewed on a yearly basis by both the faculty and the fellows and the feedback from both groups is used to modify and update them to keep them current and relevant. The goals and objectives are posted on the Division's website and are distributed to all trainees and faculty each year. In addition, the goals and objectives for each specific rotation are reviewed by the supervising attending with the trainees on the rotation at the start and at the conclusion of each rotation.

Establishing competency for the GI trainees across all six of the general competencies informs all decisions regarding the program's curriculum goals and objectives. We are confident that the combination of supervised clinical training and didactic teaching across all of our inpatient/outpatient rotations, including continuity clinic and at our required core conferences allows our fellows to become highly competent gastroenterologists/hepatologists with respect to medical knowledge and technical skill in all of the topic areas required by the ACGME. In addition a major focus of the curriculum, goals and objectives of the program also involves the development of the trainee as a medical practitioner with respect to communication, ethics and professional conduct and in the areas of practice-based learning and system-based practice. The fellows are instructed in these areas on a daily basis during their clinical rotations and they receive formal didactic training in these areas as well as part of the multiple required lectures and group conferences.

Overall Description of Program with emphasis on training pathways:

The UCSF Gastroenterology Fellowship training program comprises two distinct training pathways, the clinical scholar pathway and the investigator pathway. Fellows select the appropriate pathway based on their career goals in advance of the fellowship match. The fellows are divided in roughly equal numbers between the two pathways. Both pathways ensure superior clinical and research training in gastroenterology and hepatology, which more than satisfies the RRC requirements. Both pathways require the minimum of 18 months of clinical exposure required by the ACGME. The investigator pathway fellows spend an additional 18 months of their 36 month fellowship devoted to primarily research, either clinical or basic science, while the clinical scholar pathway fellows spend a minimum of 6 months devoted to clinical research, but also up to an additional 12 months engaged in advanced clinical training in areas that include transplant hepatology, advanced therapeutic endoscopy or inflammatory bowel disease. The UCSF GI fellowship encompasses four hospital sites (UCSF Medical Center-Moffitt/Long Hospital, UCSF Medical Center-Mount Zion Hospital, San Francisco General Hospital, and the San Francisco VA

Medical Center), which provide a broad and integrated grounding in academic gastroenterology and hepatology. Each site provides the trainee with a varied clinical experience, with respect to both patient demographics and disease spectrum, and the fellows spend roughly equal times at each of the three major sites (ML, SFGH and SFVAMC) during their fellowship. Each site has special centers of excellence and unique clinical programs, including a Hepatitis C Resource Center (VAMC), the Colitis and Crohn's Disease Center and the GI Cancer Prevention Program (cancer genetics/inherited disorders clinic) (Mt. Zion), the Liver Transplant Program and Liver Center and Advanced Therapeutic Endoscopy Program (Moffitt-Parnassus), and a newly created Center for Clinical Epidemiology and Outcomes Research in Gastroenterology (SFGH). Required and elective rotations at each of the sites afford fellows a significant exposure to these programs. Each site has ample key clinical faculty to ensure outstanding training in luminal GI and hepatology. The training is augmented by numerous lectures and conferences, including a required weekly clinical conference, weekly core curriculum conference, twice monthly research conference and monthly journal club. The depth and breadth of clinical and research activity comprised by all the sites allows the UCSF GI training program to provide fellows, both in the clinical scholar and investigator pathways, with an educational experience that satisfies the RRC program requirements in all respects, both with respect to clinical and research training (see below).

Training at each site that the UCSF GI fellowship comprises is under the direction of the fellowship program deputy, who functions as the local program director and sits on the Executive Committee of the Program. With respect to training issues, the deputies report to the overall program director. Review of the training program is a standing agenda item at the quarterly meeting of the Executive Committee and at the twice-yearly faculty meetings. This arrangement ensures that training goals and objectives are monitored regularly by all individuals with responsibility for the program, with the primary responsibility resting with the program director. On at least an annual basis a careful assessment is made, including input from the fellows, to determine if the goals and objectives of the program are being met, and the goals and objectives of the program and of each rotation are updated at least that often.

Among the strongest aspects of the UCSF GI training program are the outstanding research opportunities afforded the fellows. All full-time faculty have active programs in clinical, translational or laboratory-based research, most with extramural grant support. Trainees in the investigator pathway engage in research for the majority of their second and third years of fellowship, while those in the clinical scholar pathway have a minimum of 6 months of protected time for research. Each fellow, regardless of training pathway, selects a research mentor, who provides career counseling and monitors progress. The emphasis on research is integral to the principal goal of the program, which is training for a career in academic gastroenterology. Fellows concentrating in clinical research take a mandatory two-month course in clinical research methods at the beginning of the second year and have the option to extend this training to an MS or MPH during the third and/or a fourth year if they are enrolled in the investigator pathway. Clinical research trainees are required to attend the biweekly meeting of the Division's Clinical Research Committee, where they present their research and receive critical feedback from faculty experts who themselves have an MS or an MPH in clinical research.

Research Curriculum and Goals and Objectives: The exposure to research work differs in terms length of time devoted to it by the trainee depending on which training pathway the fellow has entered. Protected time for research occurs throughout the fellowship, but primarily occurs during the 2nd and 3rd years of training. Regardless of training pathway, trainees are expected to engage in meaningful scholarly work under the supervision of a research mentor. Fellows are expected to present their findings at national meetings and to publish their work in peer-reviewed publications. Fellows do not only pursue new knowledge, but are expected to learn about correct research methodology in terms of issues such as study design, biostatistics but also the ethical conduct of research.

Investigator track: Trainees in this track spend 18+ months pursuing their research program, which may be laboratory-based or patient-oriented. Those with a focus on clinical/outcomes research are expected to take both the introductory and advanced courses in clinical research methods, and they may obtain a Master's degree. UCSF offers an MS in Clinical Research; UC Berkeley offers an MPH.

The sources of support for fellows in this track range from individual awards from the NIH or foundations or one of two NIH training grants (T32) held by the GI division in both GI and liver diseases or the mentor's funds. Research occupies at least 75% of the second and third years. Clinical duties during the second and third years are limited to 6 months of additional training, which meets the requirements for Board eligibility in Gastroenterology. The clinical training component typically includes 2 months on the Liver Transplant Service, and 4 months as a senior fellow at SFGH, DVAMC or Mount Zion. These months are structured to allow research activity sufficient for maintaining the fellow's ongoing program. By ACGME requirement, all fellows spend 1/2 day per week in a continuity clinic throughout training.

A. Training in clinical research. In 1992, the Program was modified to include formal training in clinical research in collaboration with the Dept. of Epidemiology and Biostatistics at UCSF. This has been extremely successful, matching the results of the traditionally strong training in laboratory-based research. Trainees take an introductory methods course in September and October of the second year. Those who have already had comparable instruction (e.g., an MPH) may opt out. The course (TICR, Training in Clinical Research) is designed specifically for trainees in clinical sciences and is taught by faculty from the Departments of Epidemiology and Medicine and from the UCSF Institute for Health Policy. It is taken early in the second year. Two workshops are part of the course: one in traditional clinical research and one in outcomes research. Trainees in the Clinical Research Workshop develop a protocol, carry out sample size calculations and have their proposal critiqued. Those in the Outcomes Research Workshop learn to perform cost-effectiveness analysis and meta-analysis, and they practice analyzing outcomes in a secondary database. Consent forms and ethics also are covered. For those desiring in-depth instruction beyond that provided by the TICR course, the Departments of Epidemiology and Biostatistics offers "Advanced Training in Clinical Research" (ATCR). This year-long course includes a Biostatistics Sequence and an Epidemiology Sequence, and students may enroll in one or both. Topics range from biostatistical methods to questionnaire design, intention-to-treat, instruction in writing proposals, informed consent and conflict of interest. Many if not most investigator track fellows interested in clinical research careers pursue this ATCR training, and often the training is extended into a second year so that the fellow may obtain a Master's degree in Clinical Research.

B. Laboratory-based research. The GI Division has leading laboratory-based investigators in various aspects of liver biology and disease, inflammatory bowel disease/mucosal immunology, and gastrointestinal motility/gut neurobiology. In addition, fellows have the option of selecting a research mentor outside the Division of Gastroenterology. Over the past 10 years, the training faculty have included scientists in Pathology, Microbiology and Immunology, Rheumatology, and Biochemistry and Biophysics. Investigator track fellows interested in lab-based investigation join their chosen laboratory as early as possible in the second year and initiate their projects. Numerous practical and intellectual resources are available to fellows beyond the home laboratory. The UCSF Liver Center, which is based in the Division of Gastroenterology, is an NIH-funded consortium of approximately 40 independent investigators from several Departments of the School of Medicine and School of Pharmacy. It offers core facilities, access to experts and collaborative investigation. The UCSF sites are linked electronically, and many seminars are televised. Each site has its complement of journal clubs and visiting lecturers that give further depth to the environment.

Clinical track: For fellows in this track, the goals of the second and third years are a grounding in clinical research, honing teaching skills, and extending clinical training. Clinical activities with teaching responsibilities occupy approximately 33 months and protected research 3 months. At the beginning of the second year, all fellows in this track may take the introductory methods course in clinical research (see above).

Goals and Objectives for University of California San Francisco GI Training Program

Rotations and Educational Training Experience in Clinical Year 1

The purposes of the clinical year 1 rotations are to:

- a. Teach fellows how to conduct subspecialty consultations in general gastroenterology and hepatology on inpatient general medicine and surgery services and on subspecialty services. This includes the appropriate use of laboratory testing, radiology, and imaging for the accurate diagnosis of GI/liver disorders. (Competencies: patient care, medical knowledge)
- b. Teach the same consultative skills in outpatient subspecialty clinic practices. (Competencies: patient care, medical knowledge)
- c. To teach basic endoscopic skills including diagnostic and therapeutic upper endoscopy, including control of variceal and non-variceal bleeding, diagnostic and therapeutic colonoscopy, colonoscopy with biopsy and polypectomy, liver biopsy, placement of gastrostomy tubes. (Competencies: patient care, medical knowledge)
- d. Teach the fellows to analyze clinical data on patients they encounter, synthesize relevant literature on the problems demonstrated by their patients, and to present a critical analysis of the differential diagnosis, history and physical exam, laboratory and radiologic data, and therapeutic plan and present this material formally on daily work rounds. (Competencies: practice based learning)
- e. Teach fellows to practice GI/hepatology within the context of the greater health care system and to make management decisions that factor in cost, resource utilization and other system wide factors. (Competencies: systems based practice)
- f. To enhance previous training and mentoring for fellows to be compassionate health care providers with superior skills of communication, collegiality, respect and ethical behavior towards patients, staff and colleagues. (Competencies: communication and professionalism)

Principal teaching methods/mechanisms of supervision for Clinical Year 1

- a. Inpatient consultations are first done by fellows. All patients are then seen by the attending faculty physician and discussed at length with the fellow and the consult team. A diagnostic and therapeutic plan is formulated. Patients are followed closely throughout their hospitalization by the fellow in consultation with the attending. Upon discharge, the patient is typically followed by the fellow in the outpatient GI/liver Clinic. Formal attending teaching and discussion rounds are conducted at least daily, depending on the volume of consultations, their complexity, and acuity.
- b. Outpatient consultations are performed by fellows in clinic settings. All patients are discussed with the faculty clinic attendings. An appropriate laboratory evaluation and treatment plan are formulated. Patients are followed by the fellow throughout their rotation at this site. At each hospital site there is a minimum of one GI and one liver clinic session per week, and often more.
- c. Endoscopies are performed on both inpatients and outpatients on a daily basis by the fellows with hands on, continuous supervision by the GI attending on service. Emergency procedures are also performed in the intensive care unit, radiology suite and operating room on a regular basis.
- d. The fellow prepares/participates in a set of Division-wide weekly required conferences and site specific conferences. Division wide conferences include core curriculum conference (weekly), GI grand rounds covering basic and clinical science in GI/hepatology (weekly), clinical research conference (twice per month), journal club (monthly), case-conference (monthly). At each site there is an additional weekly radiology conference, pathology conference, case-management conference and monthly quality assurance conference. in-depth case presentations on a weekly basis of a patient he/she has evaluated during the previous week. The weekly case-conference require in-depth review of the pertinent literature related to the management of the cases to be discussed. The fellows present at each of the weekly conferences and are expected to present literature-based case discussions to the entire GI Division twice per year, present one scholarly research talk per year and present at journal club and research conference at least twice per year.

Educational Resources

a. Reading lists

Fellows have a reading list of 4-6 seminal articles for every major topic in GI and hepatology, and these articles are provided as part of the GI Fellows Course. The required reading is provided in pdf format on the GI Division website and is updated each year by the faculty, so that new critical articles are included and older and less relevant ones are discarded. Fellows are required to read the pertinent articles in advance of the relevant lecture but they are also encouraged to reread these seminal articles when they become relevant to a particular patient encounter. In addition the fellows are further encouraged to research the clinical problems they encounter using PubMed and other relevant electronic databases to find additional relevant reading and to review these materials with the supervising attending. The supervising attendings will often go on to suggest particular articles they feel will augment the fellow's fund of knowledge and are relevant to the clinical situation at hand.

b. Pathologic and Radiographic material

Pathologic material from endoscopic biopsies and surgical specimens and any relevant radiologic data are reviewed on patients being followed or seen in consultation by the fellow and the supervising attending with attending physicians from the pathology or radiology service. In addition the fellows and GI faculty attend weekly pathology conference and radiology conference at SFGH and SFVA to rereview interesting and educationally relevant materials. Often these materials are further reviewed at the weekly med-surg conferences held at each site. During the LTU rotation liver pathology is reviewed every day and on the advanced endoscopy rotation, radiologic data is reviewed every day by the fellow, supervising attending and specialty attendings. At ML/MZ radiographic and pathological material is reviewed as part of the weekly professor's rounds and at the monthly IBD conference.

C. Methods of Competency Assessment

Competency	Assessment Method	Evaluator(s)
Interpersonal & Communication Skills	Global assessment	Attending Faculty Supervisor Nurse Peers Program Director
Interpersonal & Communication Skills	Structured case discussions	Allied Health Professional Faculty Member Peers
Medical Knowledge	Global assessment	Attending Evaluation Committee Faculty Member Faculty Supervisor Preceptor Program Director
Medical Knowledge	In-training examination	Program Director
Medical Knowledge	Structured case discussions	Allied Health Professional Faculty Member Peers
Patient Care	Global assessment	Attending Faculty Member Faculty Supervisor Nurse Peers Program Director

Patient Care	Multisource assessment	Program Director
Patient Care	Structured case discussions	Allied Health Professional Faculty Member Peers Program Director
Practice-based Learning & Improvement	Global assessment	Attending Faculty Supervisor Program Director
Practice-based Learning & Improvement	Multisource assessment	Program Director
Practice-based Learning & Improvement	Structured case discussions	Allied Health Professional Faculty Member Peers
Professionalism	Global assessment	Attending Evaluation Committee Faculty Supervisor Peers Program Director
Professionalism	Multisource assessment	Program Director
Systems-based Practice	Global assessment	Attending Faculty Supervisor Preceptor Program Director
Systems-based Practice	Project assessment	Preceptor Program Director
Systems-based Practice	Structured case discussions	Allied Health Professional Faculty Member Peers Preceptor Program Director

Fellows are evaluated through several methods, some of which are not listed above. In all cases face-to-face feedback is given as well as review of the written/electronic evaluation.

Written narrative evaluation is requested twice yearly from the fellow's research mentor/preceptor regarding progress with scholarly activity. An EValue based electronic evaluation for this purpose is just now developed and will soon be used for the GI division. This material is reviewed 2 times per year by the Division's research committee with the fellow and the research mentor. There are separate committees for clinical scholar trainees and for investigator trainees. The clinical fellows clinical research committee which meets twice yearly to review their progress and provide feedback, direction and constructive criticism. Research track fellows are reviewed on a twice yearly basis by a committee of training grant faculty (akin to a thesis committee) to make sure their research progress is on track.

Feedback/evaluation is given to the fellows regarding performance during lectures/presentations they have given, most importantly the monthly journal club (led by Dr. Lukejohn Day), clinical research conference (led by Dr. Mandana Khalili and Dr. Fernando Velayos) and annual GI grand rounds (evaluated by attendees). At the moment the feedback is given by the PD at the biannual meeting, but an Evalue/survey monkey method of evaluation for journal club and CRC is being developed.

Procedure competency evaluation: Fellows undergo formal evaluation of their basic procedure competency quarterly using an instrument developed by the AGA. The chief of endoscopy who has observed the fellows performance of the procedures completes these evaluations twice yearly (for upper

endoscopy and colonoscopy). These evaluations are reviewed in conjunction with the fellow procedure log twice yearly by the PD and discussed with the fellow.

All of the evaluations listed above are reviewed with the trainee at the twice yearly meeting with the PD.

First clinical rotation sites include Moffitt-Long Hospital, San Francisco General Hospital, SF VA Medical Center. Each site differs with respect to teaching methods and types of encounters and types of supervision and methods of competency evaluation. The sites differ, however, a great deal with respect to disease mix and patient characteristics and this will be highlighted below.

Site: Moffitt Long (4 months)

Year: 1st

ML is a 540 bed tertiary care hospital. **Disease mix and patient characteristics:** ML serves as a regional referral center for patients with a wide variety of medical and surgical problems in digestive diseases. The outpatient gastrointestinal and liver clinics are active in the diagnosis and management of patients with challenging and instructive problems from within and beyond the Bay Area. There is a major liver transplant program serving the western United States. Fellows do not see all of these outpatient consults, but do see approximately 20-25% under the supervision of one of the GI/hepatology faculty. There is also an integrated GI endoscopy facility at both ML and MZ with ~15,000 procedures annually. It has 8 endoscopy rooms, a 15-bed recovery room, conference rooms and state-of-the-art computer data and image processing with remote video monitoring system. ML is a leading referral center for pancreatic and biliary endoscopy in the western US, with performance of over 1200 ERCPs per year. Fluoroscopy rooms specially equipped for ERCP and interventional biliary radiology are housed in the Department of Radiology at UCSF-ML. GI fellows assist in approximately 25% of the endoscopic procedures, and those taking the biliary elective rotation assist in all the ERCPs. The number of inpatient consultations at ML is approximately 80-100 per month, with all inpatient consultations being performed by a GI fellow under the supervision of a faculty member. Outpatient clinic for fellows is held 3 half days per week with 6-10 patient encounters per fellow per clinic. In addition, there are approximately 50 admissions per month to the inpatient liver transplant service, with all admissions seen by the GI fellow rotating on that service.

A major part of the curriculum at the ML site involves active participation of the fellows in a series of regularly scheduled conferences:

1. Weekly GI Fellows Course (1 hour each week-required core conference attended by all fellows regardless of rotation): Overview of all major topics in GI and hepatology delivered covered over the course of 2 years. All fellows attend regardless of particular site of current rotation. Fellows prepare each week by reading a syllabus and key journal articles provided by the faculty discussant for the topic. List of topics and syllabus/required reading is available on request.
2. Weekly GI Grand Rounds (1 hour each week- required core conference attended by all fellows regardless of rotation): Weekly lecture delivered by UCSF faculty, GI fellows or visiting faculty. Variety of topics covered each year, with emphasis on new discoveries in the field and areas of research investigation. Approximately 25% of lectures delivered in part by UCSF fellows, including case-based discussion format. All fellows attend regardless of particular site of current rotation. List of topics is available on request.
3. Clinical Research Committee Meeting (1 hour monthly - required core conference attended by all fellows regardless of rotation): Fellows meet each month to discuss ongoing research projects by the fellows and to learn clinical research methods from the faculty. All fellows engaged in clinical research or have an anticipated focus on clinical research (first year fellows) attend regardless of particular site of current rotation. List of topics is available on request.
4. Journal Club (1 hour monthly - required core conference attended by all fellows regardless of rotation): Fellows meet each month to review newly published research paper. Faculty discussant is present to guide discussion, review topic in detail and teach research methodology as relevant.

All fellows attend regardless of particular site of current rotation. List of topics is available on request.

5. GI QI Conference (1 hour every month alternating with the MZ site-required for fellows on rotation at ML or MZ): Fellows and faculty meet to discuss complications that have occurred in the ML endoscopy unit. Attendance by fellows at that site is required.
6. GI Tumor Board (1.5 hours weekly-optional): Fellows and faculty meet with faculty and trainees from surgery, oncology to discuss evaluation and management of newly diagnosed cases of GI cancer. Pathology and radiology from cases are reviewed.
7. Liver Center Seminar (1 hour, variable): Hepatology research talks delivered by faculty and fellows. Attendance is optional.
8. Liver Transplant Selection Conference and Seminar (2 hours weekly-required for fellows on LTU rotation): LTU cases discussed. Attended by fellow on LTU service. Fellow presents cases that he/she is following.
9. Professor's Rounds (1 hour per month- required conference for fellows on rotation at ML): Fellows present active cases to Dr. Sleisenger or another senior attending for review and discussion.

Rationale and Value:

The rationale for this rotation is that it provides in-depth exposure of fellows to complex GI/liver problems in an adult tertiary care, referral population. The fellows learn to manage the problems that these patients have in the context of multiple complex medical problems including ischemic heart disease, congestive heart failure, renal failure, chronic lung disease, post-complex operative procedures, organ transplantation, visceral cancer, systemic infections and other conditions.

UCSF has had a long history of excellence in many areas of internal medicine, surgery, surgical subspecialties, neurology, psychiatry, obstetrics and gynecology and other fields. Patients travel from all over the western United States and from over seas to be cared for at UCSF Medical Center for their complex illnesses, but the medical center also serves a sizable primary and secondary care population and has a busy emergency department. The opportunities for exposure to disease pathology and new approaches to treatment are vast. The rotation consists of inpatient consultations, inpatient and ambulatory endoscopy and two ? day GI clinics and one liver clinic per week

Specific Goals and Objectives.

1. Observe and manage patients with a wide variety of GI and hepatobiliary disorders, both inpatients and outpatients
2. Assume continuing responsibility for care of both acutely and chronically ill patients
3. Learn the natural history of GI and hepatobiliary diseases and the results of therapeutic interventions through observation and patient care
4. Learn how to present concise case histories including full differential diagnoses
5. Learn about the behavioral adjustments of patients to their diseases
6. Learn the pathogenesis, manifestations and complications of GI and hepatobiliary disorders
7. Learn the impact of different modes of therapy on GI and hepatobiliary disorders
8. Learn the appropriate utilization of laboratory tests, including costs and risks
9. Learn how to interpret endoscopic and liver biopsy specimens and the results of diagnostic procedures.
10. Participate in regularly scheduled conferences in which GI and liver-related research topics are critically reviewed
11. Participate in the training of house staff and students
12. Participate in planning of conferences and make regular presentations at seminars

13. Learn about ethical issues of patient care including cost benefit ratios, organ donation, and societal issues
14. Learn about the importance of nutrition and malnutrition in GI and liver diseases
15. Learn about pediatric and congenital GI and hepatobiliary disorders
16. Observe and manage the GI health issues in a wide range of patient types including women.
17. Observe and manage the GI health issues in a wide range of patient types including the geriatric population.
18. **Esophagus:** Learn about the biology and pathobiology of the esophagus, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: reflux esophagitis, motility disorders of the esophagus including achalasia and DES, esophageal neoplasms, bleeding disorders of the esophagus including ulcers and varicities, congenital disorders of the esophagus, and dysplastic and premalignant conditions of the esophagus.
19. **Stomach:** Learn about the biology and pathobiology of the stomach, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: gastritis, gastric ulcer, gastric bleeding, Helicobacter pylori infection, gastric varicities, gastric neoplasms, postgastrectomy syndromes, gastric atrophy, and motility disorders including gastroparesis.
20. **Small Intestine:** Learn about the biology and pathobiology of the small intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: ulceration including bleeding ulcers, diarrhea including secretory forms, malabsorption including mucosal, enteral and pancreatic forms, motility disorders including irritable bowel syndrome and pseudoobstruction, inflammatory bowel diseases including regional enteritis, infections including bacterial and viral, postsurgical disorders including short bowel syndrome and ileostomy, infiltrative disorders including neoplasms and amyloid, neoplasms including carcinoid and adenocarcinoma, obstruction including spontaneous and postsurgical causes.
21. **Large Intestine:** Learn about the biology and pathobiology of the large intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: Inflammatory disorders including ulcerative colitis, regional enteritis and toxicogenic colitis, bleeding disorders due to diverticulae, tumors, AVM's, polyps, hemorrhoids and occult sources, diarrhea and constipation, motility disorders including irritable bowel syndrome and pseudoobstruction, infections including acute appendicitis and diverticulitis neoplasms including long-term management of polyposis and malignant diseases, postsurgical disorders including colostomy, obstruction including spontaneous and postsurgical causes.
22. **Pancreas:** Learn about the biology and pathobiology of the pancreas, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: acute and chronic pancreatitis, pancreatic pseudocyst, pancreatic insufficiency, chronic pain syndromes due to pancreatitis, pancreatic neoplasms including adenocarcinoma and islet cell tumors with associated syndromes, postsurgical syndromes.
23. **Liver:** Learn about the biology and pathobiology of the liver, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: viral hepatitis, fulminant hepatic failure, complications of chronic liver disease including ascites, hepatic encephalopathy, hepatorenal syndrome, SBP, portal hypertension and varicities including variceal bleeding, gallstone disease including indications for and complications of both medical and surgical therapies, hepatobiliary disorders associated with pregnancy, preoperative evaluation of patients with hepatobiliary disorders, evaluation of postoperative hepatic dysfunction, drug hepatotoxicity and the interaction of drugs and the liver, specific medical therapy of liver diseases including antiviral and immunosuppressive agents, and management of primary and

metastatic tumors of the liver.

Procedural Skills

24. Competence in **upper gastrointestinal endoscopy** with or without biopsy, including indications, contraindications, limitations, complications and interpretation of results.
25. Competence in **sigmoidoscopy and colonoscopy** with or without biopsy, including indications, contraindications, limitations, complications and interpretation of results.
26. Competence in **colonoscopic polypectomy**, including indications, contraindications, limitations, complications and interpretation of results.
27. Competence in **liver biopsy**, including indications, contraindications, limitations, complications and interpretation of results.
28. Competence in **esophageal dilatation**, including indications, contraindications, limitations, complications and interpretation of results.
29. Competence in **endoscopic treatment of gastrointestinal bleeding** (sclerotherapy, heater probe, etc) , including indications, contraindications, limitations, complications and interpretation of results.
30. Competence in **diagnostic and therapeutic paracentesis**, including indications, contraindications, limitations, complications and interpretation of results.

Site: SFGH (4 months)

Year: 1st

San Francisco General Hospital

SFGH is a 450 bed municipal hospital. The number of outpatient GI/hepatology consults for 2005 at SFGH numbered 4,000. A total of 3,500 GI procedures were performed in the SFGH endoscopy unit in 2003. Fellows see almost all of the outpatient consults and assist in approximately 90% of the procedures. There were 900 inpatient GI consultations during 2005, all seen by GI fellows. **Disease mix and patient characteristics:** SFGH serves a large multi-ethnic community as a primary care center. Housed in a modern physical plant, the San Francisco General Hospital is the central receiving unit for the entire city and admits a large number of acute medical and surgical gastrointestinal emergencies. SFGH provides fellows with opportunity to be exposed to medical and surgical problems unique to a recent immigrant and underserved patient populations. A 22-Room GI Diagnostic Unit combines GI Clinic Rooms, faculty and staff offices and 5 GI procedure rooms, including an on-site fluoroscopy unit. All major GI procedures are performed, including ERCP, endoscopic ultrasound, and manometry. SFGH also houses the Center for Clinical Epidemiology and Outcomes Research in Gastroenterology. This Center has taken a leadership role in the coordination and support of clinical research projects and clinical research training for the entire UCSF GI Division. Outpatient clinic is held 3 half days per week with 6-10 patient encounters per fellow per clinic

A major part of the curriculum at the SFGH site involves active and required participation of the fellows in a series of regularly scheduled conferences:

1. Pathology Conference (1 hour weekly): GI pathology from previous week's endoscopy/surgery reviewed by pathology faculty with GI fellows.
2. Radiology Conference (1 hour weekly): GI radiology reviewed by radiology faculty with GI fellows from previous week's inpatient and outpatient consultations.
3. GI/Surgery Conference (1 hour weekly): Medical surgical case conference. Cases presented and discussed by GI fellows under multidisciplinary faculty supervision.
4. GI QI Conference (1 hour every month): Fellows and faculty meet to discuss complications that have occurred in the SFGH endoscopy unit. Attendance is required.

Rationale and Value:

The rationale for this rotation is that it provides in-depth exposure of fellows to complex GI/liver problems in an adult primary and secondary care municipal hospital setting serving the people of San Francisco County. The SFGH patient population is an underserved, racially diverse group with a high percentage of recent immigrants from Mexico, Central America, Asia and South Asia. The hospital is a level 1 trauma center with a busy Emergency Department and trauma ICU. The fellows learn to manage the unique GI/liver problems that these patients have in the such as alcohol and polysubstance abuse, blunt and penetrating trauma, opportunistic infections and infections endemic in the developing world. The rotation consists of inpatient consultations, inpatient and ambulatory endoscopy and two ? day GI clinics and one liver clinic per week

Specific Goals and Objectives

1. Evaluate and manage patients with a wide variety of GI, pancreatic and hepatobiliary disorders, both inpatients and outpatients
2. Assume continuing responsibility for gastroenterology care of both acutely and chronically ill patients
3. Learn the natural history of GI, pancreatic and hepatobiliary diseases and the results of therapeutic interventions through observation and patient care
4. Learn how to present to the attending physician concise case histories including full differential diagnoses within a reasonable time period.
5. Learn the pathogenesis, manifestations and complications of GI and hepatobiliary disorders
6. Learn the different modes of radiographic; nuclear medicine and endoscopic and non endoscopic evaluation and therapy on GI and hepatobiliary disorders
7. Learn the appropriate utilization of laboratory tests, including costs and risks
8. Learn how to interpret gastroenterologic and liver biopsy pathology specimens and the results of diagnostic procedures.
9. Participate in regularly scheduled conferences in which GI and liver-related research topics are critically reviewed
10. Participate in the training of medical and surgical house staff and medical students
11. Learn about the importance of nutrition and malnutrition in GI and liver diseases
12. Observe and manage the GI health issues in a wide range of patient types including women and children.
13. Observe and manage the GI health issues in a wide range of patient types including the geriatric population.
14. **Esophagus:** Learn about the anatomy and physiology of the esophagus, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: gastroesophageal reflux disease, motility disorders of the esophagus including achalasia and DES, esophageal neoplasms, bleeding disorders of the esophagus including ulcers and varices, congenital disorders of the esophagus, and metaplastic, dysplastic and neoplastic conditions of the esophagus. Recognize the utility of the following: endoscopy, EUS, Bravo capsule pH studies, esophageal motility / manometry.
15. **Stomach:** Learn about the anatomy and physiology of the stomach, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: gastritis, gastric ulcer, gastric bleeding, Helicobacter pylori infection, gastric varices, gastric neoplasms, and motility disorders including gastroparesis.

16. **Small Intestine:** Learn about the anatomy and physiology of the small intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: ulceration including bleeding ulcers, diarrhea including secretory forms, malabsorption including mucosal, enteral and pancreatic forms, motility disorders including irritable bowel syndrome and pseudoobstruction, inflammatory bowel diseases including Crohn's disease, infections including bacterial and viral, infiltrative disorders including neoplasms and amyloid, neoplasms including carcinoid, lymphoma, stromal cell and adenocarcinoma, obstruction including spontaneous and postsurgical causes. Understand the evaluation of these disorders by enteroscopy including Given M2A capsule examinations.
17. **Large Intestine:** Learn about the anatomy and physiology of the large intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: Inflammatory disorders including ulcerative colitis, Crohn's disease and infectious colitis, bleeding disorders due to diverticula, tumors, vascular ectasias, polyps, hemorrhoids and occult sources, diarrhea and constipation, motility disorders including irritable bowel syndrome and pseudoobstruction, infections including acute appendicitis and diverticulitis-neoplasms including long-term management of polyposis and malignant diseases, postsurgical disorders including colostomy, obstruction including spontaneous and postsurgical causes.
18. **Pancreas:** Learn about the anatomy and physiology of the pancreas, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: acute and chronic pancreatitis, pancreatic pseudocyst, pancreatic insufficiency, chronic pain syndromes due to pancreatitis, pancreatic neoplasms including adenocarcinoma and islet cell tumors with associated syndromes, postsurgical syndromes. Understand the usefulness of CT, ERCP and EUS in the evaluation of pancreatic diseases.
19. **Liver:** Learn about the anatomy and physiology of the liver, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: viral hepatitis, fulminant hepatic failure, complications of chronic liver disease including ascites, hepatic encephalopathy, hepatorenal syndrome, SBP, portal hypertension and varices including variceal bleeding, gallstone disease including indications for and complications of both medical and surgical therapies, hepatobiliary disorders associated with pregnancy, preoperative evaluation of patients with hepatobiliary disorders, evaluation of postoperative hepatic dysfunction, drug hepatotoxicity and the interaction of drugs and the liver, specific medical therapy of liver diseases including antiviral and immunosuppressive agents, and management of primary and metastatic tumors of the liver. Understand the utility, risks, benefits of colonoscopy, argon plasma coagulation and rectal EUS.

Procedural Skills

20. Competence in **upper gastrointestinal endoscopy** with or without biopsy and Given capsule enteroscopy, including indications, contraindications, limitations, complications and interpretation of results.
21. Competence in **sigmoidoscopy and colonoscopy** with or without biopsy, including indications, contraindications, limitations, complications and interpretation of results.
22. Competence in **esophageal manometry and Bravo 48-hour pH monitoring**, including indications, contraindications, limitations, complications and interpretation of results.
23. Competence in **liver biopsy**, including indications, contraindications, limitations, complications and interpretation of results.
24. Competence in **esophageal dilatation**, including indications, contraindications, limitations, complications and interpretation of results.
25. Competence in **endoscopic treatment of gastrointestinal bleeding** (sclerotherapy, heater probe, etc), including indications, contraindications, limitations, complications and interpretation of results.

26. Competence in **diagnostic and therapeutic paracentesis**, including indications, contraindications, limitations, complications and interpretation of results.

Site: VAMC (4 months)

Year: 1st

San Francisco VA Medical Center

SF VA is a 250 bed VA hospital. The number of outpatient GI/hepatology consults for 2003 at SFVA numbered 1,231. Greater than 3, 000 GI procedures were performed in the SFVA endoscopy unit in 2003. Fellows see almost all of the inpatient and outpatient consults and assist on approximately 90% of the procedures. There were 470 inpatient GI/Liver consultations during 2003, all seen by GI fellows. **Disease mix and patient characteristics:** VA is the major referral center for veterans from the Oregon border to the North to Santa Clara in the South. The SFVAMC patient population is predominantly men, but provides fellows with high volume of GI and liver diseases with high prevalence in the US, such as PUD, GERD, colorectal cancer, hepatitis C. There is a recently built GI endoscopy facility with 4 endoscopy rooms, one fluoro room for ERCP, and a 6-bed recovery room. The SFVAMC also is the home of the Hepatitis C Resource Center (VAMC) which serves as a major referral site and research coordinating site for veterans with Hep C around the USA. Outpatient clinic is held 2 half days per week with 3 new patient and 6-8 follow up visits per fellow per clinic

A major part of the curriculum at the SFVA site involves active and required participation of the fellows in a series of regularly scheduled conferences:

1. Pathology Conference (1 hour weekly): GI pathology from previous week's endoscopy/surgery reviewed by pathology faculty with GI fellows.
2. GI/Surgery Conference (1 hour weekly): Medical surgical case conference. Cases presented and discussed by GI fellows under multidisciplinary faculty supervision.
3. Liver Conference (1 hour weekly): Hepatology cases, research projects, and relevant literature, are discussed by fellows and faculty each week.
4. GI QI Conference (1 hour every month): Fellows and faculty meet to discuss complications that have occurred in the SFVA endoscopy unit. Attendance is required.

Rationale and Value

The San Francisco VA Medical Center serves a typical veteran population that is about 90% males, 10% females. The majority are middle-aged to elderly. Many suffer from several chronic medical conditions concomitantly and take several medications daily. Many are indigent. There is an enormous amount of cardiovascular disease and cancer in the population and the diversity and severity of illness seen provides a robust training environment. The rotation consists of inpatient consultations, inpatient and ambulatory endoscopy and one ? day GI clinic and one liver clinic per week

Specific Goals and Objectives:

1. Observe and manage patients with a wide variety of GI and hepatobiliary disorders, both inpatients and outpatients
2. Assume continuing responsibility for care of both acutely and chronically ill patients
3. Learn the natural history of GI and hepatobiliary diseases and the results of therapeutic interventions through observation and patient care
4. Learn how to present concise case histories including full differential diagnoses
5. Learn about the behavioral adjustments of patients to their diseases
6. Learn the pathogenesis, manifestations and complications of GI and hepatobiliary disorders

7. Learn the impact of different modes of therapy on GI and hepatobiliary disorders
8. Learn the appropriate utilization of laboratory tests, including costs and risks
9. Learn how to interpret endoscopic and liver biopsy specimens and the results of diagnostic procedures.
10. Learn the indications for liver transplantation and to manage liver transplant patients
11. Participate in regularly scheduled conferences in which GI and liver-related research topics are critically reviewed
12. Participate in the training of house staff and students
13. Participate in planning of conferences and make regular presentations at seminars
14. Learn about ethical issues of patient care including cost benefit ratios, organ donation, and societal issues
15. Learn about the importance of nutrition and malnutrition in GI and liver diseases
16. Observe and manage the GI health issues in a wide range of patient types including the geriatric population.
17. **Esophagus:** Learn about the biology and pathobiology of the esophagus, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: reflux esophagitis, motility disorders of the esophagus including achalasia and DES, esophageal neoplasms, bleeding disorders of the esophagus including ulcers and varicies, congenital disorders of the esophagus, and dysplastic and premalignant conditions of the esophagus.
18. **Stomach:** Learn about the biology and pathobiology of the stomach, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: gastritis, gastric ulcer, gastric bleeding, Helicobacter pylori infection, gastric varicies, gastric neoplasms, postgastrectomy syndromes, gastric atrophy, and motility disorders including gastroparesis.
19. **Small Intestine:** Learn about the biology and pathobiology of the small intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: ulceration including bleeding ulcers, diarrhea including secretory forms, malabsorption including mucosal, enteral and pancreatic forms, motility disorders including irritable bowel syndrome and pseudoobstruction, inflammatory bowel diseases including regional enteritis, infections including bacterial and viral, postsurgical disorders including short bowel syndrome and ileostomy, infiltrative disorders including neoplasms and amyloid, neoplasms including carcinoid and adenocarcinoma, obstruction including spontaneous and postsurgical causes.
20. **Large Intestine:** Learn about the biology and pathobiology of the large intestine, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: Inflammatory disorders including ulcerative colitis, regional enteritis and toxicogenic colitis, bleeding disorders due to diverticulae, tumors, AVM's, polyps, hemorrhoids and occult sources, diarrhea and constipation, motility disorders including irritable bowel syndrome and pseudoobstruction, infections including acute appendicitis and diverticulitis neoplasms including long-term management of polyposis and malignant diseases, postsurgical disorders including colostomy, obstruction including spontaneous and postsurgical causes.
21. **Pancreas:** Learn about the biology and pathobiology of the pancreas, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: acute and chronic pancreatitis, pancreatic pseudocyst, pancreatic insufficiency, chronic pain syndromes due to pancreatitis, pancreatic neoplasms including adenocarcinoma and islet cell tumors with associated syndromes, postsurgical syndromes.

22. **Liver:** Learn about the biology and pathobiology of the liver, and the indications, usefulness, and interpretation or outcomes of available diagnostic and therapeutic tests relevant to the following disorders: viral hepatitis, fulminant hepatic failure, complications of chronic liver disease including ascites, hepatic encephalopathy, hepatorenal syndrome, SBP, portal hypertension and varices including variceal bleeding, gallstone disease including indications for and complications of both medical and surgical therapies, hepatobiliary disorders associated with pregnancy, preoperative evaluation of patients with hepatobiliary disorders, evaluation of postoperative hepatic dysfunction, drug hepatotoxicity and the interaction of drugs and the liver, specific medical therapy of liver diseases including antiviral and immunosuppressive agents, and management of primary and metastatic tumors of the liver.

Procedural Skills

23. Competence in **upper gastrointestinal endoscopy** with or without biopsy, including indications, contraindications, limitations, complications and interpretation of results.
24. Competence in **sigmoidoscopy and colonoscopy** with or without biopsy, including indications, contraindications, limitations, complications and interpretation of results.
25. Competence in **colonoscopic polypectomy**, including indications, contraindications, limitations, complications, and interpretation of results.
26. Competence in **endoscopic treatment of gastrointestinal bleeding** (sclerotherapy, banding, contact thermocoagulation, endoclips, etc) , including indications, contraindications, limitations, complications and interpretation of results.
27. Competence in **diagnostic and therapeutic paracentesis**, including indications, contraindications, limitations, complications and interpretation of results.

Goals and Objectives for University of California San Francisco GI Training Program

Rotations and Educational Training Experience in Clinical Years 2 and 3

Clinical Training extends into the second and third year of fellowship. Fellows in the clinical track do at least an additional 12-18 months of required clinical rotations, while those in the research track do an additional required 6 months of clinical training. Research fellows will have then 18 months of protected time for research (see above for more details regarding the research curriculum), but they continue to attend continuity clinic and often select additional elective clinic and endoscopy time. Clinical fellows have up to 12 months to pursue clinical electives or may engage in research time (minimum of 5 months).

The clinical rotations are an extension and build upon the training provided during the first clinical year. The fellows will serve as senior fellows at SFGH and the SFVAMC, but also rotate through rotations unique to the senior years of fellowship.

All required conferences continue for senior fellows, as do continuity clinics.

The **principal teaching methods** are the same as employed in year 1. Senior fellows are given graduated levels of independence and responsibility commensurate with their level of training and skill and competence as assessed by the faculty (See Division Policy on Supervision).

The **educational resources** available to the fellows, including reading lists and pathological and radiological materials are similar as provided in first year, but are designed to build on that provided during year 1.

The **methods of competency evaluation** are the same as used during year 1.

SFGH Senior Fellow
Required 2-4 month rotation

Year: 2nd/3rd

1. Consolidate and extend clinical skills acquired during the first year.
2. Develops and enhances skills in ERCP, and EUS.

SFVAMC Senior Fellow
Required 2-4 month rotation

Year: 2nd/3rd

1. Consolidate and extend clinical skills acquired during the first year.
2. Develops and enhances skills in ERCP, and EUS.

Liver Transplant/Advanced Hepatology Rotation
Site: Moffitt/Long

Year: 2nd/3rd

Disease mix and patient characteristics: The LTU rotation allows fellows to spend 100% of their time caring for patients with complex liver disease in both the inpatient and outpatient setting. The focus is on patients who may require or have undergone transplant, but many of the encounters are with patients with a wide range of liver diseases not requiring transplant as well. This is a two plus month required rotation which aims to provide the fellow with an intensive training experience on a busy multidisciplinary liver transplantation/liver disease service with the goals of providing:

1. Training in the management of patients with chronic and end-stage liver disease, including the management of the complications of chronic and end-stage liver disease.
2. Training in the management of patients with severe acute liver disease, including fulminant liver failure and its complications.
3. Familiarity with the multi-disciplinary management of patients with benign and malignant primary and metastatic neoplastic disease of the liver, including the indications and use of interventional therapies such as transarterial chemoembolization and radiofrequency ablation.
4. Familiarity with the indications, contraindications and complications of adult (and pediatric) liver transplantation, including living donor liver transplantation and the process and ethical issues involved in patient referral and selection, and in organ allocation.
5. Training in the management of patients following liver transplantation at various stages post-operatively including learning the basic principles of immunosuppression and immunosuppression-related complications and current practices related to prophylaxis and management of disease recurrence.
6. Training in the performance of liver biopsy and abdominal paracentesis, with and without ultrasound guidance, and familiarity with the contraindications and potential complications of these procedures.
7. Training related to the indications, contraindications and interpretation of a range of non-invasive and interventional radiological techniques employed in the diagnosis and management of liver disease before and after transplantation. These will include Doppler ultrasonography, CT, MRI, MRA, MRCP, visceral angiography, TIPS, percutaneous biliary cholangiography, biliary endoscopy and EUS.
8. Familiarity with the histologic features and diagnostic criteria of a spectrum of acute and chronic liver diseases and also including post transplant hepatic histopathology.
9. Exposure to and encouragement to actively participate in a wide range of on-going clinical and

translational research projects and methodologies related to acute and chronic liver disease and liver transplantation.

10. Instruction on importance of nutrition and malnutrition in GI and liver disease; specifically advanced liver disease.
11. The opportunity to observe and manage the liver-related health issues in a demographically and ethnically diverse patient population.

Inflammatory Bowel Disease/Women's Health/GI Oncology

Site: Mount Zion

Year: 2nd/3rd

Mount Zion

MZ is a 140-bed facility, located in central San Francisco on Divisadero Street. The number of outpatient GI/hepatology consults for 2003 at MZ numbered 1808 new patient visits and 1900 revisits. In addition there were 693 patients seen by GI faculty at the 350 Parnassus Ave office and 890 revisits. A total of 3299 GI procedures were performed in the MZ endoscopy unit in 2003. Fellows do not see all of these outpatient consults and perform all of these procedures, but do see approximately 40-50% under the supervision of one the GI/hepatology faculty and assist in approximately 20% of the procedures. There are approximately 3-5 inpatients consultations per month at MZ seen by the GI fellows.

A major part of the curriculum at the MZ site involves active participation of the fellows in a series of regularly scheduled conferences:

1. IBD Center Conference (1 hour per month): Faculty and fellows meet each month to discuss management of patients with IBD and to discuss new research projects and review recent publications in the field, The conference is attended by visiting faculty, surgeons and pediatric gastroenterologists.
2. GI QI Conference (1 hour every month alternating with Moffitt site): Fellows and faculty meet to discuss complications that have occurred in the MZ endoscopy unit.

Disease mix and patient characteristics: The Mount Zion campus of UCSF is the site of the UCSF Cancer Center, Colitis and Crohn's Disease Center, Osher Center for Complimentary and Alternative Medicine, Pelvic Floor Center and Women's Health Center. As such, this 1-2 month required rotation exposes the fellows to ambulatory and inpatient GI practice with an emphasis on inflammatory bowel disease, GI cancer prevention, GI care issues specific to women. The rotation has the goals of providing:

1. Training in the care of patients with inflammatory bowel disease, with special emphasis on new and emerging therapies.
2. Training in the evaluation and management of patients with gastrointestinal cancers, including diagnosis and management of complications from the disease and therapy.
3. Training in the evaluation and management of patients with suspected hereditary cancer syndromes, including appropriate use of genetic counseling and testing.
4. Training in the evaluation and management of complex cases of irritable bowel syndrome, including the use of medications, as well as the use of complimentary and alternative therapies.
5. Training in the evaluation and management of patients with suspected pelvic floor disorders, including chronic constipation and incontinence.
6. Training the evaluation and management of patients with a variety of other, general GI disorders.
7. Exposure to and training in the use of endoscopic techniques to evaluate GI disorders, with an emphasis on techniques that are commonly employed in patients with GI cancer and IBD, including endoscopic stricture dilation, stent placement, endoscopic ultrasound.

8. Exposure to a wide range of on-going clinical and translational research projects and methodologies related to liver disease and liver transplantation.
9. Learn about the importance of nutrition and malnutrition in GI and liver diseases; specifically in IBD and cancer patients.
10. Observe and manage the GI health issues in a wide range of patient types including women. At the UCSF Women's Health Center, there is a major focus on women's GI health issues especially reproductive issues related to inflammatory bowel disease which is also a major research and clinical focus of the UCSF IBD Center.
11. Observe and manage the GI health issues in a wide range of patient types including the geriatric population.

GI Motility & Nutrition

Site: ML/MZ

Year: 2nd/3rd

This is a clinical elective that offers training in the performance and interpretation of GI manometry and PH studies in collaboration with the Center for Motility and GI Secretory Studies and Center for Pelvic Physiology in the Department of Surgery. Fellows also are exposed to complex clinical issues in nutrition and intestinal failure by participating on a weekly basis in a clinic dedicated to that purpose. It exposes the fellow to the spectrum of GI motility disorders, disorders of reflux and their endoscopic and surgical therapy. The fellow will also be given the opportunity to participate in clinical research trials pertaining to irritable bowel disease.

Goals and Objectives

1. To understand normal and abnormal GI motility.
2. To understand the indications, technical performance, interpretation and implications of GI motility tests.
3. To recognize the signs and symptoms of intestinal failure and understand management options including indications for intestinal transplantation.
4. To become familiar with enteral and parenteral nutritional support for patients with feeding difficulty, including the indications, risks and benefits of TPN.
5. To become skilled in the management of patients with dysmotility and nutritional problems, including achalasia, pseudoobstruction, short gut, and functional GI diseases.

Curriculum

1. To participate in the activities of the UCSF Center for GI Motility and Secretion.
2. To participate in the activities of the UCSF Center for Pelvic Physiology.
3. To attend clinics and team meetings of the UCSF Intestinal Rehabilitation and Transplantation Program.
4. To participate in the care of outpatients and inpatients with dysmotility, intestinal failure and other problems of nutrition.

Advanced Endoscopy

Site: ML/MZ

Year: 2nd/3rd

This is a four month rotation required for clinical fellows, in which the fellow is to become familiar with the appropriate indications, risks, benefits, alternatives, and performance of a variety of advanced therapeutic endoscopy techniques. To accomplish these goals and objectives, the fellow will be involved in the performance of advanced endoscopic procedures over a period of 4 months, including all relevant pre- and post-procedural care, as well as seeing both inpatient and outpatient consultations. The fellow will be

expected to pursue a clinical research project related to advanced therapeutic endoscopy with the goal of national/international meeting presentation and publication.

1. Endoscopic retrograde cholangiopancreatography (ERCP), including:
 - ERCP with sphincterotomy
 - ERCP with stone extraction
 - ERCP with lithotripsy
 - ERCP with biliary/pancreatic stricture dilation
 - ERCP with cytologic brushing
 - ERCP with biliary/pancreatic stent placement
 - ERCP in the post liver transplant patient
2. Small bowel enteroscopy
3. Stricture dilation, both of upper and lower GI tract luminal strictures
4. Esophageal, small bowel and colonic stent placement
5. Drainage of pancreatic pseudocysts (via transpapillary, transgastric, and transduodenal routes)
6. Pneumatic dilation for achalasia
7. Endoscopic ultrasound (EUS), including:
 - EUS, diagnostic, of both the upper and lower GI tract
 - EUS with fine needle aspiration
 - EUS with celiac axis block/neurolysis
8. Endoscopic mucosal resection
9. Radiofrequency ablation of Barrett's esophagus

Additional Curriculum for GI fellowship:

A. Fellows Continuity Clinic and Elective Clinics

Fellows attend a weekly mandatory GI and/or liver Continuity Clinic in Years 1 through 3 of their training at one of the sites. The site of the CC changes each year to ensure a diversified experience that captures the depth and breadth of the field. They evaluate \approx 1-3 new patients per week and at least 4-6 follow-up patients referred by other physicians under the supervision of a faculty attending physician. This clinic serves as an ideal opportunity for longitudinal care of GI/liver patients. Often during the three years in the program, fellows will have one year of CC devoted to hepatology patients and two years of clinic devoted to patients with luminal disease.

Fellows are allowed to supplement their training to meet their particular educational goals by participating in a variety of clinics which are completely dedicated to special topic areas or that tend to focus on specialized areas while still including a smattering of general GI. Often fellows will attend 1 or 2 such clinics per week during their research time during the 2nd and 3rd year of training. Available clinics include inflammatory bowel disease, GI cancer prevention, advanced endoscopy, functional disorders and women's health, general hepatology transplant hepatology, viral hepatitis, and others

B. Training Program Core Curriculum Lecture Series

All trainees are required to attend an hour-long lecture series held each week for every week each year with the full curriculum spanning two years. All areas of GI/liver are covered over the course of 2 years. The lectures are updated each year.

Faculty deliver the lectures which are tailored to trainees with an emphasis on pathophysiology, differential diagnosis, clinical presentation, evaluation, and therapy. The underlying basic science including biochemistry, receptor signal transduction, transcriptional regulation, nuclear receptors, and molecular biology are emphasized.

In addition, the lecture series is initiated with a group of introductory lectures for trainees which include: GI and liver emergencies. These lectures are designed to familiarize the trainee with information immediately

useful to them for their clinical rotations.

C. Research Conference

Twice monthly all trainees meet to discuss research methods and topics and critique each others' work and obtain faculty mentorship.

D. Fellows/Faculty Journal Club

For this monthly Journal Club, all fellows in years 1-3 and beyond are required to attend and to present at least twice per year. Fellows with their faculty member coach and together select an article or group of recent articles which review a clinical topic that is both timely and broadly relevant to GI/hepatology. Trainees can ask any questions they wish and bring up any issues related to the topic or other related areas of concern. This gives trainees in all years of the program additional access to key faculty in a casual but structured setting. This opportunity also gives trainees a chance to lead a discussion among their peers, teaches trainees to read the literature critically under the guidance of an experienced faculty member.

E. UCSF GI Grand Rounds

This is a weekly lecture series held during the academic year which fellows are required to attend. Speakers are invited from the GI Divisions in the UCSF system, all departments at UCSF from many other American medical schools. The latest clinical and basic science research updates are presented as well as formal scholarly case discussions and CPC's. The seminar is open to the entire university community. Fellows present at GI grand rounds themselves at least twice per year.

F. Professors Rounds and Clinical Case Discussions

Fellows are required to meet monthly with Dr. Marvin Sleisenger or another UCSF or visiting professor at which time cases are presented and management discussed. These meetings are mandatory for trainees in all years and give fellows the opportunity to interact with Dr. Sleisenger and leader in the field or other outstanding clinicians and investigators from numerous medical schools across the country.

G. Training in Clinical Research.

All second year fellows electing to do clinical research are required to take an introductory methods course. The course (TICR, Training in Clinical Research) is designed specifically for trainees in clinical sciences and is taught by faculty from the Departments of Epidemiology and Medicine and from the UCSF Institute for Health Policy. Two workshops are part of the course: traditional clinical research and outcomes research. Trainees in the Clinical Research Workshop develop a protocol, carry out sample size calculations and have their proposal critiqued. Those in the Outcomes Research Workshop learn to perform cost-effectiveness analysis and meta-analysis, and they practice analyzing outcomes in a secondary database. Consent forms and ethics also are covered.

H. Attendance at national meetings of professional societies

We recognize the value of national subspecialty meetings for broadening the educational exposure of our trainees to the latest developments in fields related to DEM. Fellows are strongly encouraged, and financial support is provided, for our fellows in all years of training to attend at least one scholarly meeting each year.

UCSF GI Fellowship Curriculum Summary for Years 1-3

The goals and objectives of the entire training program by rotation site are summarized above. These goals and objectives are to be met through several methods of teaching including the supervised performance of GI procedures by the trainees, supervised inpatient and outpatient consultation performed by the fellows, and attendance in participation in a variety of regularly scheduled conferences and seminars by the trainees.

The summary of the knowledge and technical proficiencies acquired by our fellows by the conclusion of training meets or exceeds the ACGME program requirements and are listed below.

At the conclusion of the GI Fellowship Training Program at UCSF we expect and will ensure that our trainees have:

Clinical Experience

Fellows have formal instruction, clinical experience, and demonstrate competence in the evaluation and management of the following disorders:

1. diseases of the esophagus;
2. acid peptic disorders of the gastrointestinal tract;
3. motor disorders of the gastrointestinal tract;
4. irritable bowel syndrome;
5. disorders of nutrient assimilation;
6. inflammatory bowel diseases;
7. vascular disorders of the gastrointestinal tract;
8. gastrointestinal infections, including retroviral, mycotic, and parasitic diseases;
9. gastrointestinal diseases with an immune basis;
10. gallstones and cholecystitis;
11. alcoholic liver diseases;
12. cholestatic syndromes;
13. drug-induced hepatic injury;
14. hepatobiliary neoplasms;
15. chronic liver disease;
16. gastrointestinal manifestations of HIV infections;
17. gastrointestinal neoplastic disease;
18. acute and chronic hepatitis;
19. biliary and pancreatic diseases;
20. women's health issues in digestive diseases;
21. geriatric gastroenterology;
22. gastrointestinal bleeding;
23. cirrhosis and portal hypertension;
24. genetic/inherited disorders;
25. medical management of patients under surgical care for gastrointestinal disorders; and
26. management of GI emergencies in the acutely ill patient.

Formal Instruction

Fellows graduate with expertise in the pathogenesis, manifestations, and complications of gastrointestinal disorders, including the behavioral adjustments of patients to their problems. Specific content areas include the following:

1. anatomy, physiology, pharmacology, pathology and molecular biology related to the gastrointestinal system, including the liver, biliary tract and pancreas;
2. the natural history of digestive diseases;
3. factors involved in nutrition and malnutrition;
4. surgical procedures employed in relation to digestive system disorders and their complications;
5. prudent, cost-effective, and judicious use of special instruments, tests, and therapy in the diagnosis and management of gastroenterologic disorders;
6. liver transplantation;
7. sedation and sedative pharmacology; and
8. interpretation of abnormal liver chemistries.

Technical and Other Skills

Fellows at UCSF have formal instruction, clinical experience and demonstrate competence in the performance of the following procedures. A skilled preceptor is available to teach and supervise the fellows in the performance of these procedures, which are documented in each fellow's record, giving indications, outcomes, diagnoses, and supervisor(s).

1. esophagogastroduodenoscopy (fellows perform a minimum of 130 supervised studies);
2. esophageal dilation (fellows perform a minimum of 20 supervised studies);
3. flexible sigmoidoscopy (fellows perform a minimum of 30 supervised studies);
4. colonoscopy with polypectomy (fellows perform a minimum of 140 supervised colonoscopies and 30 supervised polypectomies);
5. percutaneous liver biopsy (fellows perform a minimum of 20 supervised studies);
6. percutaneous endoscopic gastrostomy (fellows perform a minimum of 10 supervised studies);
7. biopsy of the mucosa of esophagus, stomach, small bowel, and colon; gastrointestinal motility studies and 24-hour pH monitoring;
8. nonvariceal hemostasis, both upper and lower (fellows perform a minimum 25 supervised cases, including 10 active bleeders);
9. variceal hemostasis (fellows perform a minimum of 20 supervised cases, including five active bleeders);
10. moderate and conscious sedation.

Fellows have formal instruction and clinical experience in the interpretation of the following diagnostic and therapeutic techniques and procedures:

1. gastric, pancreatic, and biliary secretory tests;
2. enteral and parenteral alimentation;
3. pancreatic needle biopsy;
4. ERCP, in all its diagnostic and therapeutic applications;
5. imaging of the digestive system, including:
 - ultrasound, including endoscopic ultrasound;
 - computed tomography;
 - magnetic resonance imaging;
 - vascular radiography;

- contrast radiography;
- nuclear medicine; and
- percutaneous cholangiography.