



Cleveland Clinic

Digestive Disease Institute

15th Annual Surgery of the Foregut Symposium

3rd Annual International Congress of Fluorescent Guided Imaging Surgery

Boca Raton, Florida | February 3-7, 2016

Accredited by the Accreditation Council for Continuing Medical Education

EXECUTIVE SUMMARY

Program Overview

The *15th Annual Surgery of the Foregut Symposium* will provide surgeons and other health care professionals a wide range of information related to new and well established topics in gastrointestinal surgery. Attendees will become familiar with surgical aspects of conventional, laparoscopic, robotic, and endoscopic surgery of the foregut. In addition, attendees will acquire indepth information related to the diagnosis and management of disease processes of the esophagus, stomach, duodenum, liver, and biliary tree. The program will review complex case scenarios and complications after foregut procedures.

The *3rd Annual International Congress of Fluorescent Guided Imaging Surgery* is focusing on the new era of research on near infrared (NIR) imaging. The concept is based on the utilization of infrared light as a tool to guide surgery. This unique course will offer an updated and better understanding of the novel technique. Our goal is to foster the exchange of information and ideas on fluorescence imaging and its applications in surgery.

Topics

- Foregut Surgery
- Bariatric Surgery
- Fluorescent Guided Imaging Surgery
- Live Surgery Day

Targeted Learners

Physicians, surgeons, fellows, residents, nurses, and allied health professionals in the fields of surgical endoscopy, general surgery, hepato-pancreatic and biliary surgery, as well as laparoscopic and bariatric surgery.

Learning Objectives

After completing this educational activity, participants will be able to do the following:

- Review the basic concept of fluorescent imaging techniques and alternative fluorescent dyes, and discuss different applications of fluorescent imaging
- Review the indications for recent inguinal hernia repair, analyze the reasons for early and late recurrent, and discuss outcomes of recurrent inguinal hernia repair

- Identify technical pitfalls when repairing parastomal hernias, familiarize with alternative approaches to ventral hernia repair, and review mesh utilization when performing laparoscopic vs. open repairs
- Discuss how to recognize hiatal hernias, review technique of recurrent hiatal hernias repair using bared sutures, and present complications of repair
- Recognize signs and symptoms of achalasia, assess how to best manage complications such as epiphrenic diverticula, and review the new treatment modalities
- Provide the audience with surgical approaches to esophageal cancer, distinguish treatment modalities based on pathological exam, and discuss outcomes and oncological approaches
- Evaluate new approaches to Foregut disorders, analyze new techniques, and present technical pitfalls of reoperative foregut surgery
- Discuss diagnostic algorithms of CBDs's, distinguish outcomes of endoscopic, laparoscopic and combined treatment modalities, and review of long term complications
- Identify common preventative measures to decrease the incidence of CBDI, analyze most common reasons for CBDI, and debate the best treatment modalities for CBDI
- Discuss the oncological application of HIPEC, discuss the most common diseases processes treated by HIPEC, and review the current literature on this complex approach
- Examine basic surgical techniques of Whipple procedure, discuss best approaches and how to prevent complications
- Appraise indication of liver transplantation, discuss current approaches of living related vs. cadaveric organ transplantation, and most common complications
- Describe mechanism of action of new drugs to treat obesity, analyze new endoscopic treatment modalities, and review neurostimulation as a new approach
- Present the current epidemiological data and trends of Gastroparesis, discuss best non-surgical treatment modalities, and analyze the outcomes of most common surgical approaches
- Present most common reoperative approaches, technical pitfalls of reoperative surgery, and discuss how to identify and manage most frequent complications

EDUCATIONAL NEEDS ASSESSMENT AND GAP ANALYSIS

- New innovations in laparoscopic surgery to provide up to date current techniques and recommendations that will help to improve outcomes and quality of care.
- Fluorescent imaging techniques allow surgeons to identify vital structures while operating. The latter will result in faster and safer surgery avoiding unnecessary injuries. In addition by coupling the fluorescent dye to antibodies surgeons might recognize tumors.
- Understanding and management of foregut procedures
- Physicians lack awareness on how to diagnose and treat GERD.
- Recognize the need to perform gastric qualifying studies.
- Experience with different types of bariatric surgical procedures that will help morbidly obese patients resolve their comorbidities
- Bariatric procedures constantly evolve with wide variations of techniques and modifications. There is no consensus over some common preventive measures, for example: no common agreement on over-sawing staple line in sleeve gastrectomy and no consensus on closing mesenteric defects in gastric bypass.

The scope of laparoscopic surgery is expanding everyday. Laparoscopy went from strictly a gynecological procedure to include the vast majority of foregut surgery. In the recent developments the world of laparoscopy has been invading surgery of the pancreas and complex biliary procedures. Currently laparoscopic pancreatic resection can safely duplicate all of the open pancreatic resection techniques.

The laparoscopic approach to distal pancreatectomy has become the gold standard over the last few years, it faces 2 problems: first, sparing the spleen with or without ligation of the splenic vessels, and second controlling leak from the pancreatic remnant and pancreatic fistula. Laparoscopic pancreaticoduodenectomy was first described by Gagner and Pomp in 1994. Worldwide experience with the totally laparoscopic approach to pancreaticoduodenectomy has grown and the procedure is being increasingly considered feasible and safe. Postoperative morbidity rate of laparoscopic pancreatic surgery are comparable to those reported after open surgery. Postoperative pancreatic fistula remains the most frequent specific major complication after pancreatic resection, however in review of literature no significant difference exists between laparoscopic and open pancreatic surgery.

Current literature review indicates that the laparoscopic approach to distal pancreatectomy should be considered the gold standard approach for benign and low-grade malignant disease in experienced hands. In properly selected patients with periampullary malignancies, laparoscopic pancreaticoduodenectomy is feasible and safe, though its potential advantages remain to be demonstrated. Surgeons need to understand which pancreatic procedures/lesions are suitable to laparoscopic resection, laparoscopic technique, and the correct work-up.

1. Sa Cuhna A, Rault A, Beau C, Laurent C, Collet D, Masson B (2008) A single-institution prospective study of laparoscopic pancreatic resection. *Arch Surg* 143:289-295
2. Gagner M, Pomp A (1996) Early experience with laparoscopic resection of islet cell tumors. *Surgery* 120:1051-1054
3. Palanivelu C, Jani K, Senthilnathan P, Parthasarathi R, Rajapandian S, Madhankumar MV (2007) Laparoscopic pancreaticoduodenectomy: technique and outcomes. *J Am Coll Surg* 205:222-230
4. Menon KV, Hayden JD, Prasad KR, Verbeke CS (2007) Total laparoscopic pancreaticoduodenectomy and reconstruction for a cholangiocarcinoma of the bile duct. *J Laparoendosc Adv Surg Tech A* 17:775-780
5. Bassi C, Dervenis C, Butturini G, Fingerhut A, Yeo C, Izbicki J, Neoptolemos J, Sarr M, Traverso W, Buchler M (2005) Postoperative pancreatic fistula: an international study group (ISGPF) definition. *Surgery* 138:8-13

The correct identification of extrahepatic biliary ducts is a matter of concern for both the hepato-biliary and general surgeons around the world. The rate of biliary ducts injuries during laparoscopic cholecystectomy (LC) is described in as high as 0.4%. Intra-operative cholangiography (IOC) is used to aid the visualization and identification of anatomical structures during laparoscopic cholecystectomies. However, the increase of operative time, the cost, and the exposure to radiation of the patient and surgical staff limit the routine application of IOC. IOC has to be demonstrated to allow earlier recognition of the injury, but it does not decrease their incidence. Fluorescent cholangiography and imaging techniques seem to be promising techniques that can be applied to different areas of general surgery.

1. Strasberg SM. Avoidance of biliary injury during laparoscopic cholecystectomy. *Journal of hepatobiliarypancreatic surgery* [Internet]. 2002;9(5):543–7.
2. Ido K, Isoda N, Kawamoto C, Suzuki T, Ioka T, Nagamine N, et al. Confirmation of a “safety zone” by intraoperative cholangiography during laparoscopic cholecystectomy. *Surgical Endoscopy* [Internet]. Springer; 2009;10(8):1845–8.
3. Ishizawa T, Bandai Y, Hasegawa K, Kokudo N. Fluorescent Cholangiography during Laparoscopic Cholecystectomy: Indocyanine Green or New Fluorescent Agents? Letter to the Editor. *World journal of surgery* [Internet]. 2010 Jun [cited 2010 Aug 29];2–3.
4. Figueiredo J-L, Siegel C, Nahrendorf M, Weissleder R. Intraoperative near-infrared fluorescent cholangiography (NIRFC) in mouse models of bile duct injury. *World journal of surgery* [Internet]. 2010 Mar [cited 2010 Aug 29];34(2):336–43.

5. Alander JT, Kaartinen I, Laakso A, Pätälä T, Spillmann T, Tuchin V V, et al. A review of indocyanine green fluorescent imaging in surgery. *International journal of biomedical imaging* [Internet]. 2012 Jan [cited 2013 Mar 1];2012:940585.
6. Takase S, Takada A, Matsuda Y. Studies on the pathogenesis of the constitutional excretory defect of indocyanine green. *Gastroenterologia Japonica*. 1982;17(4):301–9.
7. The Mendeley Support Team. *Getting Started with Mendeley* [Internet]. Mendeley Desktop. London: Mendeley Ltd.; 2011. p. 1–16.
8. Sicklick JK, Camp MS, Lillemoe KD, Melton GB, Yeo CJ, Campbell KA, et al. Surgical Management of Bile Duct Injuries Sustained During Laparoscopic Cholecystectomy. *Annals of Surgery* [Internet]. 2005;241(5):786–95.:
9. Nuzzo G, Giuliante F, Giovannini I, Ardito F, Vellone M, Murazio M, et al. Bile Duct Injury During Laparoscopic Cholecystectomy. 2013;140.
10. Ogden AT, Waziri AE. *A2b5 + cd133 – t*. 2008;62(2):505–15.
11. Ascher SM, Evans SR, Zeman RK. Laparoscopic cholecystectomy: intraoperative ultrasound of the extrahepatic biliary tree and the natural history of postoperative transabdominal ultrasound findings. *Seminars In Ultrasound Ct And Mr*. 1993;14(5):331–7.
12. Savader SJ, Lillemoe KD, Prescott C a., Winick AB, Venbrux AC, Lund GB, et al. Laparoscopic Cholecystectomy-Related Bile Duct Injuries. *Annals of Surgery* [Internet]. 1997 Mar;225(3):268–73.
13. Callery MP. Biliary Tract Forum Avoiding biliary injury during laparoscopic cholecystectomy: technical considerations. *Surgical Endoscopy*. 2006;1654–8.
14. Stiles BM, Adusumilli PS, Bhargava a, Fong Y. Fluorescent cholangiography in a mouse model: an innovative method for improved laparoscopic identification of the biliary anatomy. *Surgical endoscopy* [Internet]. 2006 Aug [cited 2010 Aug 15];20(8):1291–5.
15. Cirugía EN, Factibilidad B, Método DEL, Inicial E, Dip F, Alle L, et al. ARTÍCULO ORIGINAL UTILIZACIÓN DE VERDE DE INDOCIANINA FLUORESCENTE INTRAOPERATORIO de las lesiones quirúrgicas de la vía biliar se ha el Comité de Bioética y Docencia e Investigación. 2011;100:19–22.

Paraesophageal hernias are difficult surgical problems that often need repair. Meticulous work-up and surgical technique are required for optimal results. The underlying surgical principles for successful repair include reduction of hernia contents, removal of the hernia sac, closure of the hiatal defect, and an antireflux procedure. Debate remains whether a transthoracic, transabdominal, or laparoscopic approach is best with good surgical outcomes being reported with all three techniques. Placement of mesh to buttress the hiatal closure is reported to reduce hernia recurrence and if combined with the use of biologic mesh, provides relief of symptoms and a durable repair. Recent evidence supports the use of prosthetic reinforcement material during laparoscopic hiatal hernia repair; however, the search for appropriate prosthetic materials is still under investigation.

1. Wolf PS, Oelschlager BK. Laparoscopic paraesophageal hernia repair. *Adv Surg*. 2007;41:199-210.
2. Varela E, Hinojosa M, Nguyen NT. Polyester composite mesh for laparoscopic paraesophageal hernia repair. *Surg Innov*. 2008 Jun;15(2):90-4. Epub 2008 Apr 29.
3. Schieman C, Grondin SC. Paraesophageal hernia: clinical presentation, evaluation, and management controversies. *Thorac Surg Clin*. 2009 Nov;19(4):473-84.

Gastroesophageal reflux disease is by far the most prevalent disorder of the foregut. For a long time during the twentieth century, surgical therapy was the mainstay of treatment and the only chance for cure for patients with severe symptoms. Later, after introduction of proton pump inhibitor therapy in the early 1990s, surgical therapy was considered widely a second choice option due to its potential morbidity and side effects. More recently, however, there is growing evidence that long-term antisecretory therapy might be associated to a number of adverse effects such as osteoporosis and increased risk of cardiovascular events. This is the rationale why interventional and surgical options are coming back into focus. Today, there are several modalities to treat gastroesophageal reflux disease (GERD) (medications, endoscopic therapies, surgery) and such therapies can be used either singly, or in

tandem, or in combination with the others, aiming at "normalization" of the patient's GERD-related quality of life and, if possible, esophageal acid exposure. Several intermediate end points or clinically significant outcomes have not been reached by some therapeutic modalities and no single modality is or can be perfect. Esophageal acid exposure time and the prevalence of heartburn are higher after Laparoscopic Anterior Fundoplication compared with Laparoscopic Posterior Fundoplication. In the short-term this is counterbalanced by less severe dysphagia. However, dysphagia scores become similar in the long-term, with a persistent substantial increase in prevalence of heartburn and PPI use after LAF. The reoperation rate is twice as high after LAF as well, mainly due to reinterventions for recurrent GERD. The prevalence of gas-related symptoms is similar. These results lend level 1a support for the use of LPF as the surgical treatment of choice for GERD. At long-term follow-up the laparoscopic Nissen fundoplication has a similar long-term subjective symptomatic outcome as the open procedure but laparoscopic Nissen fundoplication is associated with a significantly lower incidence of incisional hernias and defective fundic wraps at endoscopy, defining laparoscopic Nissen fundoplication as the procedure of choice in surgical management of gastro-oesophageal reflux disease.

Statistically significant improvements in these intermediate end points have been shown in "some" but not all studies. Although healing of esophagitis can be accomplished with either medical or surgical therapy, there is inadequate data with endotherapies, because most patients treated with endotherapies have had prior trials of proton pump inhibitors (PPIs) and hence healed their esophagitis. Effective prevention of complications, such as esophageal adenocarcinoma, remains challenging for all modalities. Patients who have not normalized their GERD-related quality of life with once or twice daily PPI therapy should undergo functional esophageal evaluation with pH testing and esophageal motility study and they should be evaluated by both an endoscopist and a surgeon. The decision on how to proceed should be made on the basis of the criteria for endotherapy and surgery, availability of local endoscopic and surgical expertise and patients' preference. Such multimodality therapy model is in many ways similar to the long-term management of coronary artery disease where pharmacotherapy, angioplasty, and bypass surgery are frequently used in tandem or in combination. Multimodality therapy aiming at normalization of GERD-related quality of life is an option today, and should be available to all patients in need of therapy. The target population for GERD endotherapy currently consists of PPI-dependent GERD patients, who have a small (<2-cm-long) or no sliding hiatal hernia, and without severe esophagitis or Barrett esophagus. Thus far, only Stretta and the NDO plicator have been studied in sham-controlled trials. Registries of complications suggest that these techniques are relatively safe, but serious morbidity, including rare mortality have been reported. All can be performed on an outpatient basis, under intravenous sedation and local pharyngeal anesthesia. Sphincter augmentation with the LINX® Reflux Management System is a surgical option for patients with chronic gastroesophageal disease (GERD) and an inadequate response to proton pump inhibitors (PPIs). Future comparative studies with predetermined clinically significant end points, validated outcome measures, prolonged follow-up, and complete complication registries will eventually determine the precise role of endoscopic procedures for the patients with GERD

1. Gutschow CA, Hölscher AH. Surgical treatment of gastroesophageal reflux disease. *Langenbecks Arch Surg.* 2012 Apr 12. [Epub ahead of print]
2. Broeders JA, Roks DJ, Ahmed Ali U, Draaisma WA, Smout AJ, Hazebroek EJ. Laparoscopic anterior versus posterior fundoplication for gastroesophageal reflux disease: systematic review and meta-analysis of randomized clinical trials. *Ann Surg.* 2011 Jul;254(1):39-47.
3. Salminen P. The laparoscopic Nissen fundoplication--a better operation? *Surgeon.* 2009 Aug;7(4):224-7.
4. Triadafilopoulos G. Endotherapy and surgery for GERD. *J Clin Gastroenterol.* 2007 Jul;41 Suppl 2:S87-96.
5. Lipham JC, Demeester TR, Ganz RA, Bonavina L, Saino G, Dunn DH, Fockens P, Bemelman W. The LINX(®) reflux management system: confirmed safety and efficacy now at 4 years. *Surg Endosc.* 2012 Apr 27. [Epub ahead of print]

Zenker's diverticulum (ZD) is the most common type of diverticulum in the upper gastrointestinal tract with a reported prevalence of 0.01% to 0.11% in the general population. Most patients are elderly and present with symptoms of dysphagia. Serious complications include aspiration and malnutrition. A variety of open and endoscopic surgical approaches for the treatment of Zenker's diverticulum have been described. The most common treatments are open surgical diverticulectomy with or without cricopharyngeal myotomy and rigid endoscopic myotomy. In recent years, growing evidence has shown that the endoscopic techniques are superior to the open approaches in many aspects. Among the endoscopic techniques, endoscopically stapled diverticulostomy (ESD) appears to have better efficacy and safety than the other endoscopic techniques. Recently, cricopharyngeal myotomy using flexible endoscopes has been described as a treatment option for symptomatic ZD. Endoscopic treatment consists of the division of the septum between the diverticulum and the esophagus, within which the cricopharyngeal muscle is contained. Diathermic monopolar current, argon plasma coagulation, and laser have been used to incise the muscular septum with satisfactory results. The main limitation of endoscopic treatment is the occurrence of complications. Perforation and hemorrhage are reported in as many as 23% and 10% of patients, respectively.

1. Hondo FY, Maluf-Filho F, Giordano-Nappi JH, Neves CZ, Cecconello I, Sakai P. Endoscopic treatment of Zenker's diverticulum by harmonic scalpel. *Gastrointest Endosc.* 2011 Sep;74(3):666-71.
2. Ferreira LE, Simmons DT, Baron TH. Zenker's diverticula: pathophysiology, clinical presentation, and flexible endoscopic management. *Dis Esophagus.* 2008;21(1):1-8.
3. Wasserzug O, Zikk D, Raziell A, Cavel O, Fleece D, Szold A. Endoscopically stapled diverticulostomy for Zenker's diverticulum: results of a multidisciplinary team approach. *Surg Endosc.* 2010 Mar;24(3):637-41. Epub 2009 Aug 18.

As a result of the current, largely ineffective, non-surgical options for treating obesity, the past decade has witnessed an exponential increase in the number of bariatric procedures performed. As a consequence, an increasing number of patients are presenting to non-specialist units with complications following bariatric procedures. The three most common procedures performed are the gastric band, vertical sleeve gastrectomy, and the Roux-en-Y gastric bypass.

Immediate complications such as anastomotic leak, bleeding, and pulmonary embolism are usually dealt with by the operating team. Recognition of these complications is important, but may be challenging owing to difficulty in examining these patients. Tachycardia and a raised C-reactive protein level may be the only objective sign.

Adjustable gastric band is popular due to its low rates of morbidity short term. Late complications are not infrequent and the reoperation rate is 10-20 percent. The two main complications are band slippage and erosion. Band slippage occurring in up to 15-20 percent of patients, most frequently occurs distally, although proximal migration may occur. Band erosion occurs in up to 4 percent of patients with a gastric band and is typically a late complication caused by ischemia due to pressure on the gastric wall. Providers must understand the procedure and its complications to be able to treat long-term complications.

Rapid weight loss is associated with the formation of cholesterol gallstones; some 13-16 percent of patients develop gallstones within 6 months of the operation. Patients with suspected choledocholithiasis require specialist input. After a previous gastric bypass the performance of standard ERCP is technically difficult and novel endoscopic techniques have been reported. In the absence of experience of any of these novel techniques, the only remaining viable alternative is to remove the CBD stones during surgery, using either the transcystic approach or by formal CBD exploration.

The overall incidence of obstruction was found to be 4.4 percent, with a mean time to presentation of 313 days after gastric bypass. One of the biggest diagnostic dilemmas is obstruction of the biliopancreatic limb. Patients typically present with little or no vomiting or abdominal distention. This however is a surgical emergency and it is important to always keep this in mind. Laparoscopy is an acceptable first option in patients with an obstruction but often a formal laparotomy is indicated.

1. Hamdan K, Somers S, Chand M. Management of late postoperative complications of bariatric surgery Br J Surg 2011;98:1345-1355.
2. Burns EM, Naseem H, Bottle A, Lazzarino AI, Aylin P, Darzi A et al. Introduction of laparoscopic bariatric surgery in England: observational population cohort study. Br J Surg 2010;341:c4296.
3. Ponce J, Fromm R, Paynter J. Outcomes after laparoscopic adjustable gastric band repositioning for slippage or pouch dilatation. Surg Obes Relat Dis 2006;2:116-120.
4. Phillips EH, Toouli J, Pitt HA, Soper NJ, Treatment of common bile duct stones discovered during cholecystectomy. J Gastrointest Surg 2008;12:624-628.
5. Husain S, Ahmed AR, Johnson J, Boss T, O'Malley W. Small-bowel obstruction after laparoscopic Roux-en-Y gastric bypass: etiology, diagnosis, and management. Arch Surg 2007;142:988-993

According to the American Society of Metabolic and Bariatric Surgery, the number of bariatric procedure steadily and rapidly increased in the last decade, peaking up to over 150,000 annually. Safety and quality of the surgery improved, mainly through introducing laparoscopy, resulting in decreased in-hospital mortality to 0.10%. Despite trends toward declining surgery-related deaths, the safety of bariatric surgery is uneven from hospital to hospital and from procedure to procedure, concerning payers, insurance firms, malpractice lawyers and patients advocacy group. Overall, up to 10% percent of bariatric surgery patients experienced perioperative complications, from which about 3% are serious complications. As overall number of bariatric procedures increases, there is an urging necessity of comprehensive education on prevention and management of complications. This multidisciplinary symposium will serve as a comprehensive discussion and will allow attendees to stay up to date with new and current techniques and recommendations that will help to improve outcomes and quality of care.

Medical Guidelines:

- <https://asmbs.org/resources>
- <https://asmbs.org/articles/new-evidence-prompts-update-to-metabolic-and-bariatric-surgery-guidelines>
- <http://www.sages.org/publications/guidelines/guidelines-for-clinical-application-of-laparoscopic-bariatric-surgery/>

Faculty

Program Directors



Raul J. Rosenthal, MD

Chief of Staff

Chairman, Department of General Surgery

Director, Bariatric and Metabolic Institute

Cleveland Clinic

Professor of Surgery, Herbert Wertheim College of Medicine at FIU

Weston, Florida



Matthew Walsh, MD

Professor of Surgery

Rich Family Distinguished Chair of Digestive Diseases

Chairman, Department of General Surgery, Digestive Disease Institute

Chairman, Academic Department of Surgery, Education Institute

Cleveland Clinic

Cleveland, Ohio

Guest Faculty

Juan Santiago Azagra, MD

Michael Bouvet, MD, FACS

Racquel S. Bueno, MD, FACS

Benjamin Cadiere, MD

Guy-Bernard Cadiere, MD, PhD

Avram Cooperman, MD, FACS

Bernard D'Allemagne, MD

Eric DeMaria, MD, FACS, FASMBS

Alberto Raul Ferreres, MD, FACS (Hon)

Michel Gagner, MD, FACS, FRCS(C), FASMBS

Kelvin Higa, MD, FACS, FASMBS

Jacques Himpens, MD, PhD

Keith Lillemoe, MD
John M. Morton, MD
Thien K. Nguyen, MD
M. Ohrringer, MD
Doug Pleskow, MD
Walter Pories, MD
Almino Cardosa Ramos, MD, FASMBS
Diego C. Reino, MD
Eben Rosenthal, MD
Michael Rosenthal, DM
Gabriel Schnickel, MD
Scott Shikora, MD
Tyler Stevens, MD
Alan Wittgrove, MD
Natan Zundel, MD, FACS, FASMBS

Cleveland Clinic Faculty

Kareem Abu-Elmagd, MD
Sricharan Chalikonda, MD, MHA, FACS
Tolga Erim, DO
John Fung, MD, PhD
Emanuele Lo Menzo, MD, PhD, FACS, FASMBS
Charles Miller, MD
Luis Lara, MD
Ronnie Pimentel, MD
Jeffrey Ponsky, MD
Michael Rosen, MD
Phillip Schauer, MD
Alison Schneider, MD
Conrad Simpfendorfer, MD, FACS
Samuel Szomstein, MD, FACS, FASMBS
Andres Tzakis, MD, PhD
Andrew Ukleja, MD
Melissa Watson, MD
Steven Wexner, MD
James Young, MD

15th Anniversary Surgery of the Foregut Symposium

LIVE SURGERY DAY

Wednesday, February 3

OPTIONAL PROGRAM *Registration and additional fee required*

LOCATION: *Boca Raton Resort | Mizner Center | Mizner Room*

7:30am-3:00pm

7:30am Registration (*South Registration Desk*)

8:00am Introduction and Welcome Remarks Raul Rosenthal

LIVE SURGERY

Re-operative Foregut and Bariatric Surgery Raul Rosenthal (Florida)

Paraesophageal Hernia Repair Raul Rosenthal (Florida)

Fluorescent Image Guided Surgery/Cholangiogram Raul Rosenthal (Florida)

Pancreatic and Robotic Surgery Matthew Walsh/Sricharan Chalikonda (Ohio)

3:30-7:30pm

Exhibitor Hall Grand Opening and Reception

Thursday, February 4

OPTIONAL PROGRAM *Registration and additional fee required*

LOCATION: *Boca Raton Resort | Mizner Center | Grand Ballroom*

6:45am Registration and Continental Breakfast

7:30am Welcome and Introduction Raul Rosenthal and Norihiro Kokudo

7:40-8:40am FIGS BASIC PRINCIPLES (*Animal Studies*)

Moderators: Jason Warram and Fernando Dip

7:40am Why should we Use Near Infrared Guided surgery? Michelle Diana

7:50am Fluorescence Image-Guided Surgery: Principles and Current Status Sylvain Gioux

8:00am The Present and Future of Image-Guided Surgery in Nano Oncology Michelle Bradbury

8:10am Defining Cutting Edge: use of molecular imaging to define tumor margins Jim Bason

8:20am Q&A/Discussion

8:40-10:00am FLUORESCENT GUIDED IMAGING IN CANCER (*Preclinical work*)

Moderators: Michael Bouvet and Raul Rosenthal

8:40am Antibody based imaging of head and neck cancer Eben L. Rosenthal

8:50am Ureteral imaging: old and new dyes Laurents P.S. Stassen

9:00am	Targeted and non-targeted agents for fluorescent guided HPB surgery	Alex Vahrmeijer
9:10am	Fluorophore-Conjugated Antibodies for Detection and Resection of GI Cancers	Michael Bouvet
9:20am	Use of pH sensitive nano probes for cancer imaging	Baran Sumer
9:30am	Molecular Fluorescence Image-Guided Cancer Resection: From Bench to Bedside	Samuel Achilefu
9:40am	Q&A/Discussion	
10:00am	Break and Exhibits	

10:30-11:40am FLUORESCENT GUIDED LYMPHATIC MAPPING

Moderators: Takeaki Ishizawa and Fernando Dip

10:30am	Fluorescence imaging in colorectal anastomoses	Steven Wexner
10:40am	Fluorescence guided lymphadenectomy in laparoscopic colorectal resection	Luigi Buoni
10:50am	Intraoperative control of colorectal anastomoses – routine use of ICG fluorescence angiograph	Thomas Carus
11:00am	Impact of Fluorescence in robotic colorectal surgery	Giuseppe Spinoglio
11:10am	ICG to prevent anastomotic leakage in upper and lower GI tract surgery	Martin K. Walz
11:20am	Q&A/Discussion	

11:40am-12:40pm SELECTED TOPICS IN FIGS AND LAPAROSCOPY

Moderators: Eben L. Rosenthal and Norihiro Kokudo

11:40am	Intra-operative fluorescent cholangiography versus X-ray cholangiography during laparoscopic cholecystectomy for complicated gallstone disease	Lars M.L. Lehrs kov
11:50am	Utility of ICG fluorescence imaging in endocrine surgery	Eren Berber
12:00pm	Needle based confocal laser endomicroscopy for diagnosis of pancreatic cystic lesions	Somashekar Krishna
12:10pm	Understanding Fluorescent Cholangiography	Luis Sarotto
12:20pm	Q&A/Discussion	
12:40pm	Lunch and Exhibits	

1:40–2:50pm SELECTED TOPICS IN FIGS AND LAPAROSCOPY

Moderators: Raul Rosenthal and Fernando Dip

1:40pm	100 consecutive gastric sleeve resections with intraoperative ICG Fluorescence angiography – safer or unnecessary?	Thomas Carus
1:50pm	Use of Fluorescence in a teaching program	Fernando Dip
2:00pm	The role of fluorescent imaging in Robotic Surgery	Enrique Fernando Elli
2:10pm	The use of near infrared fluorescent cholangiography in acute cholecystitis	Dany Scherwinter
2:20pm	Comparative study to detail accuracy of ICG vs. IOC during	

	Laparoscopic cholecystectomy	Kaja Ludwig
2:30pm	Q&A/Discussion	
2:50pm	Break and Exhibits	

3:20–4:40pm FIGS AND HPB SURGERY

Moderators: Conrad Simpfendorfer and Andreas Tzakis

3:20pm	Impact of Fluorescence in (robotic) HPB surgery	Giuseppe Spinoglio
3:30pm	Fluorescence Image-Guided Surgery: From Open to Lap, Lap to Open	Takeaki Ishizawa
3:40pm	Anatomic liver resection and liver transplantation guided by indocyanine green-fluorescence imaging	Norihiro Kokudo
3:50pm	Usefulness of indocyanine green-fluorescence imaging during laparoscopic liver resection	Yoshikuni Kawaguchi
4:00pm	Utility of ICG Camera in liver transplantation	Eric Vibert
4:10pm	Utilizing Fluorescent imaging devices pancreatic cysts	Somashekar Krishna
4:20pm	Q&A/Discussion	

4:40–6:20pm FLUORESCENT GUIDED SURGERY IN CANCER – CLINICAL STUDIES

Moderators: Eben L. Rosenthal and Michael Bouvet

4:40pm	Rapid intraoperative imaging of tiny tumors by newly developed fluorogenic probes for aminopeptidases and glycosidases.	Yasuteru Urano
4:55pm	Intraoperative Pulmonary Neoplasm Identification using Near-Infrared Fluorescence Imaging	Hyun Koo Kim
5:05pm	Photo immunotherapy for diagnosis and treatment of cancer	Esther de Boer
5:15pm	Use of NIR guided surgery During Thyroid and Parathyroidectomy	Jorge Falco
5:25pm	Fluorescent imaging of bladder cancer	Joseph C. Liao
5:35pm	Clinical Uses of ICG Fluorescence Angiography in Surgical Oncology and Endocrine Surgery	Michael Bouvet
5:45pm	Fluorescence Image-Guided Surgery: Recent Advances in Devices and Methods	Sylvain Gioux
5:55pm	Alternative routes of fluorophores administration for FIGS	Michelle Diana
6:05pm	Image-Directed Surgery Using Targeted Ultra small Fluorescent Silica Nanoparticles: Images are more than Pictures	Michelle Bradbury
6:15pm	Q&A/Discussion	
6:30pm	Adjourn	
6:30pm	<i>DDI Week 2016 Cocktail Reception</i>	

Symposium

GENERAL SESSION

Friday, February 5 – Sunday, February 7

OPTIONAL PROGRAM *Registration and additional fee required*

LOCATION: *Boca Raton Resort | Mizner Center | Grand Ballroom*

Friday, February 5

Abdominal Wall, Esophageal, Diaphragmatic and Gastric Surgery

7:30- 9:15am THE ABDOMINAL WALL PART 1

Inguinal Hernias

Chair: Michael Rosen **Co-Chair:** Samuel Szomstein

10-minute Case Presentation: A 60 y/o male with a history of CAD on Plavix status post metallic stent placement presents with a medium size recurrent incarcerated but asymptomatic right inguinal hernia. What procedure would you recommend?

Best approach based on evidence presented by speakers followed by panel discussion

7:30 am	Total Extraperitoneal Endoscopic Inguinal Hernia Repair Using Mini Instruments	Gabriel Carvalho
7:45am	Anterior approach: Technique and outcomes	Jerrold Young
8:00am	Laparoscopic approach: Technique and outcomes	Samuel Szomstein
8:15am	How to manage a recurrence after anterior approach	Michael Rosen
8:30am	How to manage a recurrence after laparoscopic approach	Emanuele Lo Menzo
8:45am	Management of Neuralgias after inguinal hernia repair	Jerrold Young
9:00am	Q&A/Discussion	

9:15-10:20 am THE ABDOMINAL WALL PART 2: VENTRAL HERNIAS

Chair: Jerrold Young **Co-Chair:** Emanuele Lo Menzo

10-minute Case Presentation: A 40 y/o male with a history of subtotal colectomy with end ileostomy for trauma presents with a large symptomatic recurrent ventral and parastomal hernia.

Present best treatment options based on evidence presented by faculty

9:15am	Open Repair: Technique and Outcomes	Jerrold Young
9:25am	Laparoscopic Repair: Technique and outcomes	Samuel Szomstein
9:35am	Recurrent Ventral Hernia / Component Separation	Michael Rosen
9:45am	Parastomal Hernias	Emanuele Lo Menzo
9:55am	Q&A/Discussion	

10:15am Break and **Exhibits**

10:35am-12:00pm DIAPHRAGMATIC HERNIAS AND GERD

Chair: Jeffery Ponsky **Co-Chair:** Raul Rosenthal

10-minute Case Presentation: A 75 y/o female with a large recurrent hiatal hernia, GERD and Barrett's esophagus presents to our consultation with complaints of high-grade dysphagia. Show Ph and Manometry, Endoscopy, and CT Scan.

Present best treatment options based on evidence presented by faculty.

10:35am	Understanding how to read Ph and Manometry	Alison Schneider
10:45am	When to operate and when not to	Jeffery Ponsky
10:55am	Best endoscopic treatment modalities	Tolga Erim
11:05am	Laparoscopic hiatal hernia repair without mesh	Emanuele Lo Menzo
11:15am	Recurrent Hiatal Hernia repair	Bernard D'Allemagne
11:25am	Management of Complex GE Junction Catastrophes	Raul Rosenthal
11:35am	Update on Barrett's Esophagus	Jeffery Ponsky
11:45am	Q&A/Discussion	
12:00pm	Lunch and Exhibits	

1:00-2:00pm ACHALASIA AND ESOPHAGEAL DIVERTICULAE

Chair: Raphael Bueno **Co-Chair:** Raul Rosenthal

1:00pm	Manometry and Non-Surgical Treatment Options	Alison Schneider
1:10pm	POEM	Jeffery Ponsky
1:20pm	Redo Nissen Fundoplication	Raphael Bueno
1:30pm	Redo Heller's for Recurrent Achalasia	Raul Rosenthal
1:40pm	Megaesophagus	Raphael Bueno
1:50pm	Esophageal Diverticula: When and what to do	Bernard D'Allemagne
2:00pm	Q&A/Discussion	
2:20pm	Break and Exhibits	

2:50-4:00pm ESOPHAGEAL CANCER

Chair : Raphael Bueno **Co-Chair:** Raul Rosenthal

10 mins. Case Presentation: A 55 y/o male with a history of heavy smoking, alcohol abuse, liver cirrhosis and GERD presents with newly diagnosed T1N0 Adenocarcinoma of the distal esophagus. Best treatment modalities based on evidence presented by the faculty.

2:50pm	Diagnostic algorithm	Ronnie Pimentel
3:00pm	Endoscopic treatment modalities	Jeffery Ponsky
3:10pm	Neoadjuvant or Adjuvant Chemotherapy	Timmy Nguyen
3:20pm	Minimally Invasive Approach	Raphael Bueno
3:30pm	Q&A/Discussion	

3:50–5:10pm NUTS AND BOLTS IN FOREGUT SURGERY: HOW TO DO IT

The European School of Laparoscopic Surgery Presents

Chair: Guy Bernard Cadiere **Co-Chair:** Raul Rosenthal

3:50pm	Esophagectomy: Prone Position	Guy Bernard Cadiere
4:10pm	Total Gastrectomy	Juan Santiago Azagra
4:30pm	Nissen Fundoplication	Bernard D'Allemagne
4:50pm	Reoperative Bariatric Surgery	Benjamin Cadiere
5:10pm	Q&A/Discussion	

5:30–6:45pm UPDATE ON SURGICAL TREATMENT MODALITIES FOR GASTRIC NEOPLASMS

Chair: Juan Santiago Azagra **Co-Chair:** Raul Rosenthal

5:30pm	Update on epidemiology of Gastric Neoplasms	Attila Csendes
5:45pm	Difficult case videos for GISTs: How to do it?	Sungsoo Park
6:00pm	Current Indications for the Csendes Procedure	Attila Csendes
6:15pm	Impact of Robots in Gastric surgery	Joong-Min Park
6:30pm	Q&A/Discussion	
6:45pm	Adjourn	

Saturday, February 6

Hepatobiliary, Pancreatic and Transplantation Surgery of the Biliary Tree

7:30–8:45am MANAGEMENT OF COMPLEX BILE DUCT STONES

Chair: Matthew Walsh **Co-Chair:** Conrad Simpfendorfer

10 mins. Case Presentation: A 64 y/o female sp/gastric bypass and cholecystectomy presents with new onset of elevated amylase and LFT's. CT Scan of the abdomen and MRCP are presented for discussion. Best treatment modality to be decided based on evidence presented by faculty.

7:30am	ERCP / MRCP for Biliary pancreatitis	Luis Lara
7:45am	Diagnostic algorithm and management of CBDS	Alberto Raul Ferreres
8:00am	Laparoscopic techniques of CBDE	Raul Rosenthal
8:15am	Pancreatic Pseudocysts: When and what to do	Conrad Simpfendorfer
8:30am	Discussion	

8:45–10:00am COMMON BILE DUCT INJURIES

Chair: John Fung **Co-Chair:** Matthew Walsh

A 34 years old female undergoes a laparoscopic cholecystectomy for a 3mm gallbladder polyp. During surgery a Cholangiogram fails to demonstrate the upper radicals. The surgeon carries out the operation apparently without complications. Postoperatively the patient becomes jaundice and

febrile and is transferred to our institution. CT Scan of the abdomen and MRCP are presented for discussion. Best treatment modality to be decided based on evidence presented by faculty.

8:45am	Endoscopic Management of Bile leaks and CBDI	Ronnie Pimentel
9:00am	How to avoid CBDI	Alberto Raul Ferreres
9:15am	Surgical approach to CBDI	John Fung
9:30am	Liver Transplant for complex or complicated CBI	Charles Miller
9:45am	Q&A/Discussion	
10:00am	Break and visit Exhibits	

10.15–11:30am THE ROBERT E. HERMANN ANNUAL LECTURE

Chair: John Fung MD **Co-Chair:** Matthew Walsh MD

10:15am	Introduction	Matthew Walsh and John Fung
10:30am	Controversies in Surgical Management of Pancreatic Cancer	Keith Lillemoe
11:15am	Q&A/Discussion	
11:30am	Lunch (Dessert and coffee served in Exhibit Hall)	

12:30–1:30pm UPDATE ON HIPEC

Chair: Shri Chalikonda **Co-Chair:** Conrad Simpfendorfer

10 mins. Case presentation. Shri or Conrad to describe best-case scenario.

12:30pm	Indications and Contraindications for HIPEC	Conrad Simpfendorfer
12:50pm	Technique and Outcomes	Sricharan Chalikonda
1:10pm	Q&A/Discussion	

1:30-2:30pm TECHNICAL PEARLS OF WHIPPLE PROCEDURES

Chair: Matthew Walsh **Co-Chair:** Conrad Simpfendorfer

1:30pm	Best approaches: Open, Laparoscopic or Robotic?	Matthew Walsh
1:45pm	Best techniques for pancreatic duct anastomosis	Keith Lillemoe
2:00pm	To preserve or not to preserve the pylorus: Does it matter?	Avram Cooperman
2:15pm	How to safely resect the unresectable pancreatic neoplasm	Jakob Izbicki
2:30pm	Q&A/Discussion	
2:45pm	Break and Exhibits	

3:00-4:45pm UPDATE ON LIVER TRANSPLANTATION

Chair: Andreas Tzakis **Co-Chair:** Charles Miller

3:00pm	Choosing Donors and Harvesting techniques	Diego Reino
3:15pm	Liver transplantation for neoplasms	Gabriel Schnikel
3:30pm	Living related donor: Technique and outcomes	Charles Miller
3:45pm	Liver transplantation in cirrhotic patients	Melissa J. Watson

4:00pm Diagnosis and management of complications after OLT Andreas Tzakis
4:15pm Q&A/Discussion

4:30-5:15pm SPECIAL LECTURE

Chair: John Fung

4:30pm Indication, techniques and outcomes of Small Bowel Transplantation:
Prospective from a pioneer Kareem Abu-Elmagd
5:00pm Q&A/Discussion

5:15-6:00pm SURGERY OF THE SMALL BOWEL

Chair: Kareem Abu-Elmagd **Co-Chair:** Raul Rosenthal

5:15pm The role of laparoscopy in surgery of the small bowel Javed Raza
5:30pm Update on Small Bowel Carcinoid Petachia Reissman
5:45pm Q&A/Discussion
6:00pm Adjourn

Sunday, February 7

Bariatric Surgery Day

7:30-8:30 am NEW TRENDS IN BARIATRIC SURGERY

Chair: Natan Zundel **Co-Chair:** Raul Rosenthal

7:30am Medical Treatment: New and Approved Drugs for weight loss Eric DeMaria
7:45am Endoscopic Balloons Natan Zundel
8:00am V Bloc Scott Shikora
8:15am Q&A/Discussion

8:30-9:45am SELECTED TOPICS IN BARIATRIC SURGERY

Chair: Scott Shikora **Co-Chair:** Eric De Maria

8:30am Best treatment choices in BMI greater than 50 Kelvin Higa
8:45am Best treatment choices in BMI less than 40 Alan Wittgrove
9:00am Best treatment choices in Diabetics: How to make a decision Phillip Schauer
9:15am Should we still be doing BPDDS? If yes, when and why? Michel Gagner
9:30am Q&A/Discussion

9:45 am Breaks and Exhibits

10:15-11:15am WALTER PORIES ANNUAL LECTURE

Chair: Walter Pories **Co-Chair:** Raul J. Rosenthal

10:15am Introduction Raul Rosenthal
10:30am How to measure quality in bariatric surgery John Morton

11:15am-12:30pm MINI GASTRIC BYPASS, PLICATION, SADI AND ILEAL INTERPOSITION: FACT OR FICTION?

Chair: Phillip Schauer

11:15am Mini Gastric Bypass
11:30am Ileal Interposition
11:45am SADI
12:00pm Plication
12:15pm Q&A/Discussion

Co-Chair: S. Szomstein

Eric De Maria
Kelvin Higa
Natan Zundel
Almino Cardoso Ramos

12:30pm Lunch (Dessert and coffee served in **Exhibit** Hall)

1:30–2:30pm SPECIAL LECTURE

Chair: Raul Rosenthal

1:30pm Gut Failure and indications for autologous transplantation in patients with catastrophes after bariatric procedures
2:15pm Q&A/Discussion

Kareem Abu-Elmagd

2:30–3:45pm GASTROPARESIS: DIAGNOSIS AND TREATMENT MODALITIES

Chair: Alison Schneider **Co-Chair:** Raul Rosenthal

10 minutes case presentation: A 35 y/o type 1 severely obese patient presents with signs and symptoms of severe gastroparesis. Medical history is remarkable for GERD, DM and subtotal colectomy for UC.

Best treatment modality?

2:30pm Diagnosis and Medical Treatment
2:45pm External Electrostimulation: Technique and outcomes
3:00pm Enterra: Technique and Outcomes
3:15pm Surgical options: Pyloroplasty, gastric Sleeve and Bypass
3:30pm Q&A/Discussion
3:45pm Break and **Exhibits**

Andrew Ukleja
Andrew Ukleja
Raul Rosenthal
Emanuele Lo Menzo

4:00–4:40pm SPECIAL LECTURE NEW PROSPECTIVES ON METABOLIC SURGERY

Chair: Raul Rosenthal

4:00pm Abdominal obesity, visceral fat and a new metabolic index for metabolic diseases
4:30pm Q&A/Discussion

Sungsoo Park

4:40–6:20pm VIDEO BASED MINI-SYMPOSIUM ON TECHNICAL PEARLS IN REOPERATIVE SURGERY

Chair: Kelvin Higa **Co-Chair:** John Morton

4:40pm	Classification and Preoperative considerations	Eric DeMaria
4:50pm	VBG to GBP	Alan Wittgrove
5:00pm	Gastric Banding to LSG or GBP	Kelvin Higa
5:10pm	Distalization for non-responders after GBP	Almino Cardoso Ramos
5:20pm	LSG to GBP or BPD	Michel Gagner
5:30pm	Strictures after LSG, Myotomy, Wedge or Bypass	Jacques Himpens
5:40pm	Internal Hernia / Mesenteric Defects: How and when to close	Scott Shikora
5:50pm	Small Bowel Complications	Samuel Szomstein
6:00pm	Proximal Gastrectomy for Chronic Leak after LSG	Raul Rosenthal
6:10pm	Q&A/Discussion	
6.30pm	Adjourn	

Measuring Educational Outcomes

The Cleveland Clinic Center for Continuing Education has established a process to measure outcomes from its CME activities to assess knowledge gains, competencies, and expected clinical practice changes (patient outcomes), as well as attendees' participation and satisfaction with the activity. Using activity evaluations at the conclusion of the program allows Activity Directors, grantors, and CME stakeholders the opportunity to determine its success, areas of improvement, and future topics. In order to measure outcomes from CME activities, the Cleveland Clinic Center for Continuing Education distributes activity evaluations to all participants. Results are compiled, analyzed, and summarized using criteria from Moore's levels of CME outcomes measurements,¹ with an emphasis on data showing achievement of levels 3 (learning), 4 (competence), and 5 (performance). The process is designed to evaluate the impact of the activity on improving clinical practices and patient outcomes, especially its effect on closing the identified health care gaps. Results are also used to assess the efficacy of the teaching methods and activity format and identify areas of educational need for future educational activities.

Activity evaluations. For its standard outcomes assessment, the Center asks participants in CME activities to complete an activity evaluation before receiving their CME certificate. Among the factors tracked in this self-assessment are the following:

- Learning objectives met by the educational presentations;
- Attendees' personal objectives met;
- Perception of bias in the presentations;
- Percentage of new content;
- Increased confidence to care for this patient population;
- Need for add'l. educational activities in the topic area;

- Commitment to change clinical practice behaviors;
- Impact of the expected changes on patient outcomes;
- Extent of patient population affected

Research indicates self-assessments completed after the activity have validity regarding outcomes measures. Retrospective evaluations have been found to correlate closely with more objective ratings.²⁻³ Research also indicates that commitments to change can provide valid measures of competency gains and clinical practice behavior changes from a medical education program.⁴⁻⁷

The Center's standardized activity evaluation form thus provides results that can be used as subjective evidence of achieving Moore's levels 3 (learning objectives) and 4 (confidence to treat) and as surrogate markers to meet level 5 (commitment to change), and level 6 (impact on patient outcomes and extent of changes).

Success in achieving outcomes. In evaluations from previous CME activities presented by the Cleveland Clinic, most respondents have indicated that the educational presentations met their learning objectives and those stated for the activity, the evidence was presented objectively, and the material was predominately new.

Importantly, CME educational activities have the potential to make substantial positive effects on clinical outcomes — 96% of respondents at 2009 and 2010 CME-Certified activities indicated that they were likely to change their practice behaviors as a result of information learned at the courses. This was supported by results showing that 98% rated the quality of the educational content as good or excellent and between 98% and 100% noted that each of the specific objectives were met.

Evaluation summaries with outcome results are provided to the activity director, grantors, and CME stakeholders.

References

1. Moore DE Jr, Green JS, Gallis HA. Achieving desired results and improved outcomes: integrating planning and assessment throughout learning activities. *J Contin Educ Health Prof* 2009;29(1):1-15.
2. D'Eon M, Sadownik L, Harrison A, Nation J. Using self-assessments to detect workshop success: do they work? *Am J Eval* 2008;29(1):92-8.
3. Davis DA, Mazmanian PE, Fordis M, et al. Accuracy of physician self-assessment compared with observed measures of competence. *JAMA*. 2006; 296(9):1094-1102.
4. Lockyer JM, Fiddler H, Ward R, et al. Commitment to change statements: a way of understanding how participants use information skills taught in an educational session. *J Contin Educ Health Prof*. 2001;21:82-9.
5. Wakefield JG. Commitment to change: exploring its role in changing physician behavior through continuing education. *J Contin Educ Health Prof* 2004;24:197-204.
6. Wakefield J, Herbert CP, Maclure M, et al. Commitment to change statements can predict actual change in practice. *J Contin Educ Health Prof* 2003;23:81-93.
7. Shershneva MB, Wang MF, Lindeman GC, et al. Commitment to practice change: an evaluator's perspective. *Eval Health Prof*. 2010; 33(3):256-75.