



Chris Jacob Johan Mulder, Professor, Series Editor

Digestive oncologist in the gastroenterology training curriculum

Chris Jacob Johan Mulder, Marc Peeters, Annemieke Cats, Anna Dahele, Jochim Terhaar sive Droste

Chris Jacob Johan Mulder, Anna Dahele, Jochim Terhaar sive Droste, Department of Gastroenterology and Hepatology, VU University Medical Center, 1007 MB, Amsterdam, The Netherlands

Marc Peeters, Department of Oncology, Antwerp University, Hospital Antwerp, B-2650 Belgium, The Netherlands

Annemieke Cats, Department of Gastroenterology and Hepatology, Netherlands Cancer Institute, 10662X, Amsterdam, The Netherlands

Author contributions: Mulder CJJ, Peeters M, Cats A, Dahele A and Terhaar sive Droste J wrote this article.

Correspondence to: Chris Jacob Johan Mulder, MD, PhD, Department of Gastroenterology and Hepatology, VU University Medical Center, PO Box 7057, 1007 MB, Amsterdam, The Netherlands. cjmulder@vumc.nl

Telephone: +31-20-4440613 Fax: +31-20-4440554

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Abstract

Until the late 1980s, gastroenterology (GE) was considered a subspecialty of Internal Medicine. Today, GE also incorporates Hepatology. However, Digestive Oncology training is poorly defined in the Hepatogastroenterology (HGE)-curriculum. Therefore, a Digestive Oncology curriculum should be developed and this document might be a starting point for such a curriculum. HGE-specialists are increasingly resisting the paradigm in which they play only a diagnostic and technical role in the management of digestive tumors. We suggest minimum endpoints in the standard HGE-curriculum for oncology, and recommend a focus year in the Netherlands for Digestive Oncology in the HGE-curriculum. To produce well-trained digestive oncologists, an advanced Digestive Oncology training program with specific qualifications in Digestive Oncology (2 years) has been developed. The schedule in Belgium includes a period of at least 6 mo to be spent in a medical oncology department. The goal of

these programs remains the production of well-trained digestive oncologists. HGE specialists are part of the multidisciplinary oncological teams, and some have been administering chemotherapy in their countries for years. In this article, we provide a road map for the organization of a proper training in Digestive Oncology. We hope that the World Gastroenterology Organisation and other (inter)national societies will support the necessary certifications for this specific training in the HGE-curriculum.

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INTRODUCTION

Until the late 1980s, gastroenterology (GE) was considered a subspecialty of Internal Medicine. However, since then, GE has become more complex, in both endoscopy and drug therapy, and the speciality now also incorporates Hepatology. We now train Hepatogastroenterologists (HGE-specialists). It is a challenge to develop a training program that will produce HGE-specialists who are competent in all aspects of HGE by the end of their program^[1,2].

In 2002, the Dutch Board for Hepatogastroenterol-

ogy extended GE training to 4 years, with a Common Internal Medicine Trunk of 2 years^[3]. In the final year of training, a fellow subspecializes, if possible/desirable, in advanced endoscopy, neuromotility, hepatology, or (digestive) oncology. Training in hepatology has been well defined^[4,5]. Digestive Oncology training is currently poorly defined^[1]. The European Board for Gastroenterology and Hepatology has defined subspecialties in advanced endoscopy, hepatology, clinical nutrition, and, indeed, Digestive Oncology. However, a proper curriculum is lacking (<http://www.eubog.org>)^[6]. The World Gastroenterology Organisation (WGO) formulated a document outlining standards for HGE training^[5]. However, again Digestive Oncology was poorly defined. Therefore, a Digestive Oncology curriculum needs to be developed and subjected to regular revision. This document serves as a starting point for such a curriculum.

DIGESTIVE ONCOLOGY

Today, there are remarkable opportunities for those seeking a career in Digestive Oncology^[1,7]. The revolution in molecular biology, advances in interventional endoscopy and anti-cancer therapies, as well as the management of subsequent treatment-related side effects, have permanently changed the way we care for our patients with digestive tumors. HGE-specialists are increasingly resisting the paradigm in which they play only a diagnostic or technical role in the care of digestive tumors. They now perceive the empty space they need to fill with their knowledge. HGE-specialists are pre-eminently competent to organize supportive care around the Digestive Oncology patient. They recognize the caveats in the poor nutritional condition of the patient and are able to immediately take supporting measures that are necessary for completion of the patient's treatment. This also holds true for situations in which patients experience toxicity induced by different anti-cancer treatments. A new generation seeks to assume this more central role in the multidisciplinary care of our patients. With proper training, we see no reason why future generations of gastroenterologists should be barred from the delivery of anti-cancer therapies, because some might term it "chemotherapy".

Minimally invasive laparoscopic approaches have been developed for almost all digestive tumors, and image-guided intervention is providing an innovative therapeutic option for early cancers^[8]. Modern evidence-based "outcomes research" provides an objective tool for assessing clinical results. Patient-completed questionnaires and standardized assessment of individual preferences have helped us to understand survivorship issues among Digestive Oncology patients, including the long-term effects of treatment on quality of life^[9,10].

The HGE-specialist has the immense advantage that he/she has can both recognizing malnutrition or obstructing symptoms threatening the patient's condition in an early state, can subsequently visualize this endoscopically, and can then take the necessary measures to resolve

such devastating situations. Obviously, full insight into the possible treatment plan for this vulnerable patient group is warranted.

Surgical excellence remains critically important in the field of Digestive Oncology. Despite the development of modern anti-cancer drug therapy, (intra-operative) radiotherapy, and the combined use of these treatment modalities, the need for optimal surgery has not been eliminated. Rather, the pre-operative use of such therapies has challenged surgeons to develop the necessary skills to operate on highly pre-treated tumors, whilst simultaneously reducing the burden of surgical morbidity. Similarly induction chemo(radio)therapy for oesophageal and gastric cancers has also expanded the role of surgery, by allowing the resection of some cancers previously considered inoperable^[11,12]. Future leaders in Digestive Oncology must be skilled gastroenterologists and surgeons capable of advanced endoscopy, laparoscopic techniques, and image-guided therapy. They must also be scholars, well versed in the nuances of modern diagnostic and staging procedures, fully appreciative of the benefits and limitations of anti-cancer therapy (chemotherapy, immunological, and targeted therapy) and radiation therapy (including chemoradiation).

Comprehensive training also requires exposure to research, either in the basic sciences, translational research, and/or clinical trials. This will prepare future HGE-specialists to explore hypotheses about digestive tumors in an effort to improve patient care.

SOCIETIES FOR DIGESTIVE ONCOLOGY

The European Society of Digestive Oncology (ESDO) was founded in 2008 (<http://www.esdo.com>). Currently, more and more academic centres are offering fellowships in Digestive Oncology. According to the ESDO membership details, essential requirements of the digestive oncologist include: expertise in multidisciplinary care, the ability to perform and understand the limitations of complex tumor treatments, a clear understanding of the biology and science of digestive tumors, and the ability to collaborate in (translational) research. We suggest that active membership of ESDO should be encouraged for HGE-specialists who devote > 50% of their total professional activity to the field of digestive tumors, who have presented at least one oncology paper in a national meeting, are board certified by the European Board of Gastroenterology and Hepatology (<http://www.eubog.org>) or the respective equivalent in their country of origin, and have additional oncology experience following formal HGE training. The goal of advanced training in Digestive Oncology is to enhance knowledge and skills beyond the expertise obtained during a normal HGE residency program. The duration of advanced fellowship training might be 24 mo, with a minimum of 12 mo of clinical exposure during the formal 6 years of HGE training (focus year) and 12 mo of formal Digestive Oncology. If applicants have completed research in Diges-

tive Oncology, for example a PhD under the auspices of governing bodies such as ESDO (or equivalent in their country), they might apply to have the 6 mo research requirement waived during their 24 mo of advanced fellowship training in Digestive Oncology: this should be discussed.

PROGRAMS IN DEVELOPMENT

All training programs are required to provide a structured educational experience at an advanced level to ensure that trainees acquire the knowledge and skills necessary to gain expertise beyond that acquired in the standard HGE residency^[1]. Access to patient care and multidisciplinary team discussions with medical oncologists, radiation oncologists, surgeons, pathologists, and radiologists who have expertise in digestive tumors are an additional requirement for the trainees. Programs must provide structured clinical opportunities for trainees to develop advanced skills in interventional endoscopy. Each fellow on the advanced Digestive Oncology program should be involved in at least 100 major interventional procedures for the treatment of digestive tumors. Additionally, a research component should be discussed with structured supervision for at least 6 mo. If basic science laboratory training is offered, the necessary facilities must be available under the supervision of a trainer who has demonstrated at least a national reputation in research, as evidenced by publications in peer-reviewed journals, and membership of digestive oncological societies. As an example of one of the Dutch HGE-approved fellowships for a focus year in formal HGE training, the following section describes the suggested curriculum for Digestive Oncology.

DIGESTIVE ONCOLOGY IN THE DUTCH TRAINING OF HGE-SPECIALISTS (FOCUS YEAR)

In the Netherlands, during the last year of HGE training, it is possible to focus on Digestive Oncology^[3]. In this year, a minimum of six sessions per week must be spent on oncology-related activities in the context of the focus area. The content of the training within the professional body and the terms for the fellowship have been designed under the auspices of the National Board for Hepato-Gastroenterology.

END OF TRAINING COMPETENCIES

Knowledge

Knowledge of the duties/remit as described by the end of training competencies for general HGE-specialists, with particular emphasis on anti-cancer drug treatment and radiotherapy treatment possibilities; knowledge of primary and secondary prevention of digestive tumors; knowledge of hereditary cancer and polyposis syndromes

affecting the digestive tract; knowledge of the rarer digestive tumors, such as anal carcinomas, hepatocellular carcinomas, GI-lymphomas (MALT-lymphomas and Enteropathy Associated T-cell lymphomas), GIST tumors, neuro-endocrine tumors, cystic pancreas tumors; knowledge of advanced endoscopic techniques for diagnosis, staging, and treatment of pre-malignant disorders of the gastrointestinal tract, such as chromo-endoscopy, Endoscopic Ultrasonography (EUS), ablative techniques, and endoscopic mucosal resection; knowledge of palliative care for malignant digestive disorders and early recognition patients in need of nutritional support; and knowledge of side-effects of different anti-cancer treatment modalities.

Skills

Skill in procedures such as those described by the end of training general HGE-specialists; optional (overlap with focus year of advanced endoscopy); endoscopic treatment of malignant stenoses of the oesophagus, stomach, duodenum, and colon; recognition and identification of premalignant lesions; endoscopic treatment of anastomotic leakages after surgery; percutaneous endoscopic gastrostomy (PEG) placement; endoscopic ultrasound (EUS) and EUS-guided fine needle aspiration (FNA); endoscopic ablative treatment, such as Photo-Dynamic Therapy, electrocoagulation, argon plasma coagulation (APC), and intraluminal radiotherapy; and endoscopic mucosal resections in the oesophagus, stomach, duodenum, and colorectum.

Learning environment

A minimum of two HGE-specialists with an interest in oncology, one of whom is recognised as a mentor by the National Society in the focus area; weekly multidisciplinary oncology meetings; and practice within the department in EUS, including diagnostic biopsy, endoscopic ablative treatment methods, intraluminal radiotherapy, endoscopic treatment of malignant stenoses in the oesophagus, stomach, duodenum, and colorectum, and endoscopic mucosal resections. The department should be active in the development of newly targeted endoscopic diagnostic and therapeutic modalities for pre-malignant abnormalities. Within the hospital the personnel should include: registered medical oncologists (internist-oncologist), minimum two; registered surgical oncologists (surgeon-oncologist), minimum two; radiation oncologists, minimum two; and a clinical geneticist, possibly seconded or on a consultative basis.

Training

(Endoscopic) activities, based on the end of training targets; medical oncology, minimum 40 sessions; radiation oncology, minimum 10 sessions; attendance at oncological/surgical interventions (oesophageal resection, gastric resection, pylorus-preserving pancreatoduodenectomy (PPPD), liver resection, colon resection, total mesorectal excision (TME)-resection, only once); a minimum of 10

sessions of pathology; and a minimum of 10 sessions of clinical genetics.

Participation in discussions and structured consultations

At least weekly multidisciplinary oncology meetings with minimum participants to include an internist-oncologist, an oncological surgeon, a radiotherapist, a radiation oncologist, a pathologist, and a nuclear medicine specialist. At least one meeting per quarter should include a clinical geneticist.

Scientific activities

Conference attendance: minimum of one attendance at an international clinical oncology conference (ASCO, ESMO, ESDO) or an international interdisciplinary Digestive Oncology conference. The fellow should take an active part in a research project in the area of oncology, preferably in the context of a research degree. The fellow should write at least one scientific publication on an oncology-related subject and present at least one abstract concerning an oncology-related subject at a national or international conference.

Quality control

GI training and quality inspection at a regular interval of at least 5 years, organized and supervised by the national society for HGE.

Educational supervision

Trainers are required to provide appraisal during training and assessment that contributes to the evidence of competence of the fellow, who is recommended to provide a portfolio of assessed cases. Trainers must provide adequate on-site supervision for trainees at all times, as defined in the curriculum. Satisfactory assessments from trainers and completed log books that demonstrate that the fellow meets the criteria of competence are required for a fellow to be assessed as competent in Digestive Oncology (focus year).

Advanced Digestive Oncology training in Belgium (2 years)

The HGE-specialist of the future, or at least some of them, desire continuous care for their digestive tumor patients. To treat them, however, HGE-specialists should acquire skills. The necessary skills are currently beyond those taught during the HGE training in most countries. Since the beginning of 2010, there has been official recognition of HGE-specialists with a specific qualification in Digestive Oncology in Belgium^[13]. To obtain this qualification, the candidate has to do one oriented year (focus year) during the main training years for HGE and one additional year. Six months of this training period needs to be spent in a medical oncology department. The curriculum will be focused on: (1) the pathophysiology of the different types of gastrointestinal tumors; (2) diagnostic management; (3) development of a multidisciplinary treatment plan; (4) the correct administration of systemic treatments, including chemo- and immunothera-

py, biological and genetic treatments; (5) the management of side effects; (6) the management of tumor-related and iatrogenic complications; (7) cancer registration; (8) multidisciplinary approaches; (9) the evaluation and conception of clinical trials; and (10) active participation in palliation. To maintain their recognition, more than 50% of the specialist's working time has to focus on oncology.

Standards for safe administration of treatment

Chemotherapy ordering, preparation and administration; patient education and informed consent; staff education and training; assessing how patients respond to treatment; monitoring patient-related toxicity.

DIGESTIVE TUMORS

Risk factors in HGE-cancers; indicators for endoscopy in diagnosis; indicators for endoscopy in staging; indicators for nutritional support; combined modality therapy; role of palliative chemotherapy; chemoprevention; (family) screening; and genetic testing. The Curriculum of the European Society for Medical Oncology (ESMO) and the American Society of Clinical Oncology (ASCO) described in the Global Core Curriculum for training in Medical Oncology provides the main framework for the training for Digestive Oncology^[14].

FUTURE EUROPEAN BOARD PROGRAM DESCRIPTION

The goal of the future European HGE-Board fellowship program remains to produce, for the local countries, a framework of well-trained digestive oncologists who will be leaders in academic Digestive Oncology and be qualified to promote improvements in national care to reduce the incidence, morbidity, and mortality of digestive cancer, and improve quality of life^[6]. Disease management teams include specific cancer sites (oesophageal, gastric, colorectal cancer (CRC), pancreatic, liver, hepatobiliary, anal, neuroendocrine, and gastrointestinal stroma cell tumors) and comprise surgeons, (digestive) oncologists, radiation oncologists, palliative care physicians, dieticians, pathologists, radiologists, nuclear physicists, clinical geneticists, and laboratory researchers. In case of GI-lymphomas, such management teams should also include hematologists. Working in these disease management teams, fellows have an opportunity to participate in the development of multidisciplinary management plans for patients, as well as the design and pursuit research opportunities, including clinical trials. The role of these teams includes, for example, the enhancement and promotion of CRC-screening, early tumor detection, primary and secondary prevention, and management of pre-malignant or malignant HGE diseases, as well as the translation of research into the clinical setting.

CLINICAL EXPERIENCE

The future program of the European Board's curriculum

should be designed to provide the fellow with a practical knowledge of the most up-to-date diagnostic and therapeutic strategies for digestive tumors^[15]. The aim is to develop familiarity with, and stimulate interest in, clinical and laboratory studies designed to advance knowledge in the field. The responsibility for clinical care is shared by the faculty, fellows, residents, medical students, and nurse practitioners. Fellows are directly involved in the management of patients with digestive tumors. The volume and nature of the clinical experience is such that the fellow has an opportunity to participate in the management of patients with all types and stages of digestive tumors.

TRAINING CRITERIA

During the general HGE training, fellows should acquire better theoretical knowledge of the etiology, pathogenesis, natural history, clinical manifestation, work-up, and treatment of digestive tumors^[15]. Such knowledge should include nutrition, if necessary pre-operative, during treatment, and for palliative care. Knowledge of logistics, health care economics, and medical ethics seems mandatory^[16]. The fellow must have observed, and been responsible for, adequate numbers of patients with digestive tumors, both as inpatients and outpatients. Such patients include those with complications encountered during work-up, surgery, chemotherapy and radiotherapy. They should also include those in need of enteral and parenteral nutritional support, such as nasogastric feeding, PEG-/percutaneous endoscopic jejunostomy (PEJ)-feeding. Close cooperation with a hospital dietician should be part of this.

Clinical experience must be gained in paid positions, obtained by open and transparent competition. Teaching must be an integral part of this Digestive Oncology program. Supervision of clinical work should be defined locally.

DIDACTIC EDUCATION

The goal of the advanced 24-mo educational program of the European Board of HGE is to provide a broad view of all aspects of digestive tumours, and a familiarity with diagnostic and therapeutic approaches. Rotations in medical oncology for at least 4-8 mo are supplemented by lectures on systemic therapy. In an oncology setting, staff work in the presence of patients with cancer every day. The emotional impact of this work must be recognized, and fellows should be coached on this, not only to appreciate the impact of the cancers on the patients, but also on the impact of oncology care on non-licensed support staff^[17].

ONCOLOGY IN THE STANDARD HGE-CURRICULUM

The description of the end of training competency, learning environment, and the training are as indicated in

the Gastroenterology Consensus Document in the Netherlands dated 14 December 2004^[1,3].

With relation to oncology, we can quote from the current terms the following passages: (1) General end of training competency: medical aspects: prevention; knowledge of preventative medicine with emphasis on pre-malignant disorders of the digestive tract; and (2) specific syndromes: (a) the specialist is experienced in the area of malignant disorders of the digestive tract; and (b) during the training in HGE there should be sufficient attention and space for the following basic courses: (i) Clinical genetics; and (ii) Clinical epidemiology.

An important part of the workload of HGE-specialists involves oncology. Areas in which the HGE-specialist must have expertise and skills include: (1) prevention, screening and surveillance; (2) diagnosis and staging; (3) endoscopic therapy, both curative and palliative; (4) supportive treatment, for example in relation to nutrition; and (5) diagnosis and treatment of both short-term and long-term complications of oncological therapies, for example radiation damage and drug-induced treatment induced mucositis.

CRITERIA FOR THE END OF THE TRAINING COMPETENCY IS SPECIFIED AS FOLLOWS

Knowledge

Basic knowledge of epidemiology and pathogenesis of the frequently occurring digestive tumors; knowledge of symptomatology, diagnosis and staging of frequently occurring digestive tumors; basic knowledge of rare digestive tumors; basic knowledge of molecular tumor biology; knowledge of familial tumor syndromes, such as familial adenomatous polyposis (FAP), hereditary non-polyposis colorectal cancer (HNPCC), and MYH-associated polyposis (MAP), including surveillance advice and knowledge of indications for referral to clinical genetic centres; knowledge of surveillance (pro's and cons) of premalignant disorders, such as Barrett's oesophagus, intestinal metaplasia and atrophy in the stomach, adenomatous polyps, and ulcerative colitis; knowledge of policy with relation to the follow-up after anti-cancer treatment; knowledge of the screening of the general population for pre-malignant and malignant disorders of the digestive tract; knowledge of the current range of abdominal imaging techniques with relation to oncological diagnosis, and their indications; familiarity with microscopic pre-malignant and malignant disorders of the digestive tract; knowledge of endoscopic treatment possibilities with curative and palliative intent; basic knowledge of other treatment modalities, such as surgery, radiotherapy, and chemotherapy; basic knowledge with relation to the development of neo-adjuvant and adjuvant treatments of the different digestive tumors; knowledge of nutrition as an integral part of treatment and of the different ways that feeding can be administered; and knowledge of di-

gestive problems in patients with non-gastroenterological tumors, for example radiation enteritis and proctitis, and the metastasis and ingrowth of other tumors into the digestive tract (breast cancer, melanoma).

Skills

Conventional endoscopic diagnosis of tumors of the digestive tract; global assessment of current abdominal imaging techniques in the context of oncological diagnosis; endoscopic resection of colorectal and gastric polyps; treatment of mild to moderately severe radiation proctitis with the use of APC; PEG placement; drainage of malignant ascites; delivery of bad news and the counselling of patients and their family members.

Learning environment

Each HGE training clinic must have the necessary facilities to integrate oncological aspects of digestive medicine into general training. The HGE-specialist should participate in multidisciplinary oncological discussions concerning abdominal tumors.

Training

There is no reason to introduce a separate oncological training period into the general HGE training program. This is only required for those individuals choosing to specialize in Digestive Oncology (focus year). Through local, regional and national teaching courses, much of the knowledge that is not accumulated in daily practice can be acquired to fulfil the end of training competency.

Review

To develop anonymous national assessment tests. Test frequency of once every 2 years.

Monitoring

Through HGE trainer.

Quality control

HGE training and quality inspection.

HGE-TRAINING AROUND THE WORLD

Differences in HGE training between the USA/Europe, India/China and, for example Sub Saharan Africa, are magnified by the obvious resource gaps between Third and First World countries. Redesigning training programs more efficiently would be another goal based on a common trunk system for HGE^[18]. India and China, with a common trunk of Internal Medicine for 2-3 years, have incorporated private hospitals into their programs. Well-equipped private hospitals should be used during Digestive Oncology focus years in the East and West. In Eastern Europe, Ministers of Health recently suggested that training for HGE should be reduced to 4 years in total^[19]. Arguments about specialist training are getting louder as governments get poorer because the current credit crisis. However, a properly organized scheme for Digestive On-

cology is mandatory to give patients the best chance of benefiting from national resources.

CONCLUSION

In this article, we present the critical elements of multidisciplinary fellowship training for the digestive oncologist, and suggest minimal competencies for the standard HGE-curriculum. Digestive Oncology is substantially under-represented in the undergraduate and postgraduate curricula of present day HGE training programs. Cancer prevention and screening, in particular, have suffered from poor exposure in the past^[20,21].

At the present time, the HGE specialist organizes the work-up, endoscopic-intervention of early digestive tumors, nutritional support and palliation of HGE-oncological patients. Interestingly, HGE-tumors are diagnosed by endoscopists often at the tip of their scope. Chemotherapy (neo-adjuvant) should be included based on competence^[11,12,22]. HGE-specialists have an essential role in the treatment of complications of digestive cancer and cancer therapy, from the placement of stents to the relief of obstructions and feeding tubes/PEG's to help anorexia and malnutrition, to the management of radiotherapy-induced bowel disorders. Malnutrition increases complications and reduces tolerance to systemic treatment^[23]. The HGE-specialist has a critical role in primary and secondary prevention of digestive tumors. However, just preventing a polyp from becoming a tumor, just making a diagnosis, just staging a tumor by EUS, just making referrals, just treating early complications of the oncologist, radiotherapist or surgeons, just taking care of palliation are unlikely to be "only" roles of HGE-specialists nowadays. It is this idea of expansion of the scope of HGE-units that will necessitate advanced Digestive Oncology training for a minority of HGE-specialists. What about immunotherapy in cancer, such as is performed for IBD? What about chemotherapy, a red line for HGE-specialists? Subspecialization within medical oncology has occurred to provide the required expertise needed to provide optimal patient care. The field of Digestive Oncology is also rapidly evolving. It requires specialized knowledge and skills to appropriately and safely administer various anti-cancer drug agents, with subsequent management of their toxicities. Some HGE-specialists trained as sub-specialists of Internal Medicine already administer chemotherapy in their countries. Maintaining the continuity of patient care is certainly a worthwhile goal.

In our opinion, HGE-specialists with advanced oncology training should be part of the gastrointestinal oncology team and be able to administer anti-cancer therapy in the years to come. In this article we provide a road map to organize this training. The scope and personalization of the HGE-curriculum is our major challenge, and one that will change HGE once again in the coming years. The proper positioning of Digestive Oncology is an important part of this. We hope that the WGO, American Gastroenterology Association, the European Board of

Hepatogastroenterology, and other (inter)national societies will organize the necessary certification for this HGE-specialization.

REFERENCES

- 1 **Telleman H**, Burger TF, Mulder CJ. Evolution of gastroenterology training. *World J Gastroenterol* 2009; **15**: 1793-1798
- 2 **American Association for the Study of Liver Diseases**; American College of Gastroenterology; American Gastroenterological Association; American Society for Gastrointestinal Endoscopy. Training the gastroenterologist of the future: the Gastroenterology Core Curriculum. *Gastroenterology* 2003; **124**: 1055-1104
- 3 Concilium Gastroenterologicum Neerlandicum. Herstructurering opleiding maag-darm-leverziekten. 2006. Available from: URL: http://www.mdl.nl/uploads/240/486/HOM_definitieve_versie_t.b.v._opleidersbijeenkomst.pdf
- 4 **Farthing MJG**, Walt RP, Allan RN, Swan CHJ, Mallinson CN, Bennett JR, Hawkey CJ, Burnham WR, Morris AL, Tibbs CJ, Cobb C, Farrell C, Towle A. National Training Programme for Gastroenterology and Hepatology. Available from: URL: http://www.bsg.org.uk/pdf_word_docs/gastro_hep.pdf
- 5 **Fosman E**, Sáenz R, Yurdaydin C, Kozu T. Standards in gastroenterology training: a comprehensive guide to basic standards in gastroenterology. World Gastroenterology Organisation Education & Training Committee. Available from: URL: <http://www.worldgastroenterology.org>
- 6 Training criteria: The blue book 2009, publications-applications for fellowship in Gastroenterology. Available from: URL: <http://www.eubog.org>
- 7 **Cheung WY**, Fishman PN, Verma S. Oncology education in Canadian undergraduate and postgraduate training programs. *J Cancer Educ* 2009; **24**: 284-290
- 8 **Tanimoto MA**, Torres-Villalobos G, Fujita R, Santillan-Doherty P, Albores-Saavedra J, Gutierrez G, Martin-del-Campo LA, Bravo-Reyna C, Villanueva O, Villalobos JJ, Uribe M, Valdovinos MA. Endoscopic submucosal dissection in dogs in a World Gastroenterology Organisation training center. *World J Gastroenterol* 2010; **16**: 1759-1764
- 9 **Rosmolen WD**, Boer KR, de Leeuw RJ, Gamel CJ, van Berge Henegouwen MI, Bergman JJ, Sprangers MA. Quality of life and fear of cancer recurrence after endoscopic and surgical treatment for early neoplasia in Barrett's esophagus. *Endoscopy* 2010; **42**: 525-531
- 10 **Penson RT**, Talsania SH, Chabner BA, Lynch TJ Jr. Help me help you: support groups in cancer therapy. *Oncologist* 2004; **9**: 217-225
- 11 **Laurent S**, Monsaert E, Boterberg T, Demols A, Borbath I, Polus M, Hendlisz A, de Hemptinne B, Mahin C, Scalliet P, Van Laethem JL, Peeters M. Feasibility of radiotherapy with concomitant gemcitabine and oxaliplatin in locally advanced pancreatic cancer and distal cholangiocarcinoma: a prospective dose finding phase I-II study. *Ann Oncol* 2009; **20**: 1369-1374
- 12 **Jansen EP**, Boot H, Dubbelman R, Verheij M, Cats A. Post-operative chemoradiotherapy in gastric cancer--a phase I-II study of radiotherapy with dose escalation of weekly cisplatin and daily capecitabine chemotherapy. *Ann Oncol* 2010; **21**: 530-534
- 13 **Anonymous**, Oncology in Gastroenterology. *Belgisch Staatsblad* 2010; 5469-5473
- 14 **Hansen HH**, Bajorin DF, Muss HB, Purkalne G, Schrijvers D, Stahel R. Recommendations for a global core curriculum in medical oncology. *J Clin Oncol* 2004; **22**: 4616-4625
- 15 **Terdiman JP**. Oncology training for the gastroenterologist: a test-case for subspecialization in gastroenterology? *Gastroenterology* 2008; **135**: 1028-1031
- 16 **Thompson RH**, Eastham JA, Scardino PT, Sheinfeld J. Critical elements in fellowship training. *Urol Oncol* 2009; **27**: 199-204
- 17 **Cashavelly BJ**, Donelan K, Binda KD, Mailhot JR, Clair-Hayes KA, Maramaldi P. The forgotten team member: meeting the needs of oncology support staff. *Oncologist* 2008; **13**: 530-538
- 18 **Mulder CJ**, Puri AS, Reddy DN. Gastroenterology training in private hospitals: India vs South Africa. *World J Gastroenterol* 2010; **16**: 948-952
- 19 **Mulder CJ**. Is the future of Romanian gastroenterology training bright? *J Gastrointest Liver Dis* 2010; **19**: 243-244
- 20 **Kaminski MF**, Regula J, Kraszewska E, Polkowski M, Wojciechowska U, Didkowska J, Zwierko M, Rupinski M, Nowacki MP, Butruk E. Quality indicators for colonoscopy and the risk of interval cancer. *N Engl J Med* 2010; **362**: 1795-1803
- 21 **Terhaar Sive Droste JS**, Craanen ME, van der Hulst RW, Bartelsman JF, Bezemer DP, Cappendijk KR, Meijer GA, Morsink LM, Snel P, Tuynman HA, van Wanrooy RL, Wesdorp EL, Mulder CJ. Colonoscopic yield of colorectal neoplasia in daily clinical practice. *World J Gastroenterol* 2009; **15**: 1085-1092
- 22 **Van Cutsem E**, Nordlinger B, Cervantes A. Advanced colorectal cancer: ESMO Clinical Practice Guidelines for treatment. *Ann Oncol* 2010; **21** Suppl 5: v93-v97
- 23 **Spiro A**, Baldwin C, Patterson A, Thomas J, Andreyev HJ. The views and practice of oncologists towards nutritional support in patients receiving chemotherapy. *Br J Cancer* 2006; **95**: 431-434

S- Editor Sun H L- Editor Stewart GJ E- Editor Zheng XM