Welcome

Welcome to the December issue of NewWave. Season’s greetings and all the best for 2015!

The AGIP committee would like to welcome four new council members for 2015. Their profiles are within this issue of NewWave.

Dr Anthony Hobson        Symposium Secretary
Joanne Hayes              Treasurer
Dr Steve Perring          Council Committee Member
Barbara Unsworth          Education Secretary

We would also like to take this opportunity to thank Kate Mason and Rachel Smith for their commitment and contribution over recent years. Kate and Rachel have recently stood down from the council. We wish them all the best for the future.

Healthcare Scientists Indemnity Insurance Requirement

The Government has announced that all healthcare scientists regulated by law, including clinical and biomedical scientists, will be required to have indemnity insurance by the Summer. Following a consultation, the Government noted that the vast majority of regulated healthcare professionals will have cover through their employer or via their professional body. This new legislation is expected to come into force in July 2014. For further information go to:

http://www.ahcs.ac.uk/2014/05/all-healthcare-scientists-regulated-by-law-required-to-have-indemnity-insurance-government/
If chronic constipation makes your patient feel like this

Then relief with Peristeen can make them feel like this

There are an estimated 2 million people in the UK suffering from chronic constipation. If you have patients suffering with chronic constipation after failing conservative bowel management options, Peristeen trans anal irrigation may be an option. Peristeen is used to manage constipation and faecal incontinence in neurogenic and functional bowel dysfunction patients. It assists the evacuation of faeces from the bowel by passing water via the anus. The system involves a rectal catheter, control unit and water bag. Users simply fill the bag with lukewarm water, insert the rectal catheter and gently pump the water in. Research shows that through regular use of Peristeen, patients can control their bowel function and improve their quality of life. Peristeen is available on prescription.

For more information please visit: [www.my-bowel.co.uk](http://www.my-bowel.co.uk) or email: gbjfa@coloplast.com

**Putting you in control with Peristeen**
Intra-Operative Endolumenal Functional Imaging (EndoFLIP) may help Anti-Reflux Surgery

Abrie Botha
Consultant Upper GI Surgeon, Guy’s & St Thomas’ Hospitals, London

Laparoscopic Nissen fundoplication (LNF) is the most common surgical treatment for gastroesophageal reflux disease (GORD) and has been performed for more than 20 years. The original Nissen technique has been substantially changed during the open surgery era, and additional changes have been made since its translation to laparoscopic surgery. High-volume centres of excellence routinely report long-term success rates greater than 90% with laparoscopic Nissen. On the other hand, general population-based outcomes are reported to be markedly worse, leading to a negative perception of the procedure on the part of general practitioners and medical gastroenterologists. The lack of standardization of the Nissen technique, the practice of partial fundoplications and the lack of tools to objectively calibrate the repairs are among the causes of variability in the outcomes and may explain the decline in the number of LNF procedures over recent years.

The successful outcome of antireflux surgery depends firstly on correctly diagnosing GORD by careful history taking, gastroscopic assessment of the upper GI tract, oesophageal physiology studies and contrast XRs where indicated. A good anti-reflux operation achieves a successful and durable repair of the oesophageal hiatus, and the construction of a competent anti-reflux valve through fundoplication. To achieve ideal repairs, surgeons mainly rely on their experience (“eye-balling”), but some have used objective measurements such as intraoperative manometry, intra-operative endoscopy, and more commonly the use of an oesophageal bougie to size hiatus repair and fundoplication. Most failures and complications after anti-reflux surgery are related to poor preoperative evaluation and patient selection, failure of the hiatus repair with either stenosis or wrap herniation, or making the fundoplication too tight or too loose. As with any uncalibrated functional surgery, there will be variability in outcomes from one surgeon to the next. If the fundoplication is too loose, the patient may continue to suffer from reflux problems. If the hiatal repair is too loose, the hiatal hernia may recur. If the wrap or the hiatal repair is too tight, the patient may suffer from dysphagia, gas bloat, and nausea.

The science of impedance planimetry is more than 20 years old and has been used during that period to characterize the biomechanical properties of various lumens in the gastrointestinal tract. The technique provides the ability to measure the area of a lumen, independent of pressure. It does this by measuring the impedance between a pair of electrodes that are situated within an electric field. In the early years, only a single area measurement was made with the apparatus. In 2006, McMahon, Drewes, and Gregersen described an enhancement of the technique, whereby sequential pairs of electrodes, located on the shaft of a balloon catheter, could be used to build up an image of a lumen by permitting the area of adjacent slices to be measured simultaneously. They used the acronym FLIP, functional lumen imaging probe, to describe this catheter and measurement system. FLIP measures cross-sectional area, and diameter is calculated from this area assuming a circular cross-section. Essential to the technique is infusion of a fluid of known conductivity into the balloon to allow the creation of an electric field within the balloon and in order to establish a conductive path between the electrodes. This area-derived diameter can be measured with various volumes of fluid in the balloon to allow an assessment of the degree to which the lumen opens under different volumes of distension. By measuring pressure in the balloon, one can assess the degree to which the lumen, or a sphincter, opens for a given distending pressure.

Pandolfino first described the assessment of OGI distensibility in 2005 using radiographic measurements of a balloon filled with gastrograffin and more recently using EndoFLIP. The difference between distensibility and manometric measurements, and their respective merits in the context of fundoplication, was described by Kwiatek. In 2009, the first commercial impedance planimetry system, EndoFLIP® (endolumenal functional lumen imaging probe), was CE marked and brought to the market by Crospon Ltd. (Galway, Ireland), Figure 1.

This device, essentially a ‘smart bougie’, is a measurement system in the form of a balloon catheter that measures a cross-sectional area at 16 points along the shaft using impedance planimetry, this allows a compliance measurement of the oesophago-gastric junction (OGI) during surgery. Results are displayed in an intuitively interpretable 2-dimensional topographical format. Figure 2 shows a sample image produced by the system.
We recently did a feasibility study to assess whether the EndoFLIP catheter can be safely used during laparoscopic anti-reflux surgery. Once the patients were fully anaesthetised the EndoFLIP catheter was passed by mouth and measurements of the OGI distensibility were made during different parts of the operation. We found that both hiatus repair and Nissen fundoplication significantly reduced the distensibility of the OGI. In one patient the fundoplication looked a bit tight by ‘eye-balling’ and when the EndoFLIP reading showed that the distensibility was in lower range of what we had previously found; we converted the fundoplication to a partial 270° wrap with a good post-operative clinical effect. Figure 3. We also found that the overall distensibility change achieved by the hiatus repair and Nissen fundoplication directly correlated to the post-operative dysphagia score at 6 months.
Pre-operative oesophageal physiology is crucial to the surgeon to help with the diagnosis of GORD. We feel that early results with the EndoFLIP device have shown that intra-operative physiological measurements may further help the surgeon to modify and optimise functional surgery such as an anti-reflux operation to achieve better outcomes.

Figure 3: Intra-operative photos and matching EndoFLIP readings of an interesting patient where the Nissen fundoplication was converted to a 270° wrap with immediate improvement in the distensibility.

EndoFLIP® – Endolumenal Functional Lumen Imaging Probe

The EndoFLIP® imaging catheter can be placed in the gastroesophageal junction (GOJ) and act as a smart bougie during laproscopic fundoplication surgery to allow a surgeon to measure how tight the GOJ has become, both after crural repair, and during and after completing the wrap.

As well as surgery for GORD, the EndoFLIP® can be utilised during Achalasia surgery, providing a tool to assist a surgeon in determining when sufficient muscle has been cut.

For more information and a demonstration please contact;
Ardmore Healthcare Ltd#
www.ardmorehealthcare.com
info@ardmorehealthcare.com
Tel: 01494 721820
New AGIP Council Member Profiles

Steve Perring PhD, MIPEM
Senior Clinical Scientist, Poole Hospital NHS Trust

Steve has been a Medical physicist since he answered an advert in the new Scientist for a research physicist in Southampton in 1988. He eventually obtained his PhD in 3D functional imaging and image fusion in 1993. Since 1991 Steve has run a small clinical measurement department in Poole Hospital with a particular interest in both upper and lower GI Physiology. He is a long-term active member of the Institute of Physics and Engineering in Medicine (IPEM) and is currently a member of the IPEM Physiological Measurement Special Interest Group. He has been a registered clinical scientist with acknowledged specific interest in GI physiology since 2009. He has been accredited as an independent practitioner by AGIP since 2010.

In 2012 with Jon Whybrow of Exeter he initiated a regular south west regional practitioners meeting to allow local GI physiologists of whatever professional background to discuss issues of mutual interest and share experiences in a mutually supportive, non-threatening environment. Since then this loose group has grown from strength to strength.

He has an extensive range of publications in peer-reviewed journals and maintains a significant research interest. He is particularly proud of his colleague Emma Jones’ recent successful award of a PhD for which he was a supervisor. The PhD looked at the link between inflammatory conditions, including reflux disease, and disruption of the autonomic nervous system.

He hopes during his tenure on the AGIP committee to encourage close links with other professional bodies such as IPEM and RCN, as well as to encourage consistency and uniformly high standards in the provision of services in the multi-disciplinary world of GI physiology.

When not working Steve also enjoys a sporadic and entirely unsuccessful career (financially at least) as a folk musician and recording artist. He also surfs and is proud that he is still being selected for his local church football team when he is at least 15 years older than the next oldest player. He is married with 3 children and his youngest has just left home to train as a doctor.

Joanne Hayes
Gastrointestinal Physiologist, Queen Elizabeth Hospital Birmingham

Joanne has recently taken over the role of Treasurer on the Committee for the Association of Gastrointestinal Physiologists. She has previously served on the committee as Publications Officer and is also now a member of the Education Committee.

After attaining her BSc Honours Degree in Physiology from the University of St. Andrews, Joanne went on to become a trainee Clinical Scientist under the supervision of Kathy Noble, at Birmingham Heartlands Hospital. This is where she trained in the techniques of gastrointestinal physiological measurement under Kathy’s expert guidance.

After five years, Joanne moved to the Queen Elizabeth Hospital in Birmingham to set up and run the gastrointestinal physiological measurement service for patients with a variety of gastro-
Barbara Unsworth  
**Gastrointestinal Physiologist, Salford Royal Hospital, Manchester**

I began my physiology career with 1 year in audiology at a time when we were called physiological measurement technicians! After this, I worked for 7½ years in neurophysiology, mainly in paediatrics. I then transferred to GI physiology where I have spent the last 20 years.

Most of that time has been spent at Salford Royal hospital, and during this time I completed a biological sciences degree. I spent 3 years working for Manchester University on a research project in conjunction with GlaxoSmithKlein and have just recently completed a post graduate certificate in clinical science. Of late I have joined the education GI Physiology education committee as secretary.

Outside of work I am a STEM ambassador in the Lancashire area and have recently taken up Morris dancing! I have a son who is at university and live with him, my husband and 2 hamsters.

Anthony Hobson PhD  
**Clinical Director of ‘The Functional Gut Clinic’, London**

Dr Hobson is a Consultant Clinical Scientist and Clinical Director of The Functional Gut Clinic at 22 Upper Wimpole Street, London www.thefunctionalgutclinic.com. He has worked successfully in the NHS, Academia, Pharmaceutical Industry, Private Healthcare Sector and is CEO of Alimentary Innervations Limited.

He began his training as a GI Clinical Scientist in 1991 at Hope Hospital in Salford, under the tutelage of Mr John Bancewicz and Professor David Thompson. There he completed training in a broad range of gastrointestinal physiological techniques, measuring pharyngeal, oesophageal, gastric, small bowel and ano-rectal function. In 2003, under the supervision of Professor Qasim Aziz and in collaboration with Professor Paul Furlong at Aston University, he gained his PhD from Manchester University, using advanced brain imaging techniques to map oesophageal pain processing regions. He also pioneered the technique of oesophageal cortical evoked potentials for use in phenotyping patients with non-cardiac chest pain and non-erosive reflux disease into specific clinical sub-types.

Dr Hobson has won several prestigious awards for his research including the Department of Health and Chief Scientific Officer’s ‘Young Healthcare Scientist’ of the year in 2005. In the same year he also received the Functional Brain-Gut Young Investigator Award at Digestive Diseases Week, in the United States and the EFIC Grunethal Young investigator in Pain award in Aachen, Germany. In 2006, he was recruited by the GI Discovery Medicine group at GlaxoSmithKline where he spent 3-years working with many of the top Neurogastroenterology groups and GI biologists from around the world. These interactions related to designing and implementing clinical trials and experimental medicine studies in conditions such as Irritable Bowel Syndrome (IBS). He also used novel neurogastroenterological techniques to measure the pharmacodynamic effects of various development compounds to investigate mechanisms of pain and stress.

In 2008, he was appointed Head of Translational Imaging in the Immuno-inflammation group at GSK and was project / clinical matrix leader for several neurology, GI and immuno-inflammation compounds in his time in the pharmaceutical industry. He has published over 50 articles and book chapters including two first author publications in Gastroenterology and is frequently invited to speak at meetings around the world. Dr Hobson currently holds an honorary post at Addenbrooke’s Hospital in Cambridge and Peterborough Hospital Trust. He lives happily near Cambridge with his wife, three children and dogs.
Rectal Function
Royal College of Surgeons of England, London
Wednesday 15th April 2015

Speakers include; Mr Andrew Williams, Dr Anton Emmanuel, Prof Charles Knowles, Mr Steve Brown, Miss Sophie Pilkington, Mr Tom Dudding

This day will provide a comprehensive guide interpreting the results of your HRM and rectal function. The course is ideal for physicians & surgeons interested in lower GI conditions, GI physiologists including trainees and nurse practitioners.

Please contact us on 01494 721820 or email rachel@ardmorehealthcare.com for further information. Please note that places are limited so don’t delay, contact us today for a registration form.

Sponsored by:

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AGIP Handbook Launch 1st October 2015

The Accreditation and Education Committee hope to have the new edition of the handbook ready for final comments by the membership by the end of March 2015 and for final approval at the next AGM in June.

The major change which will affect members is the change to personal accreditation. As from 1st October 2015 all applicants will be required to:

Have 4 years experience in GI Physiology including training and a substantial portfolio that evidences practice conforming to the highest standards of good clinical and scientific practice. Such a portfolio is likely to contain approximately 60 pages of evidence.

Current conditions for applying for accreditation will be kept in place until September 2015 and anyone accredited under the current system will retain accreditation status by fulfilling requirements of CPD.

We urge anyone who has allowed accreditation status to lapse to re-apply now and anyone who is leading a GI unit to encourage and mentor staff that has not already done so to apply.

The revised Handbook will be circulated through NewWave and the AGIP email forum.
Background to the Biofeedback development

The mcompass System, with the Biofeedback therapy software, was recently selected by the National Institute of Child Health and Human Development (NICHD) Pelvic Floor Disorders Network to be used in the CAPABLE study (Controlling Anal incontinence by Performing Anal exercises with Biofeedback or Loperamide). The goal of this randomised placebo-controlled trial, involving seven research institutions, is to learn more about medication and pelvic muscle training treatments for faecal incontinence (accidental bowel leakage). Specifically, this study will compare Pelvic muscle training with drug treatments for faecal incontinence to see if one treatment or both together are better than usual care at improving this condition. The team at Medspira learned a lot about what is necessary for both the clinicians and patients relating to anorectal manometry and biofeedback using manometry.

For further information and evaluation contact:
email: sales@synmed.co.uk   Telephone: 01992 782570
SynMed Ltd, Synmed House, 7 The Pavilion Business Centre, 6 Kinetic Crescent, Innova Park, Enfield EN3 7FJ
Forthcoming Events:

We hope to publicise forthcoming meetings and educational events. We would like to invite interested parties to contact the NewWave editor (warren.jackson@hey.nhs.uk) to have the details included in future issues.

18th March 2015  
New technology in GI Physiology: What, When and How?  
IPEM's office, Fairmount House, York

Registration and abstract submission is open (deadline 2nd January 2014). For further details go to:  
http://www.ipem.ac.uk/ConferencesEvents/ForthcomingConferences/EventDetails.aspx?dateid=309

15th April 2015  
Rectal Function  
Royal College of Surgeons of England, London

Email rachel@ardmorehealthcare.com for further information

19th - 24th April 2015  
International GI Motility and Function Working Group Ascona II Conference  
Swiss Institute for Technology Conference Centre, Monte Verita  
Ascona, Switzerland


17th - 19th May 2015  
Digestive Disease Week (DDW)  
Walter E. Washington Convention Center, Washington, DC

Registration opens 14th January 2015. For further details go to:  
http://www.ddw.org/

22nd - 25th June 2015  
Digestive Disorders Federation (DDF) Meeting  
ExCel, London

This meeting will consist of five Societies and Associations who have come together in a combined conference to replace their Annual Meetings for 2015, including the British Society of Gastroenterology

Registration and abstract submission is open (deadline 27th February 2015). For further details go to:  
http://www.ddf2015.org.uk/

24th - 28th Oct 2015  
United European Gastroenterology (UEG) Week  
Fira de Barcelona, Barcelona

Registration opens January 2015. Abstract submission opens 10th December 2014 (deadline 30th April 2015). For further details go to:  
https://www.ueg.eu/week/