CME

Physicians
Session A: New Updates of Radiotherapy on Cancer Treatment
Session B: Management of Adverse GI Event During Anti-Platelet Therapy
Director of Programme: Dr. Peter CY WONG
Chairman: Dr. Shu Kung KWONG
Speakers: Dr. Kwok-Wing CHIU (Session A) Dr. Fook Hon NG (Session B)
Date: January 3, 2011
Time: 8:00 – 10:00 am
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8872 (Ms Connie LOK)
Coming Meetings: February 18, 2011
Date: March 7, 2011
Venue: The Chapel, D9, HKBH
Time: 8:00 – 9:00 am
Enquiries: 2339 8872 (Ms Connie LOK)
Venue: The Chapel, D9, HKBH

Surgical Pathology
Joint Surgical Pathology Meeting
Date: January 21, 2011
Time: 8:00 – 9:00 am
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8872 (Ms Connie LOK)
Coming Meetings: February 18, 2011
Date: March 18, 2011
Time: 8:00 – 9:00 am
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8872 (Ms Connie LOK)
Venue: The Chapel, D9, HKBH

Endoscopy
Session A: Endoscopic Management of Difficult Biliary Stricture
Session B: Pancreatic Cancer: To Be or Not To Be
Chairman: Dr. Kai Lai CHOW
Speakers: Prof Sammy HO (Session A) Dr. Yuk Tong LEE (Session B)
Date: December 1, 2010
Time: 7:30 – 9:30 pm
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8064

Surgeons
Endovascular Repair of Abdominal Aortic Aneurysm
Director of Programme: Dr. Leung Tung YUNG
Chairman: Dr. Ka Ki KWOK
Speaker: Dr. Chau Cheuk Wai TSE
Date: January 7, 2011
Time: 8:00 – 9:30 am
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8872 (Ms Connie LOK)
Coming Meetings: February 11, 2011
Date: March 4, 2011
Time: 8:00 – 9:00 am
Venue: The Chapel, D9, HKBH
Enquiries: 2339 7436 (Ms Polly CHEUNG)

Obstetricians & Gynaecologists
Breast Cancer Screening Strategy
Speaker: Dr. Fiona Chi Shan LEUNG
Date: January 18, 2011
Time: 7:30 – 8:30 pm
Venue: The Chapel, D9, HKBH
Enquiries: 2339 8872 (Ms Polly TAM)
Coming Meetings: March 8, 2011
Date: April 12, 2011

What's ON
Opening of New Campus of HKBH School of Nursing
Date: December 11, 2010 (Saturday)
Time: 2:15 – 4:00 pm
Venue: School of Nursing, HKBH
RSVP on 2339 4918

Editorial Enquiry
We would like to hear from you! Any questions, comments or suggestions are always welcome. Please email us at pr@hkbh.org.hk

It is more blessed to give than to receive. (Acts20:35)
Director • Robust surgical navigation relies on robust registration. Limitations of IGS anatomy; preoperative image review and surgical planning at the computer workstation are key parts of IGFESS. Intraoperatively, the surgeon should use the IGS interactively (Figures 4 to 7 provide examples).

Limitations of IGS• Robust surgical navigation relies on robust registration. • IGS cannot reflect changes caused by intraoperative manipulation as they utilise preoperative imaging data. • An IGS is an enabling technology, not a substitute for surgical competence.

Special IGS TechniquesPlain CT images are most commonly used in FESS. However, the images provide inadequate information about soft tissue differences and internal carotid artery (ICA) position. In extended FESS approaches, the incorporation of additional imaging modalities into the IGS represents a significant technological advance. Fused CT–MR images can be reviewed at the computer workstation. Properly configured IGS can use the fused image data set for surgical navigation.

ConclusionIGS that combine both preoperative computer-aided image review and intraoperative surgical navigation have become a mainstay of advanced endoscopic sinus surgery techniques.

In the face of rapidly changing medical knowledge, technology and practice, medical professionals must adopt an open mind and strive for continuous improvement. The Hong Kong Baptist Hospital (HKBH) always strives to promote lifelong professional education. In recent years, apart from the regular and mandatory CME and CNE programmes, an increasing number of staff have taken the initiative to pursue further education in their respective professions, both locally and overseas. In 2009, more than 45 staff participated in overseas conferences and hospital visits.

Apart from individual learning, the HKBH, as a medical service provider, wants to promote organisational learning. A “Learning Organisation” is an institution that is, inter alia, able to sense changes in signals from its environment and adapt accordingly (Argyris and Schön, 1978) for the betterment of performance in the interest of its clients. Each staff member is indispensable in our pursuit of the common goal of providing quality services. They have first-hand knowledge of the needs of our clients who are under their direct care and service.

Some enablers of organisational learning are:

1. Clear Mission and Vision: To guide the direction of the Hospital, and the focus of what we want to learn and improve together.
2. Individual Learning: Effective organisational learning is not possible without active individual learning. We encourage our staff to learn from books, seminars, site visits (local and overseas), and daily work.
3. Systematic Documentation: Building up of an organisational knowledge repository to enhance corporate wisdom and to consolidate collective memory. This includes clear policy and procedure guidelines, records of meetings, clear statistics (including evidence of improvement), and summaries of CQI projects.
4. Group Sharing: The constituent parts of the organisation should grow and mature from dependence to independence and then inter-dependence in the support of a shared mission. We will promote sharing of learning and progress on a common platform, from the electronic ESN, to the weekly Hospital Bulletin, and other regular staff forums (Baptist 100, Award and Appreciation Day, Quality Forum, etc.).
5. Learning through Teaching: We believe in growth through teaching (and sharing) as well as learning. From the recent ACHS accreditation experience, we witnessed how our staff grew through the preparatory process, and after a systematic and focused review of their work. Now they are able to show the surveyors, and any visitors, that they know what, why, how, and how well, they are doing. We are satisfied with the good accreditation result. We are even more encouraged by the gain in ownership and confidence of our staff as a whole in their work and in the future.

A notable event in our promotion of organisational learning is the nursing management exchange programme just held in November. It was a 2-week programme (November 8–21) custom-made for a group of 10 senior nurses from the Ningbo Beilun District Health Bureau (寧波北侖區衛生局). The participants obtained solid first-hand experience of the theory and practice of hospital and nursing management as practised in a modern private hospital. We were delighted to hear the many appreciative remarks from the mainland participants at the end of the programme. We are even more excited to see a blooming organisational learning culture in HKBH.
Limitations of IGS

- Robust surgical navigation relies on robust registration.
- IGS cannot reflect changes caused by intraoperative manipulation as they utilise preoperative imaging data.
- An IGS is an enabling technology, not a substitute for surgical competence.

Special IGS Techniques

Plain CT images are most commonly used in FESS. However, the images provide inadequate information about soft tissue differences and internal carotid artery (ICA) position. In extended FESS approaches, the incorporation of additional imaging modalities into the IGS represents a significant technological advance. Fused CT–MR images can be reviewed at the computer workstation. Properly configured IGS can use the fused image data set for surgical navigation.

Conclusion

IGS that combine both preoperative computer-aided image review and intraoperative surgical navigation have become a mainstay of advanced endoscopic sinus surgery techniques.

**Table 1. Registration Paradigms**

<table>
<thead>
<tr>
<th>Pairwise registration</th>
<th>Mutual-defining fiducial points in the imaging data set</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map corresponding anatomic points by sequentially localizing to each fiducial point</td>
<td></td>
</tr>
<tr>
<td>Computer calculates the registration</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Surgical Navigation Accuracy**

- Target registration error (TRE) is the best index of surgical navigation accuracy
- Clinically, TRE can only be estimated visually by assessing accuracy against known anatomic landmarks
- TRE must be assessed at several points throughout the operating field volume
- TRE must be re-assessed throughout the duration of surgery
- TRE is best estimated by breaking TRE estimates into their vector components (x-direction, y-direction, z-direction)
- Published reports demonstrate TRE values of 1.5–2.0 mm

**Table 3. IGS Indications**

- Revision sinus surgery
- Congenital and traumatic anomalies
- Esthetic sinus and polyps
- Frontal sinus disease
- Posterior ethmoid disease
- Sphenoid disease
- Disease abutting skull base, orbit, optic nerve and/or carotid artery
- CSF-rhombencephalos
- Benign and malignant neoplasms

**Figure 4.** This intraoperative screen capture, obtained with the InstaTrak 3500 Plus, shows the position of the curved aspirator in the paranasal (left frontal sinus). The system was used for preoperative and intraoperative review of the preoperative CT images, and then during surgery, key anatomic boundaries, such as the skull base in the frontal sinus, were confirmed through localisation.

**Figure 5.** During navigation, InstaTrak 3500 Plus, demonstrates an intracranial tumour resection via a minimally invasive approach.

**Figure 6.** This patient required detachment of the skull base sphenoid sinus after trans-sphenoidal hypophysectomy. This screen capture, obtained with the InstaTrak 3500 Plus, shows the relationship of the operation field to the intact cranial cavity. Thus, intraoperative surgical navigation allowed the endoscopic skull “removal”.

**Figure 7.** An intraoperative screen capture, obtained during surgical navigation with CT-MRI fusion images, with the InstaTrak 3500 Plus, demonstrates an intracranial tumour resection via a minimally invasive approach. The eponymous differentiation provided by the local surgical resection of the tumour mass into the PMF with opening.

From the Desk of the CEO: From Individual Learning to Organisational Learning

In the face of rapidly changing medical knowledge, technology and practice, medical professionals must adopt an open mind and strive for continuous improvement. The Hong Kong Baptist Hospital (HKBH) always strives to promote lifelong professional education. In recent years, apart from the regular and mandatory CME and CNE programmes, an increasing number of staff have taken the initiative to pursue further education in their respective professions, both locally and overseas. In 2009, more than 45 staff participated in overseas conferences and hospital visits.

Apart from individual learning, the HKBH, as a medical service provider, wants to promote organisational learning.

**A “Learning Organisation”** is an institution that, inter alia, able to sense changes in signals from its environment and adapt accordingly (Argyris and Schön, 1978) for the betterment of performance in the interest of its clients. Each staff member is indispensable in our pursuit of the common goal of providing quality services. They have first-hand knowledge of the needs of our clients who are under their direct care and service.

Some enablers of organisational learning are:

1. Clear Mission and Vision: To guide the direction of the Hospital, and the focus of what we want to learn and improve together.
2. Individual Learning: Effective organisational learning is not possible without active individual learning. We encourage our staff to learn from books, seminars, site visits (local and overseas), and daily work.
3. Systematic Documentation: Building up of an organisational knowledge repository to enhance corporate wisdom and to consolidate collective memory. This includes clear policy and procedure guidelines, records of meetings, clear statistics (including evidence of improvement), and summaries of CQI projects.
4. Group Sharing: The constituent parts of the organisation should grow and mature from dependence to independence and then inter-dependence in the support of a shared mission. We will promote sharing of learning and progress on a common platform, from the electronic ESN, to the weekly Hospital Bulletin, and other regular staff forums (Baptist 100, Award and Appreciation Day, Quality Forum, etc.).
5. Learning through Teaching: We believe in growth through teaching (and sharing) as well as learning. From the recent ACHS accreditation experience, we witnessed how our staff grew through the preparatory process, and after a systematic and focused review of their work. Now they are able to share the surveyors, and any visitors, that they know what, why, how, and how well, they are doing. We are satisfied with the good accreditation result. We are even more encouraged by the gain in ownership and confidence of our staff as a whole in their work and in the future.

A notable event in our promotion of organisational learning is the nursing management exchange programme just held in November. It was a 2-week programme (November 8–21) custom-made for a group of 10 senior nurses from the Ningbo Beilun District Health Bureau (寧波北侖區衛生局).

The participants obtained solid first-hand experience of the theory and practice of hospital and nursing management as practiced in a modern private hospital. We were delighted to hear the many appreciative remarks from the mainland participants at the end of the programme. We are even more excited to see a blooming organisational learning culture in HKBH.

Dr Raymond Chung I CHEN
Chief Executive Officer
**Breast Cancer Screening Strategy**

**Director of Programme:** Dr Fiona Chi Shan LEUNG  
**Date:** December 18, 2010  
**Time:** 1:00 – 3:00 pm  
**Venue:** The Chapel, D9, HKBH  
**Enquiries:** 2339 8064

**Endoscopy**

**Session A: Endoscopic Management of Difficult Biliary Stricture**

**Chairman:** Dr Yuk Tong LEE (Session B)  
**Speakers:** Prof Sammy HO (Session A)  
**Date:** January 21, 2011  
**Time:** 8:00 – 9:00 am  
**Venue:** The Chapel, D9, HKBH  
**Enquiries:** 2339 8872 (Ms Connie LOK)

**Session B: Pancreatic Cancer: To Be or Not To Be**

**Chairman:** Dr Kai Lai CHOW  
**Speakers:** Prof Sammy HO (Session A)  
**Date:** December 1, 2010  
**Time:** 7:30 – 9:30 pm  
**Venue:** The Chapel, D9, HKBH  
**Enquiries:** 2339 8064

---

**Image-guided Systems in Rhinologic Surgery**

Image-guided systems (IGS) have been in use for decades and have matured into reliable, commonly utilised tools in advanced endoscopic sinus surgery. An IGS is one type of computer-aided surgery (CAS), and IGS facilitate intraoperative surgical navigation (see Figure 1) as well as preoperative software-enabled image review for surgical planning.

An IGS usually consists of the hardware and software components discussed below.

**Hardware**

- **Computer Workstation:** Integrates the other hardware.
- **Display System:** The monitor.
- **Tracking System:** This monitors the position of devices (attached to surgical instruments) in the surgical field, and is called a "digitiser" since it provides the device location in digital format for computer analysis. The digitiser monitors specific devices, termed intraoperative localisation devices (ILDs; see Figure 2), either optically or electromagnetically. For optical tracking, ILDs are tracked by an overhead camera so that the line of sight must be maintained and special arrangement of the operating theatre (OT) is required. Electromagnetic (EM) tracking relies on sensors that operate ILDs (see Figure 3). The ILD senses the EM field generated by an EM emitter and the digitised positional information is fed back for computer analysis. The limitation of EM tracking is the potential disruption of the EM field due to electronic devices.
- **Surgical Instrumentation:** Each IGS has specific instrumentation for the operative field, and in some devices, the ILD may be designed to attach to a wide array of common surgical instruments (including soft tissue shavers).

**Software**

The software integrates the hardware components into a functional unit.

- **Data Management:** Facilitates archiving of imaging data sets for both image review and navigation.
- **Image Review:** Processing of the axial image data to reconstruct both coronal and sagittal images as well as 3-D models, allowing the surgeon to appreciate the critical surgical anatomy and distortion due to diseases or prior surgery.
- **Surgical Navigation:** Integrates positional information and the preoperative image to present a real-time graphical representation of the instrument tip position relative to the preoperative image.
- **Registration:** Establishment of a point-to-point mapping relationship between corresponding points (fiducial points) in the surgical field. Registration paradigms may be divided into paired-point registration, automatic registration and contour-based registration as summarised in Table 1.
- **Assessment of Surgical Navigation Accuracy:** Target registration error (TRE) is used to assess surgical navigation accuracy, as is summarised in Table 2.