



Brunei Hepato-Pancreato-Biliary Surgery Unit: conception of an idea to reality

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Abstract: Since its inception in 1984, the Department of Surgery in Raja Isteri Pengiran Anak Saleha (RIPAS) hospital has evolved through many trials and tribulations. General Surgery, a recognized primary specialty, has further divided into several functioning units to provide specialized care and treatment for the Brunei population. The annual increase in the local incidence of hepato-pancreato-biliary pathologies, which usually involves more complex management, has provided a new challenge to the department. This has led to the development of a dedicated unit to tackle this disease. The McKinsey 7-S model was used as a platform to assist in its conception and to help align local changes to assure success. All the seven elements, with the combination of intent, dedication and teamwork, will hopefully make this a less daunting task.

Keywords: Hepato-Pancreato-Biliary Surgery Unit (HPBSU); new service; set up

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Introduction

The Department of Surgery has served Raja Isteri Pengiran Anak Saleha (RIPAS) hospital since inception at its current site at Jalan Putera Al-Mutahdee Billah in 1984. The last 30 years have generated many challenges and changes, leading to the evolution of surgical services available. It started with only five generalist surgeons who needed to be competent at treating a vast variety of surgical problems (from operating on intestinal obstruction to delivering a baby, and to fixing a broken femur). Since then, the number of surgeon specialists has increased ten-fold to date. Gone are the years of these generalist “Jack of all-trades” surgeons to be replaced by specialized and subspecialized ones. “Surgery” in RIPAS has naturally evolved into different primary surgical disciplines (such as General Surgery and Orthopaedics Surgery) and within these disciplines, subspecialties/units have also been created. At present, the General Surgery Department incorporates several distinct functioning units: (I) General Surgery with Gastrointestinal Surgery; (II) Urology Surgery; (III) Paediatric Surgery; (IV) Cardiothoracic and Vascular Surgery; and (V) Breast

Surgery. In the last year, interests and discussions on the introduction of a unit, the Hepato-Pancreato-Biliary Surgery Unit (HPBSU) has led to the initiation of a novel service in RIPAS Hospital.

HPBSU

General Surgery at RIPAS Hospital sees a variety of hepato-pancreato-biliary (HPB) pathologies. The annual incidence of malignant cases (*Figure 1*) have remained high and are increasing despite Brunei’s small population of 422,678 (1,2). In 2017 alone, there were 37 new cases (*Table 1*) of HPB malignancies (3). With increasing ease of obtaining investigations, better diagnostic methods, and perceptive clinical abilities, this number is expected to increase in the subsequent years.

The department is equipped to manage standard general HPB diseases but advanced cases that have operative potential are sent abroad for further assessment and management due to lack of local specialized expertise. This has led to an increase in healthcare expenditure and at the same time, local surgeons and related healthcare

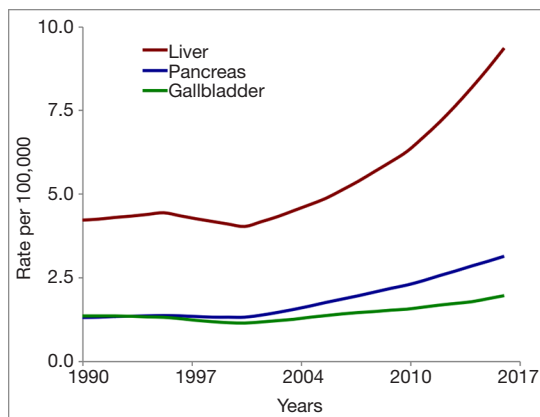


Figure 1 Annual incidence of HPB malignancy: data extracted from IHME Country Profile (1). HPB, hepato-pancreato-biliary; IHME, Institute for Health Metrics and Evaluation.

professionals are not able to partake in the management and the learning opportunities related to more complex cases. In addition, being abroad, the patient's recovery process can be physically, emotionally and mentally taxing as family members may not be readily available to travel with them. If support is available, there will be additional expenses spent, and loss of employment days.

Hence, the need for a comprehensive and centralized local surgical care in the HPB setting is imperative. This is in-line with the vision of the Ministry of Health Brunei, which aspires to provide high quality local specialist treatment and care that is effective, efficient, equitable and accessible to the whole nation while incorporating evidence-based practices to maximize health outcomes and improve quality of life (4).

The McKinsey 7-S model

In the process of developing this HPBSU, the Department of General Surgery in tandem with the RIPAS Hospital and the Ministry of Health embarked on a strategy based on the framework that was pioneered by McKinsey and Company Consulting firm (5). Designed in 1980, the McKinsey 7-S model (*Figure 2*) provides a tool to drive changes in an organization and aim to align all the seven elements to ensure success.

Structure

The fundamental principle of health care provision in

Brunei is to ensure equitable and timely access to all—“Health is everyone's business” (4). Health care is largely publicly funded by the government although private health services exist. The government provides health care through 5 public hospitals and 42 health clinics/centres (2). Access to hospital specialist services is through a referral system, which is accessible by both government and private sectors. RIPAS Hospital is the largest referral hospital in the most populated district and hence it is ideal as the centre for HPBSU.

The Department of General Surgery (excluding subspecialty units) has a core team of 15 senior (including specialists) and middle grade doctors. General HPB services are provided by all 6 specialists, with 2 endeavouring to focus on specialized HPB work. The development of HPBSU will aim to consolidate supported services to these 2 specialist surgeons to provide consistent, dedicated best practice care and management for HPB related diseases.

Strategy

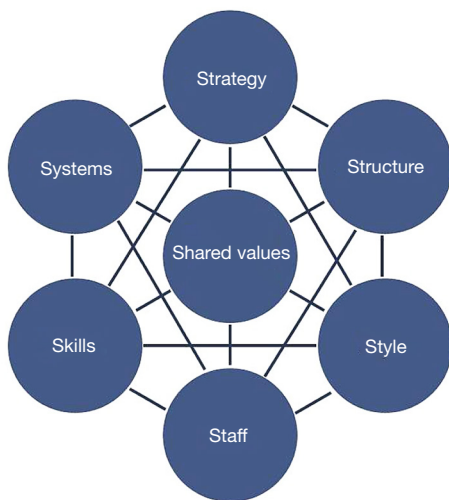
HPBSU will focus on providing specialist surgical treatment in RIPAS Hospital. A stepwise strategy of starting with a stable foundation of managing standard routine HPB diseases and progressing to more advanced ones will be commissioned. Major invasive approaches will have to evolve to minimally invasive ones and this whole armamentarium of different techniques has to be adopted. The HPBSU will also need to make provisions and plan for procurement of specialist expertise and equipment for laparoscopic and possibly robotic surgeries.

Stakeholders involvement is paramount to achieve this. Health budget was set at 8.43% of the national budget in 2016/2017 (2) with a 1% increment from the previous year. RIPAS Hospital, being the largest hospital, will have a significant proportion of the budget allocation. Therefore, ministerial, managerial and administrative services will need to be united to support this added facility.

A comprehensive HPB unit will also require complimentary services that is provided by a national cancer centre. The Brunei Cancer Centre (TBCC), offers modern oncology care and treatment to all cancer patients in the country. The full range of chemotherapy agents, targeted therapy and immunotherapy are all available to the nation. TBCC has state of the art equipment for example, linear accelerators, brachytherapy equipment, 3-D planning system, a PET-CT scanner, a SPECT-CT scanner and a cyclotron. The building also houses facilities for outpatient

Table 1 Incidence of cancer in 2017 in Brunei

Location	ICD-10	Total number	Male	Female
Hepatocellular carcinoma	C22.0	23	17	6
Gallbladder and biliary tract	C23–C24	6	3	3
Pancreas	C25	8	2	6
Colorectal and anal canal	C18–C21	99	64	35
Breast	C50	91	1	90

**Figure 2** McKinsey 7-S model (excerpt adapted from <https://whittblog.wordpress.com/2011/04/24/mckinsey-7s-model-a-strategic-assessment-and-alignment-model/>).

consultations, inpatient beds and day-care facility with chemotherapy infusion chairs/beds. HPB malignant pathologies will need the full gamut of oncological services available and establishing a mutual working relationship between RIPAS Hospital and TBCC will be vital to ensure best patient care.

Systems

Brunei government health system infrastructure is supported by BruHims which is an electronic medical records platform. This ensures that all government related health service has the same standardized system facilitating continuity and ease of delivery. Inter-hospital and primary care referral systems have become more stream-lined. Communication between service providers has improved significantly as medical records are more accessible in a

timely manner.

Shared patient-centred care needs a multi-disciplinary team approach. Skilled expert support has to include (but not exclusively) core members from Gastroenterology, Radiology, Pathology, Oncology, and Specialty nurse coordinators. Decisions taken are multidisciplinary to ensure best practice care is delivered to every patient. Specialty clinic such as Hepatocellular Cancer Clinic (joint clinic with HPB surgeon, Gastroenterologist specializing in Hepatology and Medical Oncologist) has been developed to further consolidate this service.

Processes involving the judicious and efficient delivery of services must also be provided. Operating theatres, access to intensive care, and access to laboratory and radiological investigations are necessary to allow for extension of services. For example, laparoscopic surgeries have already started in Colorectal/Gastrointestinal and Urology Surgery in RIPAS Hospital since early 2000s. A dedicated laparoscopic operating theatre that was previously built must hence be adapted to cater for HPB surgeries. HPB surgery is a young but rapidly evolving field. The appearance of ultrasound imaging was paramount in the initiation of major liver surgery in the 1980s. At present, liver resection techniques are supported using numerous adjuncts such as energy devices, ultrasonic surgical aspirator, and image guided navigational tools. Acquiring, adopting and the process of rapidly adapting to continuous new effective technologies must be emphasized.

Staff

Sufficient knowledgeable workforce plays a huge role in starting a service. Shortage of human resources is a universal issue. Accurate numbers of existing staff and justification in relation to additional services needs to be attended. Human resources department and appropriate recruitments (HPB experts, trained nurses, support staff) are essential components.

Skills

The adage of “see one, do one, teach one” is seen as the traditional method of teaching in surgery. Surgery was taught from teacher to student via apprenticeship which is the pedagogical way of learning. Modern methods have now incorporated andragogical adult learning techniques which have principles of autonomy, self-direction, goal orientated, relevant and being practical (6). Learning styles using both techniques during the formative training years are hence important for a surgeon’s foundation. Brunei being a commonwealth country has similar medical training background to the British system: the training phase after medical school follows a progression towards specialty consultant over a period of at least 10 years with attainment of certificate of completion of postgraduate exams. Skills are then further refined during fellowship training in a high volume tertiary centre. Once trained, a surgeon must maintain his/her competency and minimal surgical volume must be achieved whilst in clinical practice to ensure patient safety and high standards of care. According to the Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland 2010 guidelines (7), a competent liver surgeon should perform 15–25 liver resections per year. This approximates to the equivalence of 2 liver/HPB surgeons in Brunei to maintain an adequate service.

Other relevant disciplines will need similar robust training to ensure mutual skill transference. Junior surgeons, physicians, anaesthetists, radiologists and nursing staff specializing in HPB disease become essential.

Another important aspect is the concept of proctorship and clinical immersion. Close relationship with neighbouring surgical experts help maintain a working rapport for knowledge and skill sharing. It was only 25 years ago that RIPAS Hospital first invited a prominent general surgeon from Singapore to share on his techniques for laparoscopic cholecystectomy, and now it is one of the most widely performed surgery available in Brunei.

Style

As an extension of the Ministry of Health values, HPBSU aims at patient/client centred care. Shared decision making between the patient and his/her health care provider is important. Multidisciplinary teamwork is advocated and a culture of working in a collaborative and cooperative unit must be fostered.

Shared values

Finally, the founding values of the Ministry of Health are emphasized. We aim to work together in one united common purpose to uphold the highest level of professionalism to deliver quality and equitable service towards a healthy nation.

Conclusions

The process of setting up a new surgical service is not an easy task. The McKinsey 7-S model provides guidance by suggesting alignment of all seven elements, consisting of structure, strategy, systems, staff, skills, style and shared values. Other elements that need emphasis include the combination of intent, dedication and teamwork. Occurrence of troughs are also expected encounters and hence, continuous reforms to the service is essential. As the saying goes “rough seas make the better sailor”.

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to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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