Core Principles Cardiothoracic Course for Band 5/6 Nurses

Core Principles of Cardiothoracic Surgery and Care of the Patient following Heart Surgery

27th to 29th October 2017

The Audrey Emerton Building
Royal Sussex County Hospital Eastern Road
Brighton BN2 5BE

Cardiac Day 1
Friday 27th October

08.30 – 09.00 Registration

09.00 – 09.15 Introduction

09.15 – 09.45 Lecture room

Anatomy/physiology of the heart – coronary, structural and great vessel disease anatomy Learning outcome Describe the anatomy and working of the heart, conduction, valves and great vessels

09.45-10.15 Lecture room

Risk factor identification and modification

1. smoking

2. diabetes mellitus

3. genetics/connective tissue disorders

Thanks to sponsorship from Abbott &
4. hypertension
5. hypercholesterolaemia
6. rheumatic fever
7. IV drug abuse
8. renal failure

✓ **Learning outcome** - Identify epidemiology of modifiable and non-modifiable risk factors for coronary artery disease, aortic and mitral valve disease, endocarditis and aneurysms and appropriate referral on to specialists.

10.15–11.00 Lecture room

*Coronary artery disease and management including PCI and surgical revascularisation.*
Brief mention of other CT surgery - Aortic and mitral valve disease and management of Type A and B aortic dissection, endocarditis and AF ablation.

✓ **Learning outcome** - Natural and therapeutic history of these diseases Role of PCI and surgical revascularization & decision making process, role of valve replacement and repair, role of antibiotics, TEVAR, Surgical and Medical treatment of AF.

11.00 - 11.30 Coffee

11.30 – 12.00 Lecture room

*Pre operative investigation*

1. ECG and exercise stress tests
2. Chest radiogram
3. Myocardial perfusion scanning
4. Angiogram

Thanks to sponsorship from Abbott &
5. Transthoracic and transoesophageal echocardiography

6. RFT : basic ward spirometry

7. CUSS

8. Leg vein scan

9. Allen’s test/radial scan

10. Routine bloods

11. Computerised tomography : aortogram/coronary angiogram

12. MRI

✓ Learning outcomes - Name the pre operative investigations that may be indicated and why, how to prepare a patient for TOE/coronary angiography/CT/MRI Post angiography (radial, brachial/femoral) routes/TOE/CT checks.

12.00 – 13.00 Wetlab / skills room

Surgical workshops: x 3 20mins

1. performing a 12 lead ECG
2. performing basic RFT
3. haemostatic devices and coronary angiography/PCI/ applying a fem stop device

✓ Learning outcomes - understanding of procedure and rationale.

13.00 - 14:00 Lunch and refreshments

14-00 - 16:15 Wetlab room

Surgical workstations, small groups x8 15min groups (with break for tea at 15.00 -15.15)

1. Emergency Sternotomy

Thanks to sponsorship from Abbott &
2. Cardio Pulmonary Bypass

3. CABG and conduit harvest

4. Mitral valve repair

5. Aortic valve replacement

6. Types of valve replacement pros and cons – tissue / porcine / mechanical / tavi / sutureless

7. AF ablation

8. Aortic aneurysm/dissection

✓ Learning outcomes - Hands on session, delegates work with animal tissue. Knowledge & opportunity to participate in sternotomy, bypass, harvest of conduit, and anastomosis/repair/valve insertion is required. Describe the difference between stenosis and regurgitation. Describe the implications of repair versus replacement. Describe the broad types of valves in use and pros and cons of each. Describe the role of TAVI in treatment of aortic valve disease. Describe the general complications of heart surgery Describe the specific complications of heart surgery.

16.15 – 16.45 Lecture room

Pulmonary oedema and renal impairment: recognition causes and treatment

✓ Learning outcome - Suspecting, diagnosing and monitoring treatment of these conditions

16.45– 17.00 Evaluation

Thanks to sponsorship from Abbott &
Cardiac Day 2  
Saturday 28th October

09.00 – 09.45 Lecture room

Principles of Post operative Care immediate care to establish haemodynamic stability:

A B C D E: CVS RESP, Fluid management, care in the ward environment discharge & follow up

✓ Learning outcomes - Demonstrate awareness of the key clinical aspects of immediate and hospital stay recovery. Implications of prolonged intensive care stay. Demonstrate knowledge of what patients require to be fit for discharge and the aspects of their post discharge care to include patient information, cardiac rehabilitation, communication with primary care and the surgical follow up.

09.45 – 10.30 Lecture room

Medications

1. NICE guidelines for CHD medication

2. What should be stopped/continued prior to heart surgery

3. What medication patients should have introduced post operatively

4. Basic mechanism & function of Antiplatelets (oral and IV) LMWH, Beta blockers Statins ACE inhibitors/angiotensin II antagonists, Ca2+ channel blockers Amiodarone Insulin (IV and subcut), Potassium administration

✓ Learning outcome - Describe what medication should be stopped prior to surgery and why. Describe what medication should be continued prior to surgery and why. Describe what medication should be prescribed on discharge Describe the CVS, Renal, Liver abnormalities which would lead to caution prescribing which medication

Thanks to sponsorship from Abbott &
10.30 – 11.15 Coffee

11:15 – 12:15 Lecture room/skills room

Work stations: x2 30mins groups

Chest X Rays interpretation

Revision of conducting system rhythm strip recognition & 12 lead ECG – axis, territories

☑ Learning outcomes - Interpreting CxR & ECG

12.15 – 13.15 Lunch

13.15-14.15 Surgical work stations (ECG and pacing) x3 20mins groups

1. bradycardia’s

2. tachycardias

3. pacing wires & setting up a pacing box & pacing wire removal

☑ Learning outcomes – Describe the conduction system and describe the timing associated with PR,QRS,T waves. Recognise common arrhythmias SVT, AF, A Flutter, Bradycardia, Blocks, Asystole, VT, VF and immediate actions required, recognise bradycardia and immediate action required. Describe how to identify atrial and ventricular wires, demonstrate how to turn the pacing box on to the emergency setting. Demonstrate modes – DDD, VVi, AAi, describe which letter denotes chamber paced, chamber listened to & when the pacing box should deliver or inhibit electricity.

14.15 -14.45 Lecture room

Sternal and leg wound complications

- Overview of anatomy and physiology

- Phases of wound healing

- Wound assessment

Thanks to sponsorship from Abbott &
• Deep Sternal / Superficial sternal wound infection

• Nursing consideration

14.45 – 15.15 Coffee

15.15-15.55 Wetlab /skills room

*Surgical workshop (small groups) x2 20mins*

1. how to manage the VAC pump and ward dressing change

2. how to set up for a central line insertion

 ✓ **Learning outcomes** - Practical assessment and management of these wounds

15.55-16.35 Wetlab/skills room

*Surgical workstations (small groups x2 20mins)*


2. Basic Ventilation used in the post operative patient.

 ✓ **Learning objectives** - Describe the position of post operative chest drains and their function. Describe care of drains. Describe when they should be removed and the key issues nurses should be aware of. Describe basic ventilation modes used and the key care to maximize respiratory function for post operative recovery.

16.35– 16.45 Evaluation

Thanks to sponsorship from Abbott &
Thoracic Day 3  
Sunday 29th October

08.30 – 09.00 Registration

09.00 – 09.15 Introduction

09.15 – 09.35 Lecture

Anatomy/physiology of the thorax

✓ Learning outcomes - Describe the anatomy and working of the airways, pleura and lobes of the lungs, muscles of respiration and closely related structures

09.35 – 09.55 Lecture

Lung diseases

Learning outcomes: awareness of common disease, common symptoms, diagnosis, treatment options & the principles of nursing this cohort of patients.

09.55 – 10.15 Coffee

10.15-10.35 Lecture

Risk factor identification and modification

1. smoking

2. pneumoconiosis and occupation

3. genetics

4. ageing

5. social

6. mycobacteria and fungi

Thanks to sponsorship from Abbott &
7. immunosuppression

✓ **Learning outcomes** - Identify epidemiology of modifiable and non-modifiable risk factors for lung and pleural carcinomas, chronic infectious and inflammatory conditions and advice and modification to patients and appropriately referral on to specialists.

**10.35 – 10.55 Lecture**

*Step down units role and nursing Type I and Type II respiratory failure*

✓ **Learning outcomes** - safe assessment of patients and correct nursing action associated with respiratory deteriorating.

**10.55 – 11:55 Wetlab/skills room**

*Surgical work shops x3 20mins (small groups)*

1. Setting up for minitracheostomy & insertion

2. Tracheostomy care (inner tube cleaning, speaking tube use, removal, bleeding and tracheal suction)

3. Pleurodesis

✓ **Learning outcomes** - A hands on session for the insertion of minitrachy. The equipment required to set up for a mini tracheotomy and the process for insertion. Practical session managing a patient (Simman) with a trachy, troubleshooting The principles of pleurodesis in relation to the clinical findings and the practical aspects assisting with set up, performing and post procedure management highlighting the key nursing aspects.

**11.55-12.15 Lecture**

*Haemoptysis and stridor nursing management*

✓ **Learning outcomes** - Recognition and how to nurse and be involved in management of these potential emergencies.
12.15 – 12.35 Lecture

Lung cancer

✓ Learning objectives - The patient pathway from diagnosis to treatment options and dealing with the diagnosis to include knowledge about diagnosis, role of the MDT, staging and prognosis, treatment options, psychology of the newly diagnosed patient, patient pathways, cancer networks

12.35 – 13.35 Lunch

13.35 - 13.55 Lecture

Pre operative investigations

1. ECG
2. Chest radiogram
3. RFT : advanced spirometry
4. Routine bloods
5. Bronchoscopy and airway stenting
6. Computerised tomography /PET scanning

✓ Learning outcomes - Name the pre operative investigations that may be indicated and why. Be aware of the nursing implications of caring for these patients.

13.55 -14.15 Lecture

Post operative complications and management

1. pain management
2. pneumonectomy and mediastinal shift, bronchopleural fistula
3. sputum retention, atelectasis and chest infection

Thanks to sponsorship from Abbott &
4. post operative bleeding
5. empyema
6. MI

✓ **Learning outcomes** - Identification the common or important thoracic complications and of the nursing implications of caring for these patients

**14.15 – 14.35 Lecture**

**Pleural conditions and drain insertion and management**

✓ **Learning outcomes** - Principles and practice of managing and nursing pleural effusion, empyema, chylothorax, pneumothorax, air leak and bronchopleural fistula, surgical emphysema, diagnostic sampling. Management of thoracostomy tubes and drain bottles – types of drain bottle

**14.35 – 15.35 Wetlab/skills station**

**Surgical workstations (small groups) x3 20mins**

1. Care off Thoracic Chest drains & removal
2. Thoracostomy tube insertion (preparation for)

✓ **Learning objectives** - Nursing care and hands on experience at insertion of a chest drain and practical issues with managing drains. Awareness of wall suction and the importance for thoracic suction, flutter bags as an alternative, the benefits for mobility/management in the community. The nursing responsibilities in caring for drains and correct documentation. Rational for post insertion/removal imaging.

**15.35 – 15.50 Tea/Coffee**

**15.50 - 16:10 Lecture**

**Oncological palliative care**

✓ **Learning outcomes** - Psychology of dying patient, palliative pain care, MacMillan services

Thanks to sponsorship from [Abbott &]
16.10-16.55 Wetlab/skill station

Surgical workstations (x3 15mins)

1. CPAP application

2. Chest physiotherapy

3. Interpretation of ABG

✔ Learning outcomes - Revision of the pathophysiology underpinning the use of CPAP, how to apply the circuit and the key nursing issues/documentation associated with caring for a patient on CPAP. Awareness of the practical procedures and key aspects for nursing in post operative care

Basic principles of interpreting ABG’s with renal & respiratory pathophysiology.

16.55 – 17.00 Evaluation