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Physiotherapy management 2: (2D5Z0001) Cardiorespiratory theme study pack

FACULTY OF HEALTH, PSYCHOLOGY AND SOCIAL CARE,

The Manchester School of Physiotherapy

B.Sc. (Hons) Physiotherapy

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INTRODUCTION

Welcome back to cardio-respiratory physiotherapy. This unit builds on the knowledge you gained in physiotherapy management: cardiorespiratory 1 and introduces new areas of cardio-respiratory physiotherapy. There is a large element of physiology and you are strongly advised to revise the material covered in the first year.

You are now studying at a higher level than in Year 1 of the programme and you are referred to the level descriptors in your programme handbook for Level 5 work. There are fewer contact hours in Year 2 units than in Year 1 units, so your independent study becomes even more important. The cardio-respiratory team are very enthusiastic about the unit and hopefully you will find the work both stimulating and enjoyable.

In common with other units that you have experienced to date, the Physiotherapy Management 2: Cardiorespiratory theme is delivered via five different methods:

- **Lectures:** provide you with basic underpinning knowledge or provide a summary/overview of an area of knowledge.
- **Tutorials:** help you use and share information from study tasks, solve problems and identify areas that require further study.
- **Practical sessions:** allow you to learn and practice cardio-respiratory physiotherapy skills and to facilitate your learning in terms of linking theory with practice in preparation for practice placements.
- **Workshops:** allow for formative assessment and opportunity to practice clinical skills and link theory to practice.
- **Seminars:** the opportunity for large group discussion involving specialist practitioners or service users.

As you have in other units, you will also be required to complete some independent study. This requires you to complete study tasks before specified sessions as guided by your unit pack. The table that relates the learning outcomes of each taught session indicates whether there is a study task related to the session. You are advised that non-completion of these study tasks will interfere with your ability to learn from the tutorials or skills sessions that follow.

There is an expectation that you will complete all study tasks, either independently or in group study, by efficient management of your study time.

> *It is extremely important that you can access this study pack in all taught sessions.*

CASE BASED LEARNING

The learning that you participate in during this unit revolves around 3 cases. By now you will have experienced case-based learning several times throughout Year 1 of the programme. Before beginning CR2 it may benefit you to revisit the principles of such learning in the context of CR2 together with what the unit team will expect of you as a learner.

In summary, the process requires you to:

1. Read through the case individually or as a group, and identify / clarify unfamiliar terms / ideas / problems presented in the case.
2. As a group, discuss possible definitions / explanations on the basis of prior knowledge. For any terms / ideas / problems that the group cannot explain, generate a list of learning objectives.
3. As a group, formulate an action plan to ensure that the necessary learning is achieved.

> *Note that this year you will be expected to undertake the above without the supervision of a tutor in preparation for the first tutorial, as you are now more experienced learners. It is suggested that you divide yourselves into groups within your teaching group and once the learning objectives have been established it is strongly advised that you divide the work amongst the group members.*

4. During private study time students then seek knowledge to help them to achieve learning objectives.
5. The group shares the results of their private study.
6. The group should ensure that they can now explain all aspects of the case in hand.

The lecturer allocated to your group will expect you to have completed all the relevant study prior to each session as indicated in this handbook. There is also an expectation that students will share their work and contribute fully to group discussion and feedback sessions.

(Wood, D. (2003). ABC of learning and teaching in medicine: problem based learning. *British Medical Journal*, vol. 326, pp. 328-330)

UNIT SPECIFICATION

UNIT DESCRIPTION

Brief Summary :	The unit has three core themes, **cardiorespiratory,** musculoskeletal (lower quadrant), and neurology, and builds on learning at level 4 considering more complex and less predictable pathologies.
Indicative Content :	The cardiorespiratory theme, which includes peripheral vascular disease, has a strong emphasis on the evidence base that supports physiotherapy management. Students consider issues that relate to care that has its focus on maintenance, support, palliation and the physiotherapy contribution to the provision of high quality care at the end of life. The musculoskeletal theme considers the lumbar spine and lower limb conditions. Skills developed during earlier units will be developed further and students will learn how to adapt these skills and apply them to the lower quadrant. There is a strong focus on enhancing clinical reasoning which will include exploration of biopsychosocial factors that can impact on physiotherapy management and treatment outcomes. The neurology theme considers more complex and less predictable impairment in the neurological system for example, multiple sclerosis. In addition it will facilitate consideration of the provision of physiotherapy treatment to the management of traumatic brain injury and cerebral palsy and in so doing requires the students to consider how treatment should be adapted to match the needs of patients across the age spectrum.

LEARNING OUTCOMES

On successful completion of this Unit, the student will be able to...	
Learning Outcome 1:	Critically apply knowledge of structure and function of the musculoskeletal/**cardiorespiratory**/neurological systems to explain pathology and clinical features of selected conditions.
Learning Outcome 2:	Select, explain and evaluate appropriate outcome measures for patients with selected more complex and less predictable pathologies.

Learning Outcome 3:	Select, plan, explain and evaluate appropriate assessment and physiotherapy management techniques for patients with complex and less predictable pathologies applying knowledge and using clinical reasoning skills and a problem solving approach.
Learning Outcome 4:	Discuss specific multidisciplinary interventions that would contribute to patient care by developing shared, focused, achievable and realistic goals of treatment that take into account the patients psychosocioeconomic needs.
Learning Outcome 5:	Access and critically appraise, relevant and contemporary resources and use these to generate appropriate physiotherapy management

THEME ASSESSMENT

Type	**Learning Outcomes**	**Weighting**	Linked to university **Employability & Sustainability Outcomes**
Coursework	LO1 LO2 LO3 LO4 LO5	30% of the overall unit mark	Analyse real world situations critically Communicate effectively using a range of media Manage own professional development reflectively Find, evaluate, synthesise and use information Use systems and scenario thinking
Description	Essay based assignment. 3,000 words. For further assessment information, see Moodle.		

READING LIST

See the Moodle area for link to the reading list. The list has been compiled to reflect the unit content, and many of the resources listed are available electronically. At Level 5, you will need to read more widely than this, ***but you are strongly advised to use resources from this list in the first instance***.

UNIT BY WEEKS

Sessions with the prefix 'CT' are Critical Thinking / Enquiry (CTE) sessions. These sessions are incorporated in, and relevant to the skills required to complete the PM2 CR assessments, but will also assist you in developing skills for the completion of the Critical Thinking / Enquiry unit next year.

WEEK COMMENCING 24 SEPTEMBER 2018	
At the end of the session, students will have the ability to:	
Lecture A ***Study task***	Explain the format of the PM2 CR unit, including where to access unit reading list / resources; Explain the assessment strategy for the PM2 CR unit; Consider link between PM1 CR and the continuation of this learning into the PM2 CR unit; Recap the pathophysiology of Chronic Obstructive Pulmonary Disease (COPD); Explain how acute exacerbations of COPD complicate the condition; Relate this to the case of Phil Bury (case study) three years on and acutely unwell on admission to hospital.
Tutorial A ***Study task***	Discuss the clinical features of an acute exacerbation of COPD with reference to the underlying pathophysiology; Explain, with reference to the literature, the management a patient with an acute of exacerbation of COPD with reference to a case study.
Lecture B	Explain the management of COPD patients in the community, include: long-term O2 therapy, acute service interventions and pulmonary rehabilitation Consider the importance of palliative care strategies in the deteriorating end-stage COPD patient
Lecture C (CT)	Explain the methodology of a systematic review; Explain the purpose of a systematic review in evidence-based practice; Explain the main features of a systematic review.
Practical A ***Study task***	Role-play the assessment and management of a patient with an acute exacerbation of COPD on a normal model; Clinically reason their assessment and management choices with reference to a case study and the literature.
Lecture AA (CT)	Explain the remit of the Cochrane database;

WEEK COMMENCING 24 SEPTEMBER 2018	
	Explain how to undertake some preliminary searches of the Cochrane database, focusing on cardiovascular / respiratory reviews.
Practical B ***Study task***	Role-play teaching and monitoring of activities for severely breathless patients on a normal model; Clinically reason the management of the severely breathless patient with reference to a case study and the literature.
Lecture D	Gain a basic overview of some treatment adjuncts used within respiratory physiotherapy Develop understanding of physiological principles behind respiratory adjuncts and identify patients who may benefit from their use To be aware of specific contraindications to the use of respiratory adjuncts
PC Lab A (CT)	Undertake some preliminary searches of the Cochrane database, focusing on cardiovascular / respiratory reviews, with guidance.
Workshop A ***Study task***	Critically discuss the evidence for pulmonary rehabilitation, with specific reference to outcome measures for mental health / wellbeing; exercise tolerance; quality of life and dyspnoea.

STUDY TASKS WEEK COMMENCING 24 SEPTEMBER 2018

STUDY TASK TO BE COMPLETED BEFORE LECTURE A / TUTORIAL A/ PRACTICAL A

Revise the material that you covered on COPD in the Physiotherapy Management 1 cardiorespiratory unit.

Look at the PowerPoint slides for Lecture A on Moodle.

Read the case study of 'Mr Bury'. Access suitable resources to make sure that you can understand the terms used in the case. You should start by accessing materials listed on the unit reading list. A link to the reading list is on the Physiotherapy Management 2 Moodle area. Also make sure that you can:

- Explain his clinical features with reference to the pathophysiology of COPD. This should include his usual chronic presentation ***AND*** his current acute exacerbation of COPD (AECOPD), including:
    - Why does he sleep with 4 pillows?
    - What do his vital signs indicate?
    - Can you calculate a NEWS score?
    - What do his blood gases indicate?
    - Why is he losing consciousness? (HINT: there are multiple reasons, ensure you consider his CO_2)
    - Can you explain the chest x-ray findings?
    - What are bullae?
    - What are the implications of bullae?
- Explain his risk factors for developing COPD.
- Explain his medication prescription.
- List his key immediate problems from the AECOPD.
- List the long term social issues that may impact on his management.

When you have answered all these questions, you should be in a position to:

- Construct a problem list and set short and long term goals (assume he survives this admission);
- Construct a treatment plan, considering contraindications / cautions;
- Indicate which other members of the multidisciplinary team would be involved in his management;
- Include long term treatments for his return home.

You may also find it helpful to view the Podcasts on the Moodle area on breathing techniques and auscultation.

CASE FOR STUDY TASK TO BE COMPLETED BEFORE TUTORIAL A

MR PHIL BURY - 3 YEARS ON

Mr Phil Bury is a 64-year-old man with a history of chronic cough, moderate sputum production and breathlessness on exertion. He has had several hospital admissions with exacerbations and chest infections in the past three years. He was employed as an electrical engineer until three years ago when he was forced to retire due to ill health.

Mr Bury is a life-long smoker, smoking between 30-40 cigarettes a day although he has tried to cut down. Following deterioration in his wife's health due to a stroke last year, they now live in sheltered accommodation. This small ground floor flat has two bedrooms, a small bathroom, a lounge and kitchen-diner. The property has one step at the front door with a hand rail. He has no garden and does not know the area or his neighbours well. His wife is mobile but requires his help to shop and manage the flat.

His current exercise tolerance restricts his mobility outside of the house. He manages to walk around the flat, but rarely leaves the flat apart from hospital appointments. He has recently developed swollen ankles and this has further limited his mobility in the last few days. He no longer drives and is reliant upon hospital transport and taxis, which frustrates him.

Mr Bury has been considered for long term oxygen therapy (LTOT) and is due to be reviewed by the outpatient respiratory team in two months. His current medication includes Salbutatmol and Seretide (Salmeterol and Fluticasone) MDIs via a spacer device, Tiotropium, Metformin, Simvastatin, Atenolol and Bumetanide. He is also taking Citalopram.

He was admitted to hospital via the Accident & Emergency department three hours ago with an acute exacerbation of shortness of breath, productive of small amounts of thick green sputum. On admission, he was found to be in acute respiratory failure and was visibly struggling to breathe.

His wife reports he has been gasping whilst trying to sleep at home and has had periods of being confused and disorientated in the past few days. He usually sleeps propped up on three pillows but has needed four since last week.

His consultant and wife discussed his prognosis and agreed he should not be for resuscitation or invasive ventilation but should have full active treatment. You have been called in to see Mr Bury as the on-call physiotherapist.

Mr Bury is drifting in and out of consciousness (GCS:11/15), responding to voice but appears disorientated. He looks grey and sweaty; his skin appears dry and loose. He cannot cough to command and his airway is at risk.

VITAL SIGNS

Temperature	38.0^0c	Pulse	122 beats a minute
Blood pressure	110/65	Respiratory rate	38 breaths per minute

ARTERIAL BLOOD GASES

on 100% O2 via Non-Rebreathe Mask:

pH	7.29
PaO_2	7.8 kPa
$PaCO_2$	7.0 kPa
HCO_3	28mmol/l

OTHER TESTS

Hb	13.5 g/dl
WBC	20 x 10^9/l

ON EXAMINATION:

He was breathing apically and his chest expansion was reduced on the right. He had reduced air entry at the right base and mid zone and scattered inspiratory and expiratory crackles in the right upper zone and throughout the left.

CXR (PA FILM)

Hyperinflated. Flat hemidiaphragms bilaterally; enlarged heart. Aorta appears thickened and calcified.

White out right base and mid-zone; with associated loss of silhouette sign . Patchy shadowing evident in other lung fields. Three observable bullae in left upper zone.

In his notes, his last lung function tests from two months ago were:

Lung function tests	Value	Predicted	% of predicted
FVC (l)	3.85	4.18	92%
FEV_1 (l)	1.15	3.59	32%
FRC (l)	4.00	3.38	118%
RV (l)	2.45	2.35	104%
TLC (l)	6.45	5.87	110%
FEV_1/FVC =	30%		

The team has asked you to initiate urgent chest physiotherapy.

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL B

From the reading list in Moodle, access Main and Denehy, (2016); Bott et al, (2009) and Glaab et al (2010). Make sure you understand how the recommendations by Bott et al (2009) were developed, and what the 'grade of evidence' refers to. In the Bott et al (2009) paper, focus on the COPD (pages i2 – i3, and Section 1, starting on page i9). You should also read the section in Glaab et al (2010) on outcome measures for dyspnoea. You will also find it helpful to access your notes from the lecture on chemical and neural control of the respiratory system, which was delivered in the Anatomy, Physiology and Kinesiology unit last year.

Use these resources to make sure you can:

- Define the terms 'shortness of breath' and 'dyspnoea'.
- Explain why someone with COPD experiences dyspnoea;
- Focusing on ***positioning, walking aids and breathing techniques***, suggest a list of treatments that may enhance dyspnoea management during activity / function;
- Consider how dyspnoea and response to the intervention may be monitored.

STUDY TASK TO BE COMPLETED BEFORE WORKSHOP A

In this session, you are going to compare the psychometric properties of various outcome measures used to monitor COPD patients' response to pulmonary rehabilitation. Completion of this study task along with the session content will allow you as a teaching group to produce a portfolio of critically appraised outcome measures used in the management of patients with respiratory conditions. The focus of the session will be on pulmonary rehabilitation, so prior to this session, revisit the material you covered on pulmonary rehabilitation in the physiotherapy management 1: cardiorespiratory unit, and covered in Lecture B.

For this session, each teaching group has been split into 8 smaller groups – see Moodle for these groupings. The topics for each team are as follows:

- Group A: 6 Minute Walk Test;
- Group B: Shuttle Walk Test;
- Group C: St George's Respiratory Questionnaire;
- Group D:The COPD Assessment Test;
- Group E: Hospital Anxiety and Depression Scale;
- Group F; The Beck Depression Inventory;
- Group G: Medical Research Council (MRC) Dyspnoea Scale;
- Group H: Borg Dyspnoea Score.

Each team should now find out about the psychometric properties of their allocated outcome measure, and bring that information to the session.

In the session you will:

- Carry out further research to analyse your OM, and compare it to others;
- Prepare a PP presentation of three slides, covering:
    - An overview of the outcome measure and summary of its purpose;
    - Completion of a standardised template that considers the psychometric properties of the OM;
    - Draw conclusions about whether the OMs are applicable to practice and why.

WEEK COMMENCING 1 OCTOBER 2018	
The student will have the ability to:	
Practical C ***Study task***	Discuss the purpose of prehabilitation for general surgical patients; On a normal model, role-play the assessment and management of a patient prior to major general surgery; Clinically reason their assessment and management choices with reference to a case study and the literature.
Tutorial B ***Study task***	Discuss the preventative and restorative rehabilitation for a patient undergoing major general surgery with reference to the underlying pathophysiology; Explain, with reference to the literature, the management of such a patient with reference to a case study (oesophagogastrectomy)
Lecture E ***Study task***	State indications/contraindications for airway intubation; Identify types of endotracheal tubes; Differentiate between types of ventilator; Differentiate between modes of ventilation; State the steps to be taken to wean a patient off ventilation; Identify the role of the physiotherapist in the management of the ventilated patient.
Workshop B ***Study task***	Use case scenarios / simulation to clinically reason and practise managing patients with a range of respiratory conditions; Practise reading chest x-rays.
Lecture G	Explain the rationale for early rehabilitation in ICU with particular reference to the prevention and management of ICU acquired weakness (ICU-AW)
Practical D ***Study task***	On an normal model, role-play the assessment and management of a patient following major surgery; Clinically reason their assessment and management choices with reference to a case study and the literature.
Lecture F	Explain the role of the physiotherapist working in oncology.
Practical E ***Study task***	On a normal model, role-pay moving, handling and mobilising patients following extensive thoracoabdominal surgery;

	Explain types of surgery that may be carried out via a thoracic incision; Explain the complications associated with thoracic surgery.
Lecture H ***Study task***	Describe the normal arrangement and structure of the vascular system; Explain the epidemiology, aetiology and pathophysiology of peripheral arterial disease including the impact on this of diabetes mellitus; Explain the investigations and medical and surgical management of patients with peripheral arterial disease, including amputation.

STUDY TASKS WEEK COMMENCING 1 OCTOBER 2018

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL C

Read

Cassidy, MR., Rosenkranz, P., McCabe, K., Rosen, JE., McAneny, D. (2013) 'I COUGH. Reducing postoperative pulmonary complications with a multidisciplinary patient care program.' *Journal of the American Medical Association Surgery,* 148(8): pp. 740-745.

Santa Mina, D., Clarke, H., Ritvo, P., Leung, YW., Matthew, AG., Katz, J., Trachtenberg, J. et al. (2014) 'Systematic review. Effect of total-body prehabilitation on postoperative outcomes: a systematic review and meta-analysis.' *Physiotherapy*, 100: pp. 196–207.

Revise the material you covered on general surgery in PM1: Cardiorespiratory, particularly on the risk factors for post-operative pulmonary complications, including the effects of general anaesthesia.

Go through the transcript from the interview with Jimmy Smith below, and from this compile a subjective history using the headings:

- Present complaint;
- History of present complaint;
- Past medical history;
- Family history;
- Social history;
- Drug history.

Make sure you can:

- Categorise Mr Smith's grade of surgery and patient grade.
- Explain the risk factors, pathophysiology, prognosis and management of oesophageal cancer, including the proposed surgical procedure.
- Explain the physical findings that Jimmy Smith presents with pre-operatively and come to the session prepared to explain these.

Use this information to develop a pre-operative problem list and treatment plan for Mr Smith, and then identify any further information you would need from either Jimmy or other members of the MDT. Come to the session prepared to role play the preoperative assessment and management of Jimmy Smith that you have planned.

JIMMY SMITH – PART ONE: TRANSCRIPT OF AN INTERVIEW WITH JIMMY IN WHICH HE INTRODUCES HIMSELF:

'Hello. My name's Jimmy Smith.

I live in the Eagle and Sun – you know the pub in Birley Place? I used to be a police officer – 30 years I did that. That was a great job but I love this place – I've always wanted to run a pub. Anyway, it means I can look after my old Mum too – she lives with me. She's not so steady on her feet, and her memory is not what it was these days.

Anyway, it turns out it's me with the big problems, not her. You see, I've got to go into hospital tomorrow for something called a cardio-oesophagectomy. It's nothing to do with my heart – apparently I've got a cancer at the top of my stomach. I could kick myself really, cos about 6 months ago I started with bit of a cough and feeling sick and getting indigestion. It lasted a few weeks. I thought it was just the usual worry. I do get anxious about things, and I've been low at different times over the years. Anyway, when I started losing weight, I thought I ought to see the docs. He was really good – got me in quick for an investigation. I had to swallow a camera – that wasn't much fun I can tell you. That's when they told me I've got oesophageal cancer. Of course, I've looked it up on the internet, and it's not a good one to have.

I suppose in a way it's my own fault. I do like a tipple with the lads, and all that smoking over the years – I've been a 30 a day man since I was 15 just about. The thing is they always tell you about lung cancer and bronchitis – I mean you expect to have a morning cough and a bit of winter bronchitis – but this…? Anyway, here I am, 55 years-old – never had any surgery before except my appendix when I was a young 'un. Now I'm going to need a big cut through my chest and my stomach – they have to deflate my lung apparently. They've told me I could die during the op – I guess they have to, but really I've got no choice anyway, have I…..?

At least they've tried everything. They started me on chemo to begin with, but I got a blood clot, so they had to stop that. I'm on blood thinners now – bruises everywhere! And it's getting to the stage where I can only get sloppy food down – liquidised fish and chips is no fun you know! And I'm skin and bone now.

I'm worried about my mum, but at least she'll be OK while I'm in hospital. She's going to stay at Sunshine House. All in all, I'll be glad to get it over with'.

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL B

In Tutorial B we will be discussing the aspects of the case study of Jimmy Smith, which can be found below. Mr. Smith is undergoing a cardiooesophagectomy for oesophageal cancer. In the session you will be expected to explain and justify his post-operative management, including monitoring systems, medical management and drug management. Most of the information you will need to do this can be found by revising the material you covered on general surgery in the Physiotherapy Management 1 Cardiorespiratory unit, and then reading and making notes from:

El-Ansary, D., Reeve, JC., and Denehy, L. (2016) 'Chapter 11: Upper abdominal and cardiothoracic surgery for adults,' *In*: Main, E.,Dennehy, L. (Eds) (2016) *Cardiorespiratory physiotherapy. Adults and paediatrics.* 5th Edition, Edingburgh: Elsevier (available as an e-book).

Use this information to go through the case to make sure that you can explain it paragraph-by-paragraph, and come to the session prepared to discuss your ideas.

CASE STUDY FOR TUTORIAL B AND PRACTICAL D

See Jimmy's introduction above.

CARDIO-OESOPHAGECTOMY: SURGEON'S NOTES:

Abdominal procedure:

Standard midline incision. Palpable tumour located at the oesophago-gastric junction. Surrounding organs, including the liver, clear. The gastro-hepatic omentum was dissected up to the hiatus where a cuff of the crura was taken. Feeding jejunostomy placed in the proximal jejunum in standard fashion and brought out in left flank. No abdominal drain. Haemostasis satisfactory at end of procedure. Clips to skin, patient turned onto left side.

Thoracic procedure:

Right postero-lateral thoracotomy through 5^{th} intercostal space. Oesophagus was mobilised and the stomach gently pushed up through the hiatus. Oesophageal tumour resected and all macroscopic disease excised. Enlarged lymph node adjacent to the carina removed. An anastamosis was formed between the oesophageal remnant and the stomach. A naso-gastric (NG) tube was guided across the anastamosis. Anastamosis tested and was air tight. Two chest drains inserted at level of anterior and apical segments of the right lower lobe. Right lung successfully re-inflated. Wound closed in layers with clips for skin.

Post-operatively Mr. Smith was transferred to the Intensive Care Unit (ICU) where he was sedated and ventilated overnight, and prescribed IV cefazolin, and an epidural set up. Intravenous infusion of saline and dextrose started and plan for jejunal feed to start after 24 hours, with Mr. Smith to be nil by mouth (NBM) for seven days. Monitor hourly urine output (UO).

DAY ONE – ICU

Intubated and sedated on continuous mandatory ventilation (CMV).

Lines: right internal jugular vein (IJV), right arterial, epidural.

ABGs: pH 7.39; PO_2 35.81 kPa; PCO_2 5.41 kPa; HCO_3 24.3; BE - 0.5;

SaO_2 99% on 60% FiO_2

RR: 12, HR: 71; BP: 113/45 Temp: 37.5

Post-op CXR – clear

Sedation off

Plan:

IV fluids; Post-op blood investigations; s/c tinzaperin

Visited by physiotherapist:

S: Nurses report patient had a comfortable night, and condition is stable and only few clear secretions on suction.

O: Patient in supine lying on pressure relief mattress. Patient has good colour, remains unresponsive at present, no signs of discomfort.

Chest: Observation: drains swinging, bilateral chest movement equal.

Palpation: chest movement feels equal, no palpable secretions.

On auscultation: good bilateral air entry, no added sounds.

A: Chest clear, PO_2 raised, other gases and signs normal.

P: Passive movements all limbs. Monitor condition for potential problems.

DAY TWO - ICU

S: Patient extubated yesterday afternoon. Unable to move / feel legs due to epidural. Medics plan to stop IV cefazolin and epidural and start on regular paracetamol. For move to HDU pm. Jejunostomy feed started.

O: Patient half lying in bed. Alert and responsive, though drowsy.

ABGs: pH 7.41; PO_2: 14.64; PCO_2: 5.19; HCO_3: 24.5; BE: - 0.3;

SaO_2: 99% on 28% FiO_2 via face mask.

RR: 17; HR: 67; BP: 117/44; NEWS: 1

Chest: Observation: drains swinging, bilateral chest movement equal.

Palpation: chest movement slightly decreased on right side, no palpable secretions.

On auscultation: good bilateral air entry, a few fine, end-inspiratory crackles over both bases.

Bed mobility: Difficulty performing any ankle/leg exercises due to effects of epidural. Managed active/assisted dorsi/plantarflex, knee flex/ext and active static quads and gluts. Able to move to more upright position in bed with assist from three people.

A: Chest remains clear, some atelectasis. Low NEWS indicates patient stable and progressing as expected.

P: Encouraged thoracic expansion exercises – reasonable expansion achieved, slightly increased on right side post-treatment. Encouraged to continue with active leg exercises for five minutes each hour. Continue to monitor.

DAY THREE – ICU

9.30 am

S: Nurses reported patient unwell since yesterday afternoon. Mr. Smith has been pyrexial and tachycardic with a distended abdomen. Sepsis queried so for CT scan later.

A: ABGs within normal limits. Patient medically unstable at present.

P: Review pm.

3pm

S: CT scan revealed large amounts of free peritoneal fluid and jejunal tube in peritoneum. Mr. Smith to return to theatre for laparotomy and abdominal washout.

DAY FOUR - ICU

S: Theatre yesterday - leak from the jejunal insertion site was sewn over and the jejunal tube reinserted. Nurses report patient has been tachycardic and pyrexial overnight, suction producing small amounts of green sputum. Tracheostomy in theatre and returned to ICU on Pressure Support Ventilation (PSV).

Plan: to keep Mean Arterial Pressure (MAP) above 80, beta blockers to decrease HR, reduce sedation and wean from ventilator, CXR. Lungs fully re-inflated – drains to be clamped.

O: FiO_2: 50%; Pressure Support (PS): 15; RR set at 11;

ABGs: pH 7.41; PO_2: 18.14; PCO_2: 5.06; HCO_3: 23.9; BE: - 0.3;

SaO_2: 98%; Temp: 38.5; HR: 114; BP: 176/100. White cell count (WCC): 16.

Chest: Observation: drains swinging, bilateral chest movement.

Palpation: chest movement equal, no palpable secretions.

On auscultation: air entry all zones, few end-inspiratory crackles over both bases.

A: Increases in HR, BP, temperature and WCC indicates infection, but at moment - ? site, could be chest as green secretions and history as smoker, but also has peritoneal inflammation.

P: Positioned in left side lying (L s. ly). Manual hyperinflation with vibrations and suction (via closed circuit) x 3 produced small amounts of sticky, pale green secretions – sample sent for analysis. After treatment, PO_2 increased to 24.26, and SaO_2 to 100%.

Discussed plan with nursing staff – to decrease FiO_2 to 40%, decrease Pressure Support (PS) to 10, decrease sedation with a view to weaning from ventilator. Review CXR when done.

(Physiotherapist visited and treated pm – similar findings and management to above).

DAY FIVE – ON HDU

S: Transferred to HDU this morning.

Nurses report patient weaned from ventilator successfully. Remains tachycardic and pyrexial. Resisting coughing and therefore not expectorating sputum. Sputum culture from Day 4 – Streptococcus pneumoniae – started on Cefuroxime. Beta blockers commenced and morphine via PCAS for pain relief. Chest drains removed.

O: FiO_2: 28% via face mask. RR: 20; Temp: 38.5; HR: 85; BP: 152/85. NEWS: 3

ABGs: pH 7.45; PO_2: 12.35; PCO_2: 4.64; HCO_3: 24.0; BE: - 0.2;

SaO_2: 98%; CXR shows opacity over RLL consistent with consolidation.

Patient half lying in bed. Alert and responsive, though drowsy. Complaining of some discomfort over wound sites and right lung base which is worse on inspiration. Reports no sputum, but difficulty coughing due to pain over wound sites and chest.

Chest: Observation: generally poor lower thoracic expansion, but worse on right.

Palpation: chest movement reduced over right base; percussion note (PN) dull over RLL.

On auscultation: bronchial breathing over RLL, with pleural rub.

A: Post-operative pneumonia affecting RLL. ABGs within normal limits on O_2, and haemodynamically stable.

P: Saline nebs requested and administered prior to treatment. Use of PCAS encouraged to give pain relief boost. Positioned in left side lying, ACBT practised x 3; end inspiratory sniff incorporated – still reduced respiratory excursion over right base. Spontaneous cough after third cycle productive of small amounts of viscous, green sputum. Mr. Smith transferred to chair with assist of 3. Supported huff and cough taught. Encouraged to continue with 3 cycles of ACBT every half an hour.

STUDY TASK TO BE COMPLETED BEFORE LECTURE E

Read:

Hughes, M., Kyle, J. and Short, A. (2013) 'Ventilatory support in the intensive care unit.' *Anaesthesia and Intensive Care Medicine*. 14(10); 446-471. Available online at: https://www.sciencedirect.com/science/article/pii/S1472029913002014 [accessed 27 July 2018]

Study Tasks:

1. Define non-invasive respiratory support and list the types of non-invasive respiratory support.
2. List and be able to explain the indications and potential problems for intubation and ventilation.
3. List be able to explain the preparation require for weaning a patient from mechanical ventilation.
4. List factors to be considered when a patient is receiving respiratory support.

Read:

Adam, S. & Forrest, S. (1999) 'ABC of intensive care – other supportive care'. *British Medical Journal,* 319: pp. 175-178. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1116275/ and then login through Shibboleth [Accessed 25 July 2018].

This is an old article but a brief and useful overview.

Study Tasks:

1. List and be able to explain the reasons why mechanically ventilated patients require chest physiotherapy.
2. List and be able to explain the problems of immobility due to mechanical ventilation.
3. List and be able to explain the increased risk of nosocomial infection.
4. List and be able to explain the physiological effects associated of a period of care within intensive care/high dependency units.

STUDY TASK TO BE COMPLETED BEFORE WORKSHOP B

In Workshop B you will rotate around a series of stations to practise skills.

You should establish the indications for, purpose of, and contraindications to:

MANUAL HYPERINFLATION - Read:

Denehy, L (1999)' The use of manual hyperinflation in airway clearance'. *European Respiratory Journal*, 14: pp. 958-965 http://erj.ersjournals.com/content/14/4/958 [Accessed 27 July 2018]

(Although this article was published in 1999, it is cited in 2011 articles and gives a grounding)

NASOPHARYNGEAL/ENDOTRACHEAL SUCTION - Read:

Jongerden, I.P., Rovers, M.M., Grypdonck, M.H. (2007) 'Open and closed endotracheal suction systems in mechanically ventilated intensive care patients: a meta-analysis.' *Critical Care Medicine*, 35(1): pp 260-270. https://login.medscape.com/login/sso/getlogin?urlCache=aHR0cHM6Ly93d3cubWVkc2NhcGUuY29tL3ZpZXdhcnRpY2xlLzU1MjIyMg==&ac=401 This is a medscape link to the article (you'll need to log in to Medscape or register (for free) if you are not already member) [Accessed 27 July 2018].

One of the stations is on reading chest x-rays, therefore please look over the notes you made in the lecture on this from Physiotherapy Management 1: Cardiorespiratory. Please also make sure that you have access to the study pack in this session so that you can access the material below:

MATERIALS TO ACCESS DURING WORKSHOP B

SELF-ASSESSMENT OF PERFORMANCE (ACBT AND POSITIONING

Rate yourself on the following areas on a scale of 0-10 (0= very poor, 10= excellent)

1. Gaining informed patient consent
2. Clarity of instructions to patient
3. Ability to facilitate ACBT
4. Clinical reasoning of correct ACBT for condition
5. Knowledge of lung anatomy
6. Justification of position choice

SUCTION GUIDELINES

Preparation:

- Equipment: suction apparatus (machine or wall vacuum point), catheters (6-16 gauge - no greater than 50% of the airway diameter), gloves, saline solution, disposal bag (lubrication gel if doing nasal suction).
- Patient: explanation. Position appropriately. Pre-oxygenate.

Procedure:

1. Switch on suction pump and check it is effective.
2. Wash and dry hands.
3. Open top of catheter sleeve without touching catheter.
4. Attach catheter to onto suction tubing Withdraw a few inches of catheter without touching it.
5. Hold catheter sleeve and tubing in one hand (left if right-handed).
6. Glove dominant hand.
7. Withdraw catheter, ensuring it touches nothing but the gloved hand.
8. Introduction of catheter
9. Second person detaches patient from ventilator or bag.
10. No suction while introducing catheter,
11. Insert catheter rapidly and carefully as far as possible.
12. Apply suction, occluding opening on suction mount.
13. Withdraw catheter slowly, rotating between finger and thumb.
14. DO NOT 'trombone' catheter up and down.
15. Release suction intermittently if there is excessive drag during withdrawal.
16. Procedure (introduction and suction) not to exceed 10 seconds or period for which normal breath can be held.
17. Second person reattaches patient to ventilator or does manual inflation.
18. Used catheter is wound round glove and discarded.
19. Flush suction tubing with sodium bicarbonate solution.
20. Switch off suction machine.

CHEST X-RAY EXAMINATION

The procedure for evaluation of CXRs is available in the notes you made in Physiotherapy Management: Cardiorespiratory 1:

- Check the patient name
- Check the patient unit number
- Check the date (most recent film)
- Check the 'view' (postero-anterior (PA) or antero-posterior (AP) or lateral)
    - Why is it important that you have established whether the film is PA or AP?
    - Why is it desirable to have a lateral view in some instances?
- Check the 'exposure' of the film
    - Why does exposure matter? What structures would you use to evaluate whether the film was over/under exposed?
- If using an x-ray print (if not viewing on a PC screen) ensure that the x-ray is mounted on the viewing box the right way round. Convention – as you face the x-ray, the patient's left is to your right).
    - What is dextrocardia?
    - What is situs invertus
- Note the position in which it was taken (erect/supine)
- Check if the patient is rotated
    - What difference would it make if the patient was rotated when the film was exposed?
- Check if the x-ray was exposed at maximal inspiration
    - What landmarks would you use to evaluate this?
    - What difference would it make if the patient had not taken a maximal inspiration before the film was exposed.

Now use the A B C D E F G H I system to examine the film in detail:

Don't skip to any obvious anomaly – you might miss something important/misinterpret the x-ray.

- Airways and angles
- Bones
- Cardiac silhouette
- Diaphragm
- Edges
- Fields
- Gastric bubble
- Hilum
- Instrumentation

Use lecture Q to help you to identify what should be examined in each case.

Use the system above to evaluate the x-rays during Workshop B

You might find the following link useful:
https://www.radiologymasterclass.co.uk/tutorials/chest/chest_home_anatomy/chest_anatomy_start

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL D

In Tutorial B you were divided into six groups to complete the following group task:

In your small group, develop a GROUP problem list, treatment plan and SMART goals for your allocated section of the case. Your treatment plan should make reference to literature to support your ideas. **Ensure there is ONE document per small group rather than lots of individual ones.**

- Groups 1 & 2 allocated days 1 & 2 – immediate post-operative period, stable;
- Groups 3 & 4 allocated days 3 & 4 – complications / return to theatre;
- Groups 5 & 6 – weaning from ventilator and onwards.

Your documentation needs to be clearly written on a separate piece of paper, as it will be shared, developed and the plans carried out by other students within your group in Practical D.

Prior to the sessions view the Podcasts on the Moodle area on breathing techniques, auscultation and post-operative mobility and circulatory exercises.

You should come to the session in practical dress, prepared to review, develop and carry out appropriate physiotherapy management for Jimmy Smith. You will also be expected to engage in discussion and evaluation of the evidence base for physiotherapy interventions that may be used in ICU and particularly justification of those used for Mr. Smith.

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL E

1. List surgery that is performed via a thoracic incision? Explain *why* the surgeon would use a thoracic incision.
2. Why would a surgeon resect a rib?
3. Why would the patient require an underwater seal drain?
4. **Explain** the following complications associated specifically with thoracotomy/thoracoabdominal incision/median sternotomy:
    (a) Atelectasis & infection (pneumonia)
    (b) Surgical emphysema
    (c) Persistent pneumothorax
    (d) Diaphragm dysfunction
    (e) Damage to the recurrent laryngeal nerve
    (f) Bronchopleural fistula & possible empyema
    (g) Long-term wound discomfort
    (h) Scoliosis
    (i) Limitation of shoulder movement
    (j) Gastric reflux in patients who have had thoracoabdominal/oesophageal surgery
    (k) Circulatory difficulties of lying flat directly post-cardiac surgery

Read through your notes on moving and handling patients from year 1 with particular reference to risk assessment.

STUDY TASK TO BE COMPLETED BEFORE LECTURE H

Refer to the notes you made in Physiotherapy Management 1: cardiorespiratory on atheroma formation (related to myocardial infarction) and the notes you made for Physiotherapy Management 1: neurology related to risk factors and underlying pathology of stroke.

WEEK COMMENCING 8 OCTOBER 2018	
The student will have the ability to:	
Lecture I ***Study task***	Explain the aetiology / pathology / epidemiology of amputation; Explain the role of the physiotherapist in the management of patients with lower limb amputation; Explain some of the psycho-social issues associated with amputation; Explain the normal gait cycle in basic terms.
Tutorial D ***Study task***	Clinically reason the pathology of peripheral arterial disease (PAD), and the management of patients with PAD and lower limb amputation.
Tutorial E ***Study task***	Clinically reason the problems that a patient may present with pre and immediately post lower limb amputation; Use a case study to discuss appropriate interventions to optimise the patients physical and psychological function after lower limb amputation; Explain the factors that may impact on successful early rehabilitation and consider them when developing a treatment plan for a lower limb amputee.
Lecture J	Explain the association between PAD and the common co-morbidities of prediabetes, diabetes and dementia; Explain the role of the physiotherapist in the management of prediabetes and diabetes.
Tutorial F ***Study task***	Explain the demands and expectations of academic writing for assignments at Level 5
Practical F ***Study task***	On an normal model, role-play the assessment and management of a patient in the pre-operative and early post-operative stages of lower limb amputation; Clinically reason their assessment and management choices with reference to a case study and the literature.
Workshop C and Seminar A ***Study task***	On a normal model, role-play the assessment and management of the post-operative lower limb amputee, including the prevention and management of falls; Explain the use of early walking aids in the management of lower limb amputees; Explain the role of the prosthetist in the management of the lower limb amputee.

Tutorial G ***Study task***	Explain how psychological and social factors may influence patients' clinical presentation. Discuss how this may influence physiotherapy management approaches.
Lecture K	Explain common deviations in lower limb amputee prosthetic gait.
Tutorial C ***Study task***	Explain the importance of identifying people nearing the end of their life; Discuss how guidance on identifying people nearing the end of life may be applied to two case studies used in the unit; Discuss how end of life care and palliative care may influence their physiotherapy management.

STUDY TASKS WEEK COMMENCING 8 OCTOBER 2018

STUDY TASK TO BE COMPLETED BEFORE LECTURE I

Watch the video in Moodle entitled: 'The Roehampton Approach to the Rehabilitation of the Lower Limb Amputee.'

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL D

Look at the PowerPoint presentation and notes you made in Lecture H to ensure that you have an understanding of the pathology of peripheral arterial disease (PAD), and the medical and surgical management of patients with PAD, including lower limb amputation.

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL E

Access and read the following guidelines, particularly sections 5 & 6:

Smith, S., Pursey, H., Jones, A., Baker, H., Springate, G., Randell, T., Moloney, C. et al. (2017) *Clinical guidelines for the pre and post-operative physiotherapy management of adults with lower limb amputations*. 2nd edition. London: British Association Chartered Physiotherapists in Amputee Rehabilitation. Available at http://bacpar.csp.org.uk/ (you will need to login to the CSP to access this) [Accessed 27 July 2018]

You only NEED to read the actual recommendations for the session, however reading about how the guidelines were developed, and making a judgement about the rigour with which they were developed and the level of evidence that they are based on, should help to develop your critical thinking skills too.

You should come to Tutorial E prepared to discuss the pre-operative and early post-operative management of the lower limb amputee. In order to do this you should refer to the case of Patrick Aston (part one) (below) and:

1. Write a problem list for him for the pre-operative stage. This should include problems derived from the documented case, but also potential problems that may arise related to his pathology, and the procedure to be carried out, and psychosocial issues;
2. Devise a treatment plan to address the problems and potential problems that you have identified to be carried out in the pre-operative and immediate post-operative period;
3. Plan a post-operative examination to be carried out on the first and second post-operative days. Put the components of the proposed examination into order of priority – indicate what MUST be done on the first post-operative day, and what could wait until the second post-operative day.
4. Finally, list any issues or complications that may affect the successful outcome of an early rehabilitation programme.

CASE FOR STUDY TASK TO BE COMPLETED BEFORE TUTORIAL E

ANYTOWN GENERAL HOSPITAL

Name	Patrick Aston (part one)	Hospital No.	ABC 123
Address	1, Any street Anytown	Ward	A1
		Consultant	Mrs Lydiate
DOB	7th April 65 years ago	Key worker	Physiotherapist
Diagnosis	Occluded fem-pop bypass For L Transtibial amputation under spinal anaesthetic		

Date		Signature
1 June this year	**HPC** Planned admission with p. in foot, gangrene and ulceration. Diagnosis: occluded fem-pop bypass for L TT amputation in two days' time. **PMSH** Fem-pop bypass 3years ago IDDM with no neuropathy COPD → ↓ ex tolerance – able to walk 100 metres. Manages stairs with difficulty **SH** Retired post man Smoker – 40/day until 3 years ago now 5/day Widower – lives alone Ground floor flat, 2 steps up to front door Daughter lives 5 miles away, young family. Son lives in Canada Independent in ADL prior to admission Car driver Hobbies – dominoes at local pub, enjoys watching the local cricket team.	

FH

Mother died aged 72 – CVA

Has an estranged brother; no health problems that the client knows of.

DH

Humulin injections 2/day

Was on MST x 2 daily, now morphine via PCAS

Investigations

Arteriograms on admission showed occlusion of graft. No focal problems identified R leg

Objective examination

Observation

Sat on bed – L knee pulled up towards chest. Appears to be in pain – tearful and sweating.

Consents to physiotherapy assessment.

Appears a little drowsy from the morphine.

Dressing in situ, odour of gangrene.

Pain

L foot constant – can't sleep – 'throbbing / burning' / 8/10 on scale of 0-10 (0=nothing; 10 worst pain imaginable). Unable to walk at present, using a wheel chair to go to and from bathroom, (provided by OT dept). Unable to transfer independently at present.

Movements

All movements guarded. Able to fully extend L knee with encouragement ++

Thomas test L leg +ve 10°

ROM R LL and ULs normal

M. strength

U.L's – normal

LL's – not tested – too much pain

Balance

Sitting ✓ Able to reach safely out of b.o.s.

Standing – not tested

	Bed mobility Sit → ly, ly → sit, ✓ independent Roll → R ✓independent Roll → L, L leg too painful **Mobility** Usually independently mobile with no walking aids, Currently using wheel chair on ward as in too much pain to walk. Distance able to walk usually limited by SOB **RS** ↓ expansion at bases, but R=L. Scattered crackles bi-basally, quiet breath sounds. Expectorates clear / grey sputum most mornings – 'normal' for him. Orthopnoea – needs 3 pillows. **For theatre in two days' time – spinal anaesthetic.**	Signed by Physiotherapist

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL F

Read your feedback on your first year written assignments. There were three assignments (Formative assessment in the intro unit, MSK 1 assignment and Neuro 1 assignment). Reflect on how you have used the feedback in improving your academic writing. Write down three of your strengths and three weaknesses in writing assignments.

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL F

Before Practical F, read through the additional material from Mr Aston's medical and physiotherapy notes below:

'The nurses report that Mr Aston underwent TT amputation with skew flap under spinal anesthesia yesterday (as planned). His BP was low on return from theatre, so he was nursed flat for 12 hours. He had some confusion in the night following his operation, but is lucid and calm now. He has a catheter in situ.

He is being nursed on a pressure relief mattress with a cradle in situ. He has a dressing in situ, and he is keeping his knee slightly flexed, but his limb is level.

His chest is clear, and he is managing to expectorate as normal, but he has some ↓expansion at bases, R=L.

He reports pain in his residual limb pain 5/10 (0=no pain; 10=worst pain imaginable), but also has some phantom limb pain in the left foot that is throbbing in nature. He wanted to check that the limb had actually gone because it felt real.

He is able to fully extend his L knee with encouragement ++, and able to move himself up and down the bed with the use of the monkey pole'.

Before Practical F, read through the assessment and treatment plans you devised in Tutorial F, and make any necessary amendments in light of this new information.

STUDY TASK TO BE COMPLETED BEFORE WORKSHOP C

Read:

Broomhead, P., Clark, K., Dawes, D., Hale, C., Lambert, A., Quinlivan, D., Randell, T. et al. (2012) *Evidence based clinical guidelines for the managements of adults with lower limb prostheses. (*2nd Edition). London: Chartered Society of Physiotherapy [online] Available at: http://www.csp.org.uk/publications/clinical-guidelines-physiotherapy-management-adults-lower-limb-prostheses (you will need to login to the CSP to access this resource) [Accessed 27 July 2018]

The case of Patrick Aston (part two) (below).

Then write a problem list and treatment plan for Mr Aston at this stage.

Come to Workshop C ready to role-play your assessment and treatment ideas, and attend a session with a prosthetist and service user looking at a range of prostheses.

<table>
<tr><td>Name</td><td>Patrick Aston (part two)</td><td>Hospital No.</td><td colspan="2">ABC 123</td></tr>
<tr><td rowspan="2">Address</td><td rowspan="2">1, Any street
Anytown</td><td>Ward</td><td colspan="2">A1</td></tr>
<tr><td>Consultant</td><td colspan="2">Mrs Lydiate</td></tr>
<tr><td>DOB</td><td>7th April 65 years ago</td><td>Key worker</td><td colspan="2">Physiotherapist</td></tr>
<tr><td>Diagnosis</td><td colspan="4">L transtibial amputation 4/52 weeks ago – attending for OP physiotherapy in preparation for prosthesis</td></tr>
<tr><td>Date
4/52 after 1 June this year</td><td colspan="3">HPC
L transtibial amputation for gangrene and ulceration associated with an occluded fem-pop bypass, 4/52 ago. Discharged home after two weeks. Now well healed.
PC
Keen to start getting on with his exercises as wants to start walking as soon as possible. Wants to be able to drive and walk into his local pub. A bit worried about falling though. Has used the PPAMaid when he was an inpatient and managed several laps up and down the parallel bars in each session.
Waiting for appointment with prosthetist at the Disablement Services Centre (DSC).
PMSH
Previous fem-pop bypass 3years ago
IDDM with no neuropathy
COPD → ↓ ex tolerance – able to walk 100 metres. Manages stairs with difficulty</td><td>Signature</td></tr>
</table>

SH

Retired post man

Smoker – 40/day until 3 years ago now 5/day

Widower – lives alone

Ground floor flat, 2 steps up to front door

Daughter lives 5 miles away, young family; son lives in Canada

Independent in ADL – using a wheelchair for mobility around his flat, and has a temporary ramp.

Was a car driver prior to amputation, and hoping to return to this.

Hobbies – dominoes at local pub, enjoys watching the local cricket team.

FH

Mother died aged 72 – CVA

Has an estranged brother; no health problems that the client knows of.

DH

Humulin injections 2/day

Objective examination

Observation

Consents to physiotherapy assessment.

No dressing, but shrinker sock in situ. Residual limb is well healed and pink. Scar a little tethered. No pain on palpation.

Residual limb supported on a 'stump' board.

Pain

Has some phantom limb pain in the left 'foot' region 4/10 (0=no pain and 10=worst pain imaginable). Particularly bothersome at night, and sometimes he wakes and thinks his foot is still there. It is a 'throbbing / burning' pain similar to the pain he had pre-op. Intermittent and better if he rubs his residual limb.

Functional activities:

Independently mobile in wheelchair pushing on a smooth, level surface (though became SOB pushing along the hospital corridor after 100m – recommenced after a rest);

Transfers: independent in transfers wheelchair to / from bed, bath, armchair and car. Has a bath board at home.

Movements

ROM all joints of LL and ULs normal except:

L hip, -10^{o} extension

	M. strength U.L's – normal LL's – all normal except: L hip abductors and extensors 3/5 Oxford (MRC) scale **Balance** Sitting ✓ Able to reach safely out of b.o.s. Standing not assessed. **Bed mobility** Sit → ly, ly → sit, ✓ independent Roll → R & L ✓independent **RS** Normal for him at present, difficulty lying flat for exercise. (Orthopnoea – needs 3 pillows).	Signed by Physiotherapist

STUDY TASK TO BE COMPLETED BEFORE SEMINAR A

There is no study task directly required for this seminar, however you may like to consider the questions that you would like to put to an ex-serviceman, amputee service user.

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL G

Task one:

Access and read the introduction and executive summary of:

Department of Health (2011) publication entitled: No health without mental health. A cross-government mental health outcomes strategy for people of all ages. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/213761/dh_124058.pdf [Accessed 27 July 2018]

Access and read pages 7-13 of:

Department of Health (2012) publication entitled: Compassion in Practice. Nursing, Midwifery and Care Staff: Our vision and strategy. Available online at: https://www.england.nhs.uk/wp-content/uploads/2012/12/compassion-in-practice.pdf [Accessed 27 July 2018]

Make sure you can answer the following questions:

- Why is a mental health outcomes strategy necessary?
- Why is it relevant to you as physiotherapists?
- How do you think it may influence your practice?
- What are the 6Cs?
- What high profile failures in health and social care have prompted the need for the 6Cs to be developed and promoted?

Task two:

Review the three cases that you have studied in this unit (Phil Bury, Jimmy Smith and Patrick Aston) and review the transcript entitled 'Jimmy Smith (reflection)' below.

Identify any psychological and social issues documented in the cases and make some notes on how they may influence the patients' clinical presentations.

You should come to Tutorial G prepared to participate in a discussion about how these factors may influence the management of these patients.

JIMMY SMITH, CARDIOOESOPHAGECTOMY CASE STUDY - REFLECTION:

The following is based on a true patient reflection. The patient has allowed staff at the university to use this account for teaching purposes so that students have some real insight into the experiences of patients in ICU:

'The night before the operation was really bad – I was so frightened. Everything else was unreal really, and I felt so alone. I felt like I was just waiting to be wheeled into a great darkness. I was in a side ward that night on my own, which was good - I didn't want to have to chat and be sociable with strangers.

They came for me very early in the morning to give me a pre-med and get me dressed in the theatre gown. I felt OK except for a terrible thirst, and I knew it was going to be a while before I could drink or eat anything again.

Afterwards I don't remember much of the first few days. I remember wanting to sleep but the lights hurt my eyes. I kept wishing they'd turn the lights out and stop sticking needles and things into me. I seem to remember one nurse who seemed particularly keen on injections - he looked a bit nervous all the time, as if he didn't quite know what to do! Every time I felt sick he gave me another injection - it seemed like every five minutes but I couldn't keep track of the time properly. I felt that if they'd just let me sleep I'd be fine.

Another time in the ICU, the physiotherapist was there, making me cough. I tried but nothing came and it hurt. She kept saying 'again' and 'again'. She had dark hair - immaculate and quite pretty but I got to dislike her a lot. She kept on and on and wouldn't leave me alone. I always tried to be polite and co-operative but it got too much. Every time she made me try I felt like my chest was breaking apart. Eventually I turned sullen and refused to do any more deep breathing. I think she was a bit annoyed but I didn't care – she went away.

I know now that I had some hallucinations, but at the time they seemed so real. I seemed to remember some sort of disco - all red, whirling lights and doctors and nurses and people strolling in and dancing. Some still in their white coats and some in ordinary clothes, people hanging round my bed and talking and laughing and eating sandwiches and dancing. I remember thinking that they had no regard for the patients who were trying to sleep. One day, I could have sworn that the hospital was in a jungle clearing and we were lying out on open verandas. There were quite a few small children playing about, running in and out – and oh! The noise!

When I got moved out of ICU I was in a four bed cubicle. I got along fine with the other patients, except for one who never stopped talking - I had to pretend to be asleep when I wanted peace and quiet. I'm resigned to the fact that there's absolutely no privacy in hospitals.

I've been home for a couple of weeks now. Apparently I was in three different rooms in the hospital, and in Intensive Care for a week on a breathing machine. I'm told I was a bit rude – shouting at people and pushing them away. I know all the logical explanations of drug hallucination, oxygen starvation, but I can't believe that was me.

The memory of the pain doesn't linger too much. I know I felt pain at various times but the actual feel and taste of it has disappeared. It's a good thing to know that nice things stay with you but pain is blotted out. The scars too are beginning to heal. What I feel now though is absolutely shattered – tired to my core. My legs get heavy and tired really quickly, and all I want to do is sleep. My mum is staying in Sunshine House for a bit longer to give me chance to get over it.

I think the operation has been successful – fingers crossed, but what they call my "hallucinations" are fresh and clear today still, the terror and the loneliness and the desperation. I relive them frequently, I can't ever forget them. They terrify me still. '

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL C

Prior to the session, download the GSF Prognostic Indicator Guidance (PIG) from: https://www.goldstandardsframework.org.uk and the Supportive and Palliative Care Indicators Tool (SPICT) from: http://www.spict.org.uk/the-spict/

WEEK COMMENCING 15 OCTOBER 2018	
The student will have the ability to:	
Lecture L	Explain the classification, medical, surgical and physiotherapy management of patients with burns and smoke inhalation; Have insight into burns and burn management form the perspective of a service user.
Lecture M ***Study task***	Explain the pathophysiology of cystic fibrosis; Explain the role of the physiotherapist in the management of patients with cystic fibrosis
Lecture N	Explain the role of the physiotherapist in paediatric respiratory care.
Practical G ***Study task***	Use case scenarios to clinically reason the management of the respiratory patient with a worsening condition.
Lecture O	Explain the requirements for out-of-hours emergency cardiorespiratory physiotherapy provision in clinical practice; Discuss different on-call competencies and mentorship/buddying systems across NHS organisations; Rationalise listing of patients for out-of-hours emergency cardiorespiratory physiotherapy provision.
Tutorial H (CT) ***Study task***	Critically appraise literature related to cardiorespiratory physiotherapy.
Tutorial I ***Study task***	Identify topics in the unit for further study; Consolidate their learning from the topics covered in CR2.
Practical H ***Study task***	

STUDY TASKS WEEK COMMENCING 15 OCTOBER 2018

STUDY TASK TO BE COMPLETED BEFORE LECTURE M

Prior to this session , please watch this 14 minute film 'Living With Cystic Fibrosis' https://www.youtube.com/watch?v=Dn0grhu9h4g [Accessed 27 July 2018]

If the link does not work, log onto YouTube and search for Living With Cystic Fibrosis or Holly Rosanna.

Consider the following as you watch the film:

- Consider the body systems that are affected by Cystic Fibrosis
- Make a note of the interventions or types of management that are required
- Consider the impact on an individual's quality of life

Read the following article:

Davies, J.C., Alton, E.W.F.W. and Bush, A. (2007) 'Clinical review: cystic fibrosis'. *British Medical Journal*, 335: pp 1255-1259. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2137053/pdf/bmj-335-7632-cr-01255.pdf [Accessed 27 July 2018].

Now access the following standards, paying particular attention to the section on exercise:

Association of Chartered Physiotherapists in Cystic Fibrosis (ACPCF) (2017) *Standards of care and good clinical practice for the physiotherapy management of cystic fibrosis.* 3rd ed. Bromley: Cystic Fibrosis Trust. [Accessed 27 July 2018] Available to download from: https://www.cysticfibrosis.org.uk/the-work-we-do/clinical-care/consensus-documents

STUDY TASK TO BE COMPLETED BEFORE PRACTICAL G

This session will enable you to bring your skills together and consider a range of patient scenarios. For this session you will need to review:

- COPD pathophysiology & relevant medication;
- Blood gas analysis, spirometry, oxygen therapy & delivery, and common CXR signs;
- Manual chest physiotherapy techniques, indications and contraindications;
- ACBT components and be able to adapt and teach this according to different patient scenarios;
- Positioning of patients for improved V/Q matching and comfort.

You may also find it helpful to view the Podcasts on respiratory management in the Moodle area prior to the session.

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL H (CT)

Re-read the cases of Mr Bury and Mr Smith from the unit handbook

Revise your problem lists and treatment plans for both these cases and then read the following two articles:

DC-Man W, Polkey MI, Donaldson N, Gray BJ, Moxham J. (2004) 'Community pulmonary rehabilitation after hospitalisation for acute exacerbations of chronic obstructive pulmonary disease: randomised controlled study', *British Medical Journal*, 329(7467), pp.1209 – 1220 [Online] [Accessed 27 July 2018] https://www.bmj.com/content/329/7476/1209.full

Morris PE, Goad A, Thompson C, Taylor K, Harry B, Passmore L, Ross A, et al. (2008) 'Early intensive care mobility therapy in the treatment of acute respiratory failure' *Critical Care Medicine*, 36(8), pp. 2238 – 2243 [Online] [Accessed 27 July 2018] https://journals.lww.com/ccmjournal/Fulltext/2008/08000/Early_intensive_care_unit_mobility_therapy_in_the.3.aspx

Briefly answer the following questions for each paper:

- Does the study appear well-designed?
- How would you consider the design, methodology and outcomes in terms of reliability and validity?
- How do the study's conclusions link to the two related cases on the unit? (Mr Phil Bury and Mr Jimmy Smith)
- How would the findings of these two studies affect the treatment plans you initially devised for Mr Bury and Mr Smith?
- How would these findings assist you as a physiotherapist when considering long-term management of these patients?

You should bring your findings to the session where you will discuss them as a group

STUDY TASK TO BE COMPLETED BEFORE TUTORIAL I AND PRACTICAL H

These sessions are 'consolidation' sessions timetabled at the end of the unit.

To make sure that you get the best opportunity to revise appropriate knowledge and skills in these sessions, you will be required, as a teaching group, to submit a list of specific questions / topic areas that you wish to go over. This will enable the staff running the sessions to make sure that the sessions are student centred. You will be required to submit these lists no later than at the end of Practical G to give staff time to plan the sessions.

ASSESSMENT

Please see the Physiotherapy Management 2 Moodle area for all information regarding the cardiorespiratory theme assessment.