



UNSW MEDICINE & HEALTH

MFAC1523 Health Maintenance A Student Guide

Medicine Teaching Period 3, 2024

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Welcome to Health Maintenance!

The Health Maintenance course is primarily concerned with the adult period of peoples' lives and the mechanisms involved in maintaining health in adulthood. For most people, this period is characterised by good health and relative stability. This course addresses some of the mechanisms by which health is maintained at the cellular, individual, social and population levels. These mechanisms are considered in four major themes;

- homeostasis
- host defence
- lifestyle factors that risk health
- education, health promotion and disease prevention

We address the biological mechanisms that maintain a constant environment for cells within the body (homeostasis) using examples from the cardiovascular and thermoregulatory systems. The role of host defence in preventing disease and the limitations of those defences is discussed in the context of hospital acquired infections and antibiotic resistance. We also consider lifestyle choices that risk health, such as smoking and recreational drug use, and the ways in which programs in education, health promotion, and disease prevention can impact on individual and population health.

In HMA 2024 there are four scenarios, each running for approximately 2 weeks. The first three scenarios relate to members of the extended Lee family.

These three scenarios ('Joe the Diver', 'Eric's Worries', 'Alice and Sophia') have been designed to form a continuum of health issues that can develop over time. The continuum is created by the fact that the three scenarios;

- involve members of the same extended family
- all revolve around aspects of cardiovascular function and dysfunction
- involve individuals that have adapted to a new society and culture.

The creation of this continuum is an important design element in the HMA course. In undertaking the three scenarios, students will:

- move from consideration of normal to abnormal
- move from younger to older individuals
- move from individual to family, with the creation of a valid context for the discussion of family dynamics
- move from community to hospital-based care models
- move from preventative to reactive aspects of cardiovascular health care
- explore differences in the extent to which individuals adapt to altered societal and cultural circumstance, and the influence of this on aspects of their health

The fourth scenario, 'Recreational Drugs', continues to explore the Health Maintenance themes of (1) homeostasis, with an emphasis on drug abuse and thermoregulation, and (2) lifestyle factors that risk health – this time with regard to recreational drug use and health education in the form of harm minimization programs.

Staff involved in the course

Course convenors

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With special thanks to:

Phil Waite, George Mangos, Andrew Moorhouse and Fiona Britton (previous convenors)
 Karen Gibson (Phase 1 convenor)
 Narelle Mackay (Assessment review)
 Peter Malouf, Brett Biles (Indigenous Health)
 Louise Metcalfe, Elena Mankovskaia, Kerrie Arnhold and the Faculty Office Staff for their ongoing support of all aspects of the development and delivery of this course.
 And the many individuals, including clinicians, academic staff, administrative and technical support staff, who contribute to the course.

Other contacts

Ethics Element Convenor
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Clinical Skills Convenor
 Dr Kalli Spencer
 Email: kalli.spencer@unsw.edu.au

Quality of Medical Practice Convenor
 Dr Amir Ariff
 Email: amir.ariff@unsw.edu.au

Student support

UNSW Medicine Student Wellbeing Advisor: <http://med.unsw.edu.au/student-wellbeing-advisor>
 UNSW Psychology and Wellness: <https://www.student.unsw.edu.au/counselling>

Student Services

<https://nucleus.unsw.edu.au/en/contact-us>
<https://portal.insight.unsw.edu.au/web-forms/>

eCOE
 Enrolment enquiries and help
 Recognition of Prior learning
 Program Leave/Discontinuation
 Internal Program Transfer
 Review of Results
 Standard letters (Jury Duty, Enrolment confirmation etc.)

Teaching Support

BMed.PM@unsw.edu.au

Assignments
 Learning Plans/miniCEXs
 Exams – clinical and non-clinical
 Exam adjustments
 Special Consideration
 Results (eMED/myUNSW)
 Special Study Plans
 eMED questions

Medicine Program Teaching Support

MedTimetable	MedTimetable@unsw.edu.au	Timetable queries
Learning Resources Help	BMed.LR@unsw.edu.au	eMed Map, Moodle
Cara Elvidge	02 5524 1532	Ph1 Admin/Student Support (Port Macquarie)
Rochelle McPherson	02 9065 4833	Ph1 Admin/Student Support (Wagga Wagga)

Medicine Computing Support Unit and IT Support

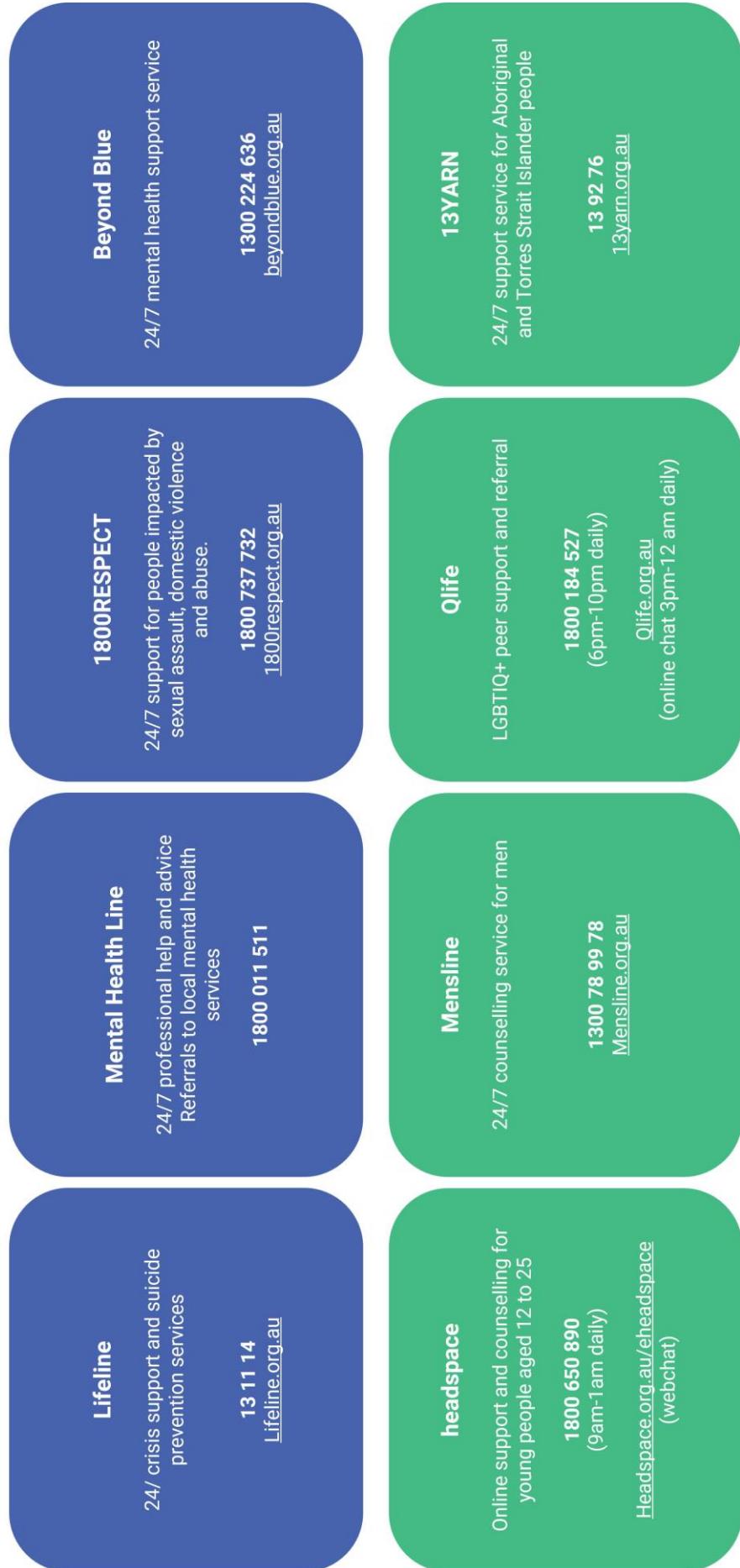
Medicine IT Support	02 9065 8683
AV Support	02 3385 4888
IT Help Desk	02 9385 1333

Student Support and Wellbeing

Student Support - I Need Help With...

 <p>My Feelings and Mental Health Feeling depressed, overwhelmed or not your usual self?</p>	 <p>Mental Health Connect student.unsw.edu.au/mhc</p>	 <p>UNSW (24/7) Mental Health Support: +61(2) 9385 5418 0485 826 595</p>
 <p>Uni and Life in Australia Stress, financial, visas, Accommodation & More</p>	 <p>Student Support Indigenous Student Support M&H Student Experience Officer, Indigenous</p>	 <p>Offshore Call 24-hour Medibank Hotline: +61 2 8905 0307</p>
 <p>Reporting Sexual Assault/Harassment</p>	 <p>Equity Diversity & Inclusion (EDI)</p>	 <p>unsw.edu.au/planning-assurance/conduct-integrity/gendered-violence</p>
 <p>Educational Adjustments To manage my studies and disability / health condition</p>	 <p>Equitable Learning Services (ELS)</p>	 <p>student.unsw.edu.au/els</p>
 <p>Academic and Study Skills</p>	 <p>Special Consideration</p>	 <p>student.unsw.edu.au/special-consideration</p>
 <p>Physical Health Doctors visits, Vaccinations</p>	 <p>Health Service</p>	 <p>student.unsw.edu.au/hsu OR Bulk Billed GP</p>

External Mental Health Support



Online Mental Health Resources

Useful resources to support mental health literacy and peer support

Mind Hub

Links to curated resources
for students

This Way Up

iCBT (internet delivered
Cognitive Behavioural
Therapy) courses for a range
of anxiety, depressive and
related mental health
conditions

Black Dog

Evidence based mental health
resources and support
services

Your Room

Evidence based information
about alcohol and other drugs

TalkCampus

University specific peer-to-
peer support platform.
Available in 26 different
languages

Reach Out

Anonymous online platform
that enables young people to
connect and learn together

GambleAware

Information and support for
problem gambling

Butterfly Foundation

Information and support for
disordered eating

General information

This course represents 12 units of credit.

Timetable

Consult the eMed Timetable for the details of teaching session dates, times and locations.

Resources

Resources relevant to the course can be viewed on the Health Maintenance A Moodle module.

Clinical sessions

Students should consult the eMed Timetable for details of their clinical sessions.

Evaluation

Student feedback on the course and teaching is gathered from the UNSW myExperience survey along with student focus groups, student forums, and at times additional evaluation and improvement instruments developed in consultation with the Faculty of Medicine's Program Evaluation and Improvement Group. Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

Significant changes to the course will be communicated to subsequent cohorts of students taking the course through inclusion of information in student course guides, in Moodle, and in presentations by course convenors. Evaluation activities across the Faculty are strongly linked to improvements and ensuring support for learning and teaching activities for both students and staff.

The myExperience evaluation for this course will run each year. If you have any additional feedback for this course please provide this via your facilitator, the element convenors, or the course convenor.

Feedback and 2024 Course Changes

We appreciate student feedback because we are always looking for ways to improve your learning experience in this course. We have taken note of the feedback from previous years.

Previous students told us that:

The course had highly interesting content and that lectures, tutorials and practicals all complement each other and helped to reinforce concepts. Students particularly enjoyed the integration of disciplines to gain a holistic understanding of cardiovascular health. They also appreciated the case studies and case analyses in the scenario group sessions. Students also told us they would like more in person practicals and more quizzes throughout the term.

Response to feedback:

HMA has undergone revision which includes:

- Incorporation of quizzes throughout the scenario group session and Moodle.
- Including as many in person practicals as possible
- Updating scenarios, course content and including revision in the final week.
- Review of the timetable to improve the scheduling of classes
- Reviewing of formative assessments

Attendance Requirements

You are expected to attend **all** classes and it is to your advantage to do so. Studies have shown that high attendance correlates with better engagement and success in courses and disciplines. By attending, engaging and actively participating in your classes you not only increase your own opportunities for success, but you also help build a learning community with other students. Attendance is a student's responsibility, and attendance and engagement are important aspects of professionalism. Please see the university policy on Class Attendance. <https://student.unsw.edu.au/attendance>

UNSW Medicine expects students to attend **all** scheduled activities (including those online) and be punctual. It is important that you contact your course convenor or the Phase 1 convenors if you need to allow for illness or misadventure. If you fail to comply with the attendance and engagement requirements for a course or term, you may be awarded an Unsatisfactory Fail (even if you pass the end of course examination).

If you have a potentially infectious illness, it is important to stay home. If you will miss your scenario group session, you should inform your facilitator that you will be absent. Please copy that email to medphase1@unsw.edu.au. Please also inform the relevant teachers for any other small group sessions you will miss (e.g. clinical skills, ethics tutorials). If you will miss a practical class, it is not necessary to inform the principal teacher unless you want to discuss whether you can attend an alternative session on another day (if this is possible). It is your responsibility to ensure that you catch up on any material that you missed. If you are going to be away from campus for a prolonged period (more than 3 days) you will need to present a medical certificate and inform your Course Convenor.

If you are unable to complete an assessment or exam on time because you are incapacitated due to illness or other causes you will also need to complete a Special Consideration application. Information about the Special Consideration application process and the online application form can be found on the [Special Consideration website](#). Once you have submitted your application you should hear back within 3 days but usually within less time. Please also see the Student Wellbeing Tab at the top of the page for further assistance.

Where a significant absence is anticipated during course time (such as conference attendance or important cultural or personal commitments) it is imperative that the student contact the Phase 1 Convenors as soon as possible so that leave of absence can be considered and alternative arrangements for study/assessment put into place. Failure to provide sufficient notice may result in an Unsatisfactory Fail grade for the course.

If a student is absent from any learning activity, it is their responsibility to independently learn the material they missed. If a student fails a course, they cannot use absences from learning activities, for any reason, as grounds for appeal.

Facilitators and tutors will keep attendance records in all scenario group sessions, campus clinical skills sessions, hospital sessions, ethics tutorials and practical classes. Student attendance at hospital teaching sessions is particularly important. Poor attendance is flagged by shared systems across all clinical campuses and Faculty. Failure to attend without an acceptable reason will result in a comment regarding a lapse in professional behaviour being added to the student's Portfolio. More than one such Professionalism comment in eMed may lead to a recommendation that the student is not eligible to sit the Phase 1 Clinical Skills examination.

It is important that students are aware of and comply with NSW Health (ClinConnect) compliance requirements, as discussed in the Program Guide.

It is your responsibility to frequently check the timetable for assigned classes and for any changes. Ignorance of classes, which are scheduled in the timetable, is not an acceptable excuse for non-attendance.

You can attend only classes to which you are allocated. You **may not attend** hospital sessions, practicals or other classes at different times or locations to those in your timetable. Staff may ask you to leave if you are not in the correct class.

Students taking **Self-Care Days** must register online using eMed portfolio at least 24 h ahead. Please ensure that you follow the guidelines on the Medicine Program website <https://medprogram.med.unsw.edu.au/getting-started-0#SelfCare>. Note that this includes notifying relevant teachers/facilitators of any small group classes that you will be missing e.g. scenario groups, ethics tutorials, clinical skills and hospital sessions, **at least 24 hours ahead**.

Special Consideration

UNSW operates under a Fit to Sit/ Submit rule for all assessments. If a student wishes to submit an application for special consideration for an exam or assessment, the application must be submitted **prior to the** start of the exam or before an assessment is submitted. If a student sits the exam/ submits an assignment, they are declaring themselves well enough to do so.

UNSW has introduced a process which allows a student to apply for a **short extension (SE)** without providing any documentation or reason. This process has been introduced to improve the student experience, reduce stress and allow for an extension in a timely manner when unexpected events occur. For the written individual assignment (either set assignment or negotiated assignment) students can apply for a two-day SE for submission. The SE has to be applied for before the original assignment submission date and is automatically approved. If a student applies for SE and then realises they need to apply for special consideration, they can do so.

You can apply by accessing the Short Extension Student Portal on the [Special Consideration login](#) page.

Scenario group session preparation

Please note the following scenario group sessions have essential preparation to be completed before the session. These sessions will not make much sense, and students will not be able to fully participate, unless they have done the requested preparation. Preparation tasks are detailed in the Student Guide, on Moodle, and in the eMed Map.

Session	Date	Article(s)/Homework
SGS2	3 rd or 4 th July 2024	Preparation of topics related to “Joe and his fitness to dive” for presentation Pre-reading: Articles on Global burden of cardiovascular disease
SGS3	8 th or 9 th July 2024	Pre-reading: “The Model of Stage of Readiness to Change Applied to Smoking” and “5As structure for smoking cessation”.
SGS5	15 th or 16 th July 2024	Smoking topics for presentation Students should be prepared to review the Eric scenario and develop a concept map (OR perform P2 peer-teaching)
SGS7	22 nd or 23 rd July 2024	Preparation of Community Expo for discussion
SGS8	24 th or 25 th July 2024	Students should be prepared to discuss key learning issues from the SGS5 concept map activity (OR perform P2 peer-teaching)
SGS9	29 th or 30 th July 2024	Students should be prepared to review course content and identify confusing or problematic areas (OR perform P2 peer-teaching)
SGS10	31 st July or 1 st August 2024	Come prepared for research/presentation on valvular heart disease topics
SGS11	5 th or 6 th August 2024	Delivery of group project presentations
SGS12	7 th or 8 th August 2024	Come prepared for cardiovascular and autonomic pharmacology quiz
SGS13	12 th or 13 th August 2024	Pre-reading: Enarson et al. (2004). Getting started in research: the research protocol. <i>Int J Tuberc Lung Dis</i> , 8(8), 1036-1040.
SGS14	14 th or 15 th August 2024	View the lecture on Temperature Extremes and complete related worksheet. Prepare for presentations on recreational drugs

Scenario 1 – Joe the diver

Schedule

Learning Activity	Principal Teacher
Scenario Plenary 1: Joe the diver	Parmenter, Belinda
Lecture 1: Cardiac structure	Shirazi, Reza
Campus Clinical Skills Session 1: Symptoms, signs and examination of cardiovascular system – praecordium	Spencer, Kalli
Scenario Group Session 1: Joe the diver	Murphy, Timothy
Lecture 2: The cardiovascular system - a functional overview	Murphy, Timothy
Lecture 3: Epidemiology of cardiovascular risk factors	Schutte, Alta
Lecture 4: Electrical events in the cardiac cycle	Murphy, Timothy
Lecture 5: Mechanical events of the cardiac cycle	Murphy, Timothy
Scenario Group Session 2: Is Joe fit to dive?	Murphy, Timothy
Lecture 6: Histology of the cardiovascular system	Hulme, Anneliese
Lecture 7: Atherosclerosis	Weber, Martin
Science Practical 1: Gross anatomy of the heart	Shirazi, Reza
Online Activity: Post prac revision: Heart and pericardium	Shirazi, Reza
Science Practical 2: Toad heart	Murphy, Timothy
Online Activity: Post prac revision: Toad Heart	Murphy, Timothy
Lecture 8: Anatomy of the peripheral vasculature	Kotsidis, Kosta
Lecture 9: Blood pressure control	Murphy, Timothy
Tutorial 1: The ECG	Gibson, Karen
Science Practical 3: Histology of blood vessels and atherosclerosis	Hulme, Anneliese Weber, Martin
Online Activity: Post prac revision: Histology of blood vessels and atherosclerosis	Hulme, Anneliese Weber, Martin

Note: This schedule is subject to change. It only shows the first instance of any one activity. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

Overview

In this scenario, Joe presents to his GP with a form that he needs to have signed so that he can undertake a Scuba diving course. He wants the GP to sign the form, which Joe has already completed. It has a rather extensive checklist of issues relevant to suitability for underwater diving.

In looking through the form, and through conversation with Joe, the GP becomes aware of issues that are of immediate significance (history of possible cardiac events as a youth), making her hesitant to sign the form immediately. It also becomes apparent that Joe is exhibiting a number of behaviours that will increase his risk of cardiovascular disease in the future.

Learning outcomes for the scenario

Students should be able to:

- Identify the basic elements of normal cardiovascular structure and function, and how they are assessed
- Understand the concept of normality, and how it is defined
- Recognise and describe the major risk factors for cardiovascular disease
- Describe how exercise affects heart rate and blood pressure

SGS-1 – Joe the diver (fit to dive?)

Aims

This session aims to support students to:

- develop an overview of the course
- form a productive learning group
- understand the medical and social contexts within which the course and scenario themes may be applicable

Key concepts

- Homeostasis
- The medical sciences related to normal cardiovascular function
- Risk factors associated with cardiovascular health
- Meaning and assessment of “normal” and “fitness”
- Stresses on the cardiovascular system imposed by SCUBA diving
- Assignments and projects in HMA

Information for students:

In the first scenario group session of the Health Maintenance course you will discuss the themes of the course, making sure you understand these concepts. You will be introduced to the first scenario for Health Maintenance, which focuses on Joe, the youngest member of the Lee family. Joe wants to learn scuba diving but this requires having a GP certify that he is fit to dive. During this scenario you will explore the concept of fitness, what it might mean in different situations and how it could be assessed. You will also consider common lifestyle factors relevant to cardiovascular health. You will review the different assignment and project options. You will be allocated topics related to Joe’s fitness to dive that you should report back on in SGS-2.

Process

Activities
1. Welcome students to Health Maintenance, introductions and review ground rules of the group
2. Re-iterate course themes, scenarios and learning activities, brief discussion about student’s own experience.
3. Discuss homeostasis and examples
4. Scenario video of Joe the Diver and associated documents
5. Discuss whether Joe is fit to dive and what lifestyle factors present a risk to his cardiovascular health. Allocate topics for SGS 2 where you argue whether or not Joe is indeed fit to dive.
6. Review assignments and projects
7. Homework — pre-reading for SGS 2
8. Reminders – presentations

Pre-reading for SGS-2:**Read the following articles in preparation for the next SGS.**

Mensah et al. (2024). Turning Data Into Action: The JACC Global Burden of Cardiovascular Diseases and Risks Interactive Tool and Resources. *Journal of the American College of Cardiology*. 83(24):2610-2613.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62239147850001731?auth=SAML

Related website: <https://www.jacc.org/global-burden-cardiovascular-disease>

Interactive tool: <https://vizhub.healthdata.org/gbd-compare/>

Vogel et al. (2021). The Lancet women and cardiovascular disease Commission: reducing the global burden by 2030. *Lancet*. 397(10292):2385-2438.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62239175350001731?auth=SAML

The following pages contain the **SPUMS Guidelines on Medical Risk Assessment for Recreational Diving** (9 pages) along with **Appendix A - Suggested Evaluation of the Cardiovascular System for Divers** (2 pages), with the **SPUMS DIVING MEDICAL FORMS** (5 pages), and Joe's SPUMS self-assessment form with his Echo and ECG results.

The SPUMS diving medical 2020

THE SOUTH PACIFIC UNDERWATER MEDICINE SOCIETY



GUIDELINES ON MEDICAL RISK ASSESSMENT FOR RECREATIONAL DIVING

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Melbourne,
Victoria 3004, Australia

SPUMS suggests that members have pages 12 – 19 reproduced as the form which they use for their diving medical examinations.

The Statement of Health for Recreational Diving on page 19 should be used as a certificate of fitness to dive.

The pro-forma statement on page 33 should be added to the certificate in Section C, for use when counselling divers with diabetes about their diving.

Notice

Neither the South Pacific Underwater Medicine Society Incorporated nor its officers assume any liability for any injury and/or damage to persons or property arising from this publication.

www.spums.org.au

SECTION A

PRE-DIVING MEDICAL EXAMINATION FOR RECREATIONAL DIVING

A1 INTRODUCTION

The medical criteria discussed in this document are relevant to the examination of individuals undertaking or considering recreational compressed gas diving and are addressed to registered medical practitioners. This document does not apply to occupational divers.

The purpose of the diving medical assessment is to assess the medical risks of diving and communicate these to the candidate, diver or legal guardian. This includes the assessment of both general risks related to compression and breathing compressed gases, and specific risks relating to the health of each individual.

All candidates for diving should have a medical risk assessment before commencing diving and this assessment should be repeated after any significant illness or change in health status. Divers with chronic medical conditions may require assessment at regular intervals as appropriate. All diving candidates and established divers aged 45 years and over should undergo a medical assessment with a focus on cardiovascular evaluation, preferably by a doctor with training in diving medicine. This recommendation is based on commonly used age criteria cardiovascular risk calculators.^{1,2} Appendix A provides recommendations for the evaluation of the cardiovascular system in divers.

The South Pacific Underwater Medicine Society Incorporated (SPUMS) recommends that divers should be re-assessed at intervals of no more than five years after the age of 45, even in the absence of other health issues.

The medical practitioner should be satisfied the candidate understands the relevant medical risks when deciding whether or not to undertake dive training. Where the medical practitioner considers such risks are unacceptably high, he or she will decline to clear the candidate for diving, and this decision should be explained to the candidate in unambiguous risk-related terms.

Safe diving involves a degree of physical fitness and capability in the water (see A2 below). Unless the candidate is clearly unfit, these aspects should be assessed as functional capabilities during the practical phase of dive training.

The medical criteria discussed in this section are in no way exhaustive. The trained personnel doing the medical are expected to use their own discretion.

This document applies only for recreational diving. The criteria for medical examination of persons intending to train for occupational diving are given in AS/NZS 2299.1 (2015). Occupational diving operations - Standard operational practice. Standards Australia, <http://www.standards.org.au>.

This medical risk assessment should be conducted by a medical practitioner who has successfully completed an approved course of training for medically assessing recreational divers. SPUMS recommends that medical examiners undertake continuing education in the field of diving medicine. In the absence of a relevant regulatory authority, the Academic Board (chaired by the Education Officer) of SPUMS is the authority approving courses. Courses which have been approved are given in Paragraph A5.

NOTE

SPUMS publishes a list of members who have received appropriate qualifications and who do diving medicals. This list is posted on the SPUMS website at www.SPUMS.org.au.

In the event of any difficulty in interpreting this document, if a candidate's problems lie outside the expertise of the examining practitioner, or if the candidate disputes an adverse decision about diving, then he or she should be referred to a specialist diving physician, one who holds the SPUMS Diploma of Diving and Hyperbaric Medicine (DipDHM), the ANZCA Diploma of Advanced Diving and Hyperbaric Medicine (DipAdvDHM) or an acceptable overseas equivalent, who may also refer to a specialist in the medical area under question (e.g., otologist, cardiologist or respiratory physician) for a further opinion.

A formal medical risk assessment should be carried out before the candidate first uses compressed air underwater (including in a swimming pool).

The results of any chest X-ray and specialist tests or opinion should be known before a medical statement is issued.

The record of medical risk assessment should be retained by the medical practitioner. A medical statement outlining the relevant elements of the risk assessment and any advice should be given to the candidate. A suggested medical form for this purpose is given in Section B, page 14.

The training establishment shall hold a record of the date of this statement, and the name and address of the medical practitioner who performed that examination.

A2 NEED FOR FITNESS CRITERIA

Recreational diving may require physical exertion. The management of unexpected emergencies underwater or on the surface will depend upon training, mental stability and physical and medical fitness.

Physical fitness is not synonymous with fitness to dive. Any disorder which causes an increased risk of sudden death, impaired consciousness, impaired judgement, risk of disorientation, impaired mobility, risk of barotrauma or risk of decompression sickness may render a person at high risk whilst scuba diving.

Divers are exposed to pressures and physiological changes that do not apply to persons involved in other activities. As diving is carried out in a non-respirable environment, any loss of consciousness is likely to result in drowning. Some medical conditions are associated with such high risk during diving that they should be regarded as absolute contraindications. Some medical conditions are associated with only a modest (or an unquantified) increase in risk and are relative contraindications that may not preclude diving.

Diving in all forms places increased demands on the cardiovascular system. Immersion itself causes an increase in cardiac preload (increased venous return) and at the same time, peripheral vasoconstriction, causing an increase in blood pressure and afterload. These changes are typically accompanied by sustained mild to moderate exercise and occasional requirements for peak exercise in challenging circumstances. Given all this and the increasing age of the 'average' diver, it is not surprising about one third of recreational diving fatalities have a cardiac event as the disabling injury.³ Specific guidance is provided in Appendix A for evaluation of the cardiovascular system for divers.

Any risk factors identified must be discussed with the prospective diver and an assessment of the hazards, as well as the effect of any restrictions advised.

A3 LIMITATIONS and ADVISORY NOTES

Some divers may require advice with regard to limitations on depth, decompression requirement, supervision, support, or other relevant parameters. Any such advice on diving should be given to the candidate and written on the medical certificate.

The physician should be aware when any proposed restrictions are likely to prevent the candidate from being certified according to the instructor organisation's requirements.

NOTE: As the greatest proportionate changes in the volume of a compressible air space occur in the water column close to the surface, certificates restricting candidates to shallow water only, or interim certificates for "training dives only" are not a valid means of reducing the risk of barotraumatic injury. Severe pulmonary overpressure incidents have occurred in a depth as little as 1 metre of water.

A4 FITNESS CRITERIA

A4.1 General

The systems outlined in Paragraph A4.2 to A4.16 should be evaluated by taking a medical history and performing a medical examination. The example medical form and medical certificate given in Section B may be copied for use by medical practitioners. The information and questions on the form shown in Section B shall form the minimum content of any alternative form used for recording the medical examination.

A4.2 Age

The SPUMS does not recommend diving for children under the age of 14 years. Any medical risk assessment of children under the age of 16 should include parents or guardians. This assessment should establish the child's physical and psychological maturity. Between the ages of 16 and 18 years it is preferable to consult the parents or guardians before conducting any risk assessment. There is no upper age limit provided appropriate medical fitness standards are met. The SPUMS recommends that from the age of 45 years, all candidates should have regular assessments at no longer than five yearly intervals, with emphasis on evaluation of cardiovascular fitness and pulmonary reserves. Emergency situations may demand a high degree of fitness.

A4.3 General fitness

Consideration must be given to the candidate having adequate reserves of physical fitness to cope with unexpected demands due to adverse weather or sea conditions, surfacing away from a boat, having to aid a distressed buddy or other emergencies. Whilst all candidates should undergo appropriate functional assessment during dive training, if the medical risk assessment reveals a probable lack of adequate physical fitness, this should be indicated in the advice given.

A4.4 Obesity

Obesity may imply a lack of physical fitness and also represents a possible hazard to divers by increasing the risk of decompression illness. Reduction in decompression stress by adopting conservative diving strategies is advised for the obese diver. The general medical risks of obesity should be discussed with the diver.

A4.5 Vision

Good vision is essential to safe diving both for reading gauges, timing devices or decompression tables (near vision), and for locating the dive boat, exit point or dive buddy (distant vision). Any marked loss of visual acuity will diminish an individual's ability to dive safely under normal conditions unless corrected appropriately. To achieve correction while diving, contact lenses may be used in a dive mask, or the mask itself may contain a prescription face plate. A risk of corneal ulceration exists if non-permeable contact lenses are used.

Visual acuity should be assessed for every candidate. Visual acuity is here defined as the best obtainable vision with or without glasses or contact lenses and should be tested using a standard visual acuity chart (Snellen chart or equivalent). Assessment should be made of both corrected and uncorrected acuity. Diving is not advised if the person's visual acuity in the better eye or with both eyes together is worse than 6/12 (corrected or uncorrected).* Near vision should be adequate to read gauges and dive tables. Very poor, unaided visual acuity may become important if the diver loses their face mask or contact lenses during diving and this risk should be discussed with the candidate. The assessment of other significant visual and ocular abnormalities may require referral to an optometrist or ophthalmologist.

*This statement is consistent with that required for the issue of a conditional driving license in Australia (Austroads. Assessing Fitness to Drive for Commercial and Private Vehicle Drivers. Medical Standards for licensing and clinical management guidelines. As amended up to August 2017. (5th edition), Sydney, 2016, reprinted 2017.; AP-G56/17. www.austroads.com.au).

A4.6 Ear, nose and throat

The middle ears and sinuses will develop problems on descent unless the pressure in these spaces equals ambient pressure. There is no way of establishing the patency of sinus ostia by clinical examination. However, patency of the Eustachian tubes, and so the ability to equalise the middle ear pressures, can be established. Observation of the tympanic membranes while the patient holds their nose shut, shuts the mouth and blows gently (similar to a Valsalva manoeuvre) will show entry of air to the middle ear by movement of the drum. Eustachian tube patency can also be assessed with dynamic tympanometry if available. The Eustachian tube opening in the naso-pharynx is normally closed. Swallowing opens the ostium. Therefore, a combination of a modified Valsalva (with the vocal cords open) and swallowing during the manoeuvre will give the best chance for air to travel up the Eustachian tube. Another way of opening the Eustachian tube is to protrude and wriggle the jaw from side to side while performing a modified Valsalva manoeuvre. Failure to auto-inflate a middle ear will make diving impossible due to pain in the ear and will be associated with damage to the middle ear structures. These candidates should be strongly advised against attempting to dive. Referral to an ENT specialist for formal assessment and treatment may be appropriate.

Clinical assessment should be undertaken specifically to establish the following:

- (a) Both tympanic membranes should be intact and mobile and both Eustachian tubes should be patent. If not, the candidate should be strongly advised against diving because of a high risk of middle ear barotrauma, and possibly inner ear barotrauma (see above).
- (b) Any evidence of chronic outer or middle ear discharge; this may indicate increased risk of barotrauma.
- (c) Any evidence of chronic or recurrent sinusitis, catarrh, cleft palate (repaired or otherwise) or severe allergic conditions of the respiratory tract may increase the risk of barotrauma; this may indicate increased risk of barotrauma.
- (d) Any history of middle ear surgery (including tympanoplasty); these candidates should be referred for diving specialist opinion and possibly specialist ENT opinion in order to assess the risk associated with compression.
- (e) *Audiometry.* Audiometric examinations should be considered when hearing loss is suspected, or as baseline for later comparison in the event of diving injury. The audiogram should be conducted at 500, 1,000, 1,500, 2,000, 3,000, 4,000, 6,000 and 8,000 Hz. If there are any significant abnormalities in either audiology or labyrinthine function the patient should be referred to a diving specialist. Hearing loss is not necessarily a contraindication to diving.

A4.7 Dental

Dentition and jaw function should be assessed for ease of retention of a diving regulator or snorkel mouthpiece. Carious teeth or teeth with incompletely filled caries are at risk of dental barotrauma. Recent extractions can lead to air entering the tissues and causing subcutaneous emphysema.

A4.8 Central nervous system

- (a) A full examination of the central nervous system should be undertaken when neurological abnormality is suspected. Any abnormalities should be accurately documented for future reference.
- (b) A candidate with a history of fits (apart from childhood febrile convulsions), or unexplained blackouts should be strongly advised against diving. Any condition associated with fits or blackouts will be a grave risk to life during diving.

(c) Candidates with a history of migraine require further assessment. Particular attention should be paid to the pattern and timing of headaches. Both decompression illness and migraines with neurological 'aura' are associated with patent foramen ovale and consideration should be given to a bubble-contrast transthoracic or transoesophageal echocardiogram to exclude this condition, particularly if headaches have been associated with previous scuba diving or focal neurological signs.

(d) Candidates with a history of head injury involving significant unconsciousness or concussion associated with repeated headaches, or intra-cranial surgery should be individually assessed by a neurologist in order to determine any risk of seizures or impairment of neurological function.

(e) The Modified Sharpened Romberg test is useful in assessing vestibular and cerebellar function, and should be tested as a baseline. This test is performed by having the candidate stand on a hard floor, barefoot, with the feet touching heel to toe in a straight line and with arms crossed on the chest. When steady in this position the eyes are closed. From the time the eyes are closed the ability to maintain balance is timed and recorded in seconds. If the candidate fails to maintain the position for 60 seconds the test is repeated up to four times and the best performance recorded. This is necessary as there is a learning curve which is much assisted by the candidate relaxing. Balance maintained for less than 25–30 sec is considered abnormal.

A4.9 Mental health disorders

Medical conditions that may be associated with poor cognition or decision-making are a risk for diving and any medical assessment of the suitability of a candidate for diving should include an assessment of mental state. Unfortunately, there is little evidence on which to base decision-making in this area. Referral should be made to the regular medical team treating the condition if there is any doubt about the suitability for diving.

It seems reasonable to advise any candidate against diving who is:

- out of touch with reality
- severely depressed and suicidal
- paranoid with delusions and hallucinations
- suffering significant anxiety with panic attacks

There are many other conditions that will require careful assessment on an individual basis, including general anxieties, hyperactivity and attention deficit disorders, narcolepsy and neuroses. In particular, any anxiety states provoked by the underwater environment will need to be thoroughly discussed with the candidate and may involve assessment after an initial exposure to that environment. Panic is commonly associated with diving deaths.

Mood-altering drugs used to treat these conditions also require careful consideration and must be used with caution when diving. On the other hand, stopping these drugs in order to dive may be unwise.

A4.10 Cardiovascular system (CVS)

28% percent of recreational diving fatalities have a cardiac event as the disabling injury. It follows that the primary goals of evaluating the cardiovascular system in a diving candidate are to identify those at risk of myocardial ischemic events, myocardial insufficiency, or other cardiac events (such as arrhythmias) that might be disabling underwater.

All divers or diving candidates aged 45 and over are at higher risk of cardiac disease even when asymptomatic. Therefore, all should be assessed according to the guidelines documented in Appendix A.

Appendix A also provides guidance for assessment of younger candidates or other high-risk groups who have a history indicating increased cardiac risk or in whom physical examination reveals cardiovascular abnormalities.

A4.11 Respiratory system

(a) A comprehensive history and examination should be performed. Any abnormal findings should be fully investigated and specialist opinion sought where appropriate. Particular attention must be paid to any condition that might cause retention and trapping of expanding gas in any part of the lungs during decompression (e.g., asthma).

(b) The following conditions may be associated with excessive risk of pulmonary barotrauma or inability to cope with the physical demands of diving:

- (i) Any chronic lung disease, past or present
- (ii) Any history of spontaneous pneumothorax, penetrating chest injuries, or open chest surgery
- (iii) Any fibrotic lesion of the lung that may cause generalised or localised lack of compliance in lung tissue
- (iv) Any history of acute fulminating asthma or admission to ICU for the treatment of asthma
- (v) Any evidence of obstructive airways disease (e.g., current asthma or chronic bronchitis). In cases of doubt, specialist medical opinion should be sought. Such opinion should include provocation testing if the possibility of bronchial hyper-reactivity exists (see Appendix A for a suggested approach to assessment of an asthmatic diver).

(c) A full-plate postero-anterior chest X-ray should be considered for all candidates who have a significant past or present history of respiratory diseases; abnormalities in the respiratory system on clinical examination or an abnormal pulmonary function test (see Appendix B). If there is no history of cardio-respiratory disorders, a normal physical examination and normal lung function tests, then a chest X-ray may not be required.

(d) Pulmonary function testing is indicated on all divers who require medical consultation for respiratory reasons. The tests should include a single-breath flow-volume loop, if necessary by referral to a pulmonary laboratory. The equipment used should be subject to regular testing of function and calibration. An FVC or FEV₁ of more than 20% below predicted values and/or FEV₁/FVC ratio of less than 75% requires further assessment (see Appendix B).

A4.12 Gastro-intestinal tract

a) A history and examination should be performed. Any abnormal findings should be investigated.

(b) Any abdominal herniation may represent a risk of gastrointestinal barotrauma. Consideration should be given to the surgical repair of hernias if there may be a significant risk.

(c) Candidates should be free of significant acute or chronic gastro-intestinal problems that may cause an acute crisis or incapacity (e.g., peptic ulceration, severe reflux). Specialist opinion should be sought if required.

A4.13 Musculoskeletal

Any impairment of musculoskeletal function should be carefully assessed against the potential requirements of emergencies that might occur in the water. The weight of diving equipment out of the water can represent a significant hazard to those with pre-existing back or other joint injury or disease. This should become clear on functional assessment during diving training, but any suspicion concerning significant musculoskeletal capability should be communicated to the diver. It may be useful to require the candidate to lift and carry a typical set of diving gear in order to demonstrate sufficient musculoskeletal strength and function.

A4.14 Pregnancy

The safety of diving while pregnant has not been established. The level and nature of risks to the foetus remain uncertain, but divers who may be pregnant should be strongly advised not to dive.

A4.15 Diabetes mellitus

Diabetes mellitus is potentially associated with several problems for divers, including effects of this disease on end organs (e.g., heart, kidneys) that may limit the physical ability to dive and the potential for hypoglycaemia during immersion. Some individuals with either insulin-requiring or non-insulin requiring diabetes may be able to dive with an acceptable level of risk. People with diabetes who wish to dive should be well informed of the potential risks and those who require insulin should be referred to a programme specifically designed for divers with diabetes. Co-operation between the physician managing diabetes and the diving physician should be sought for best practice management (see Appendix C).

Divers with diabetes should be selected for suitability for these 'diabetic diving' programmes, arrangements made for annual surveillance of health and diabetic control, limits put on recommended diving following any change in medication or intercurrent illness and a procedure established for blood sugar management on diving days (see Appendix C). Non-insulin requiring candidates with diabetes may be at a lower risk of hypoglycaemia, but have significant risks of end-organ damage that may preclude diving. Health surveillance plans for diving should address all relevant risks. The diving candidate should demonstrate a good understanding of diet, exercise, stress, temperature and blood glucose levels and the need for screening for silent myocardial ischaemia (see Appendix A).

A4.16 Other conditions

- (a) Candidates taking medication of any type, including non-prescription drugs, require individual consideration. Many medications have altered effects or risks underwater, they may increase decompression illness risk or the effects of nitrogen narcosis. Drugs that affect the cardiovascular, respiratory or neurological systems may be associated with a significant increase in risk. In particular, cardiac, blood pressure-lowering medication and central nervous system drugs require careful assessment.
- (b) Cigarette smoking has deleterious effects on cardiac, pulmonary and upper respiratory systems and should be strongly discouraged in divers.
- (c) The effects of alcohol can be detrimental to divers, increasing the risks of inert gas narcosis, dehydration, decompression illness and vomiting. Dehydration following alcohol intake may be a risk factor for decompression illness.
- (d) Use of illicit drugs. The impact of illicit drugs and their withdrawal syndromes should be assessed and discussed with the individual. Use of illicit drugs in any form should be strongly discouraged.

A5 QUALIFICATIONS REQUIRED FOR MEDICAL PRACTITIONERS PERFORMING PRE-DIVING MEDICALS ON ENTRY-LEVEL SCUBA DIVERS

NOTE: Medical practitioners without training in diving medicine should not perform diving medicals. If for some reason the medical has to be done by someone untrained in this field, then any abnormalities detected, on either history or examination, should result in referral for specialist medical advice or examination by a medical practitioner with training in diving medicine.

Registered medical practitioners shall undergo accredited formal training and have verified capability of performing diving medical examinations before carrying out pre-diving medicals. In Australia, these medicals are covered by an Australian Standard (AS 4005.1). The Academic Board of SPUMS approves recognises specific courses in the teaching of this skill. The current list appears on the SPUMS web site at <www.spums.org.au>. At the last assessment in May 1999 the board had recognised the following courses:

ANZHMG Introductory Course in Diving and Hyperbaric Medicine*
Christchurch Hospital Basic Course
Diving Medical Centre Medical Examiner Course
Fremantle Hospital Medical Assessment of Divers Course
Institute of Naval Medicine (U.K.) Medical Examiner course
Royal Adelaide Hospital Basic Course
Royal Adelaide Hospital Advanced Course (preceded by the basic)*
Royal Australian Navy Diving Medical Course*
Royal New Zealand Navy Basic Course
School of Public Health and Tropical Medicine, James Cook University, Course in Diving Medicine
Townsville General Hospital Diving Medical Course
United States Navy Diving Medical Officer Course*

*denotes a course of at least 10 working days. It is a recommendation by SPUMS that only doctors who have satisfactorily completed one of the courses marked by an asterisk perform occupational diving medicals, AS/NZS 2299.

It is likely that other courses of equal standing will be approved in the future. As a general rule for approval, at least 12 hours of any diving medicine course should be spent specifically on the requirements of the diving medical examination. These 12 hours do not include a description of diving medicine, diving physics, etc. Any such course should also be under the control and instruction of specialist diving physicians. Courses in introductory diving medicine, such as the Resort Medical Diving Courses and many of the others throughout the world, would not be accepted, on the basis that these are not specifically designed to teach doctors the techniques and complexities of diving medical examinations. Many of these courses bear no relationship to the Australian Standards requirements.

Special application can be made to SPUMS for recognition of training in underwater medicine. The address for the Academic Board of SPUMS is:
The Education Officer
South Pacific Underwater Medical Society
C/o Australian and New Zealand College of Anaesthetists,
630 St Kilda Road,
Melbourne, Victoria 3004, Australia.

SECTION B**SUGGESTED SCOPE OF A MEDICAL QUESTIONNAIRE FOR SCREENING CANDIDATES FOR RECREATIONAL SCUBA DIVING****HEALTH STATEMENT FOR PERSONS WISHING TO UNDERTAKE SCUBA-DIVING TRAINING**

The provision of inaccurate, incomplete or misleading information, or withholding any information is likely to place you at risk and renders any subsequent medical opinion unreliable.

Introduction

This is a medical questionnaire designed to identify any health issues that may increase the risk to you from undertaking SCUBA diving.

In order to undertake dive training you will be required to sign this form on the understanding that relevant medical details may be passed to your dive trainer.

You will also be informed of some potential risks involved in scuba diving and of the conduct required of you during the scuba training programme. Your signature on this statement is required for you to participate in the scuba training program offered.

If you are under 18 years of age, you must have this questionnaire signed by a parent or guardian.

Training to be offered by _____ and

Pro-Dive (Instructors) located at (Facility)

Cooee

Diving is an exciting and demanding activity. When performed correctly, applying correct techniques, it is relatively safe. To scuba dive safely, you should not be extremely overweight or out of condition. Diving can be strenuous under certain conditions. Your lungs, heart and circulation must be in good health. All body air spaces such as the sinuses and middle ears must be normal and healthy. A person with heart disease, a current head cold or lung congestion, epilepsy (fits), any severe medical problem or who is under the influence of alcohol or drugs should not dive. If you have asthma, heart disease, other chronic medical conditions or you are taking medications on a regular basis, you should inform the doctor and the instructor before participating in this programme.

You will also learn from the instructor the important safety rules regarding breathing and ear clearing while scuba diving. Improper use of scuba equipment can result in serious injury. You must be thoroughly instructed in its use under direct supervision of a qualified instructor to use it safely.

If you have any additional questions regarding this Medical Statement or the Medical Questionnaire section, review them with your instructor before signing.

Candidate initials SL

Please read carefully before signing.

1. Surname Lee Other Names Joseph
2. Date of Birth (dd/mm/yyyy) 20/3/1998
3. Address 24 Johnson St.
Huntingdale
State: NSW Postcode 2208
4. Sex Male/ Female
5. Telephone (Home) 9997 1234
6. Principal Occupation Salesman
7. Telephone (Work) /
8. Email (Optional) j.lee@ozweb.com.

9. How often do you exercise (minutes per week)? 60

What is your estimated level of intensity of that exercise (High-Medium-Low)?
Medium

10. Are you taking any prescription tablets, medicines or drugs?

List: _____ No

11. Have you had any reactions to drugs or medicines or foods? No

Details: _____

12. Tobacco Smoking History.

Do you smoke tobacco now? Y/N

Have you ever smoked tobacco? Y/N

How many cigarettes per day do/did you smoke and for how many years?

Pack per day on weekends

If other forms of tobacco, please detail _____

13. Do you drink alcohol? _____ Y/N

Estimate how many standard drinks per night or week. _____

14. Do you currently consume illicit drugs? Y/N

Detail: _____

Please answer the following questions on your past or present medical history (from question 15 onwards) with a YES or NO.

- If you have never heard of the condition or had the diagnosis applied to you – then reply **NO**
- If you are not confident that you understand the question, then leave this blank and discuss with the doctor

Have you ever had or do you now have any of the following?	YES	NO	Physician's comments
15. Any continuing eye or visual problems (apart from needing glasses or contact lenses)?	/	/	
16. Sinusitis (e.g. hay fever, sinus infections)?	/	/	
17. Any other nose or throat problem (apart from previous coughs and colds)?	/	/	
18. Dentures or plates that are removable?	/	/	
19. Deafness or ringing noises in ear(s)?	/	/	
20. Discharging ears or other infections?	/	/	
21. Previous ear operation (including as a child)?	/	/	
22. Giddiness or loss of balance?	/	/	
23. Severe motion sickness?	/	/	
24. Any ear problems or severe headaches when flying in aircraft?	/	/	
25. Severe or frequent headaches, including migraine?	/	/	
26. Faints or blackouts?	/	/	Once at school when 14
27. Convulsions, fits or epilepsy?	/	/	¶
28. Any episodes of unconsciousness?	/	/	
29. Depression requiring medical treatment?	/	/	
30. Claustrophobia?	/	/	
31. Mental illness or mental health issues requiring therapy or treatment?	/	/	
32. Bronchitis or pneumonia?	/	/	
33. Pleurisy or severe chest pain?	/	/	
34. Coughing up phlegm or blood?	/	/	

Have you ever had or do you now have any of the following?	YES	NO	Physician's comments
35. Chronic or persistent cough?	/	/	
36. Tuberculosis ("TB")?	/	/	
37. Pneumothorax ("collapsed lung")?	/	/	
38. Frequent chest colds?	/	/	
39. Asthma or wheezing?	/	/	
40. Use a puffer (medication inhaler for asthma)?	/	/	
41. Any other chest complaint?	/	/	
42. Operation on chest, lungs, or heart?	/	/	
43. Peptic ulcer or acid reflux requiring treatment?	/	/	Sometimes get heartburn
44. Vomiting blood or passing red or black motions?	/	/	
45. Jaundice, hepatitis or liver disease?	/	/	
46. Malaria?	/	/	
47. Severe loss of weight?	/	/	
48. Hernia or rupture?	/	/	
49. Major joint or back injury?	/	/	
50. Paralysis, muscle weakness or numbness?	/	/	
51. Kidney disease?	/	/	
52. Diabetes?	/	/	
53. Blood disease or bleeding problem?	/	/	
54. Could you be pregnant, or are you trying to become pregnant?	X N/A		
CARDIOVASCULAR RISK QUESTIONS			
55. Do you have any known heart disease or have your ever consulted a cardiologist (specialist heart doctor)?	/	/	
56. Is there a family history of heart disease or diabetes?	/	/	
57. Is there a family history of sudden death at a young age?	/	/	
58. Are you ever aware of a racing or irregularly beating heart, or any other known problems with your heart beat?	/	/	ECG (heart racing) after collapse at school
59. Have you ever had giddiness, light headedness or periods of unconsciousness whether or not associated with exercise?	/	/	
60. Do you ever get discomfort in your chest with exertion (angina)?	/	/	
61. Do you ever get very short of breath on exertion (out of proportion to the exercise, or before your legs get tired)?	/	/	
62. Have you ever been short of breath lying down or woken from sleep with breathlessness?	/	/	

CARDIOVASCULAR RISK QUESTIONS	YES	NO	Physician's comments
63. Do you have a pacemaker or implanted defibrillator?		/	
64. Have you ever had an operation on the heart including any placement of stents?		/	
65. Have you ever failed or had a significant medical issue with a diving medical in the past?		/	WIA
66. Have you ever had a diagnosis of the following:			
• High blood pressure?		X	
• Rheumatic fever or problems with your heart valves?		X	
• High cholesterol?		X	
• Immersion pulmonary oedema?		X	
• Heart failure or a problem with heart muscle including cardiomyopathy or obstructive coronary heart disease?		X	
• A hole in the heart (PFO, ASD, VSD) or other congenital heart disease?		X	
• Blood clots on the lungs?		X	
• A stroke?		X	

Water skills and diving history

Previous Diving Experience? When, and how many dives?

Details: _____ *None, only snorkeling*

Previous qualifications (if any): _____

Can you swim? _____ *Yes*

Have you ever had any problem during or after swimming or diving?

Details: _____ *No*

Have you ever had decompression illness?

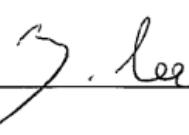
Details: _____ *No*Do you snorkel dive regularly? _____ *No, only once.*

The SPUMS diving medical 2020

Candidate Statement

I certify that the above information is true and complete to the best of my knowledge. I hereby authorise (dive training organisation) _____ to pass this information to a diving doctor of my choosing. I also authorise that doctor to obtain or supply medical information regarding me to other doctors as may be necessary for medical purposes in my personal interest.

Signed:



Date:

1/7/2024

Note

Any chronic disease, such as hepatitis A, B, C, AIDS or tuberculosis, may increase your risks from diving. If you have a chronic disease please discuss it with the doctor who will then be able to advise you whether you will be at increased risk.

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SPUMS PRE-DIVE MEDICAL FORM FOR ENTRY-LEVEL SCUBA DIVERS**Append the diver medical statement above****Notes or additions to medical history:** _____

_____**MEDICAL EXAMINATION: To be completed by an Approved Medical Practitioner**

1. Height <i>166</i> cm	2. Weight <i>82</i> kg	3. Visual acuity R 6/ L 6/ Corrected 6/ Corrected 6/	4. Blood Pressure <i>130/90</i> mmHg	5. Pulse rate <i>78</i> bpm
6. Urinalysis Albumin <i>neg</i> Glucose <i>neg</i>	7. Respiratory function tests including: (attach results) FVC FEV ₁ Ratio (%)	8. CXR (if required) Date: Place: Result:		
9. Audiometry dB Right	(Hz) 500 1000 1500 2000 3000	4000	6000	8000
Left	<i>Normal</i>			
10. ECG (if indicated)	<i>No</i>			

Clinical Examination/Assessment	Normal	Abnormal	Notes on any abnormalities
11. Nose, septum, airway	<i>/</i>		
12. Mouth, throat, teeth, bite	<i>/</i>		
13. External auditory canal	<i>/</i>		
14. Tympanic membrane	<i>/</i>		
15. Middle ear autoinflation			
16. Neurological Eye movements Pupillary reflexes Limb reflexes Finger-nose Sharpened Romberg Test			
17. Abdomen	<i>/</i>		
18. Chest auscultation	<i>/</i>		
19. Cardiac auscultation	<i>/</i>		
20. Other abnormalities			

STATEMENT OF HEALTH FOR RECREATIONAL DIVING

This Section to be completed by a Medical Practitioner with appropriate training in diving medicine

This is to certify that I have today interviewed and examined:

Name..... *Joseph Lee*

Address..... *24 Johnson St.*

..... *Kingsgrove*

Date of birth..... *20, 3, 1998*

Initial the statements that apply:

	I have assessed the candidate in accordance with the SPUMS Recreational Dive Medical.
	I can find no conditions which are incompatible with compressed gas, scuba and surface supplied breathing apparatus (SSBA) and / or breath-hold diving.
	I have explained the health risks of diving disclosed by this examination to the candidate and we have discussed how these risks may be reduced. The candidate appears to have a good understanding of these risks.
	Based upon my assessment, the candidate should not dive with compressed gases (scuba and SSBA).
	Based upon my assessment, the candidate should not breath-hold dive.

Advice: (append further notes as required)

Condition 1: _____

Condition 2: _____

..... / /
 (Signature of Medical Practitioner) (Date)
 (Name, address and telephone number of the Medical Practitioner)

This Section to be completed by the Candidate

Initial the statements that apply:

..... I understand the health risks that I may encounter in diving and how these risks may be reduced.

..... I also understand that the medical practitioner's recommendation herewith is based, in part, upon the disclosure of my medical history.

..... I agree to accept any responsibility and liability for health risks associated with my participation in underwater diving, including those that are due to or are influenced by a change in my health and / or my failure to disclose any existing or past health condition to the medical practitioner.

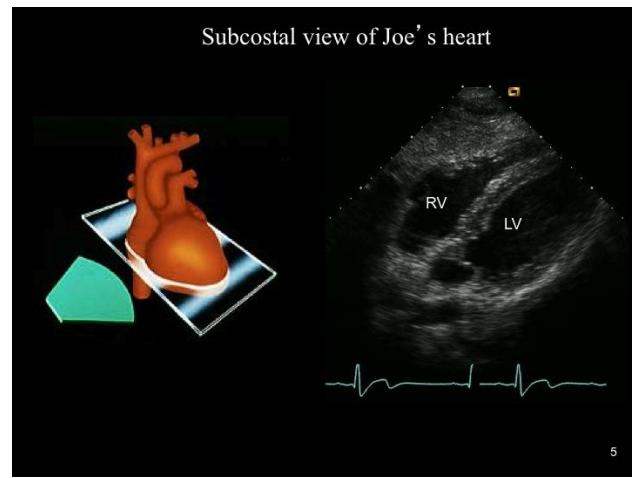
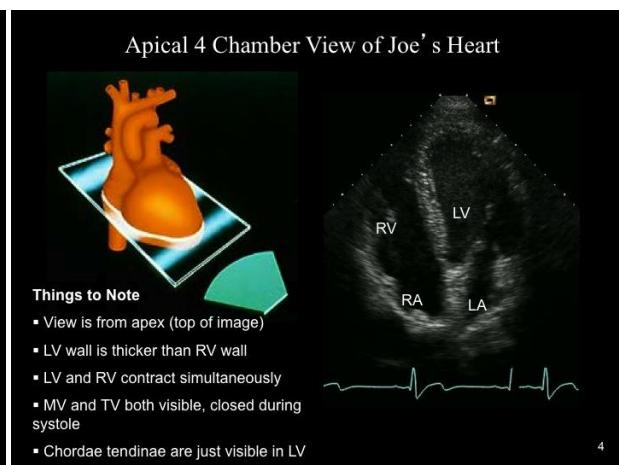
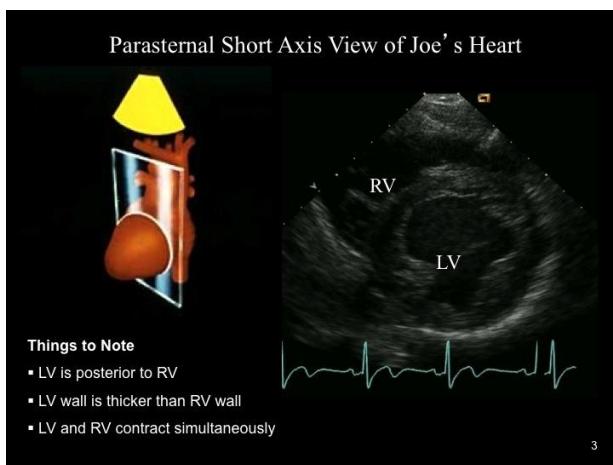
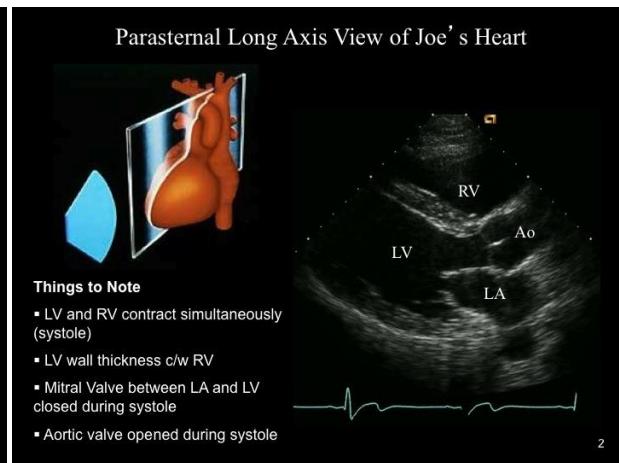
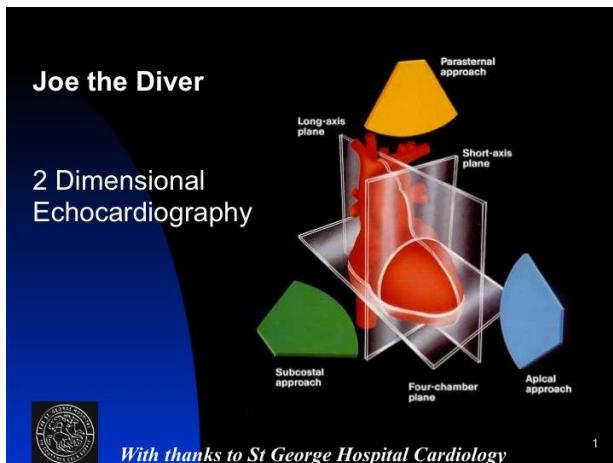
..... I hereby authorise the medical practitioner to supply information with regard to my medical fitness to dive to the diving instructor.

J. Lee
 Signature of candidate

Joseph Lee
 Name of Candidate

1,7,2024
 Date

Joe's echocardiogram at the age of 14



Joe's ECG tracing at the age 14.

APPENDIX A

SUGGESTED EVALUATION OF THE CARDIOVASCULAR SYSTEM FOR DIVERS

The SPUMS cardiovascular risk advice committee: Nigel Jepson, Rienk Rienks, Mark Turner, Simon Mitchell, David Smart, Andrew Fock and Michael Bennett

Introduction

All diving candidates and established divers aged 45 years and over should undergo a medical assessment and examination with a focus on cardiovascular evaluation, preferably by a doctor with training in diving medicine. This recommendation is based on commonly used age criteria cardiovascular risk calculators.^{1,2}

Background

Diving in all forms places increased demands on the cardiovascular system. Immersion itself causes an increase in cardiac preload (increased venous return) and at the same time, peripheral vasoconstriction, causing an increase in blood pressure and afterload. These changes are typically accompanied by sustained mild to moderate exercise and occasional requirements for peak exercise in challenging circumstances. Given all this and the increasing age of the 'average' diver, it is not surprising about one third of recreational diving fatalities have a cardiac event as the disabling injury.³

The primary goals of evaluating the cardiovascular system in a diving candidate are to:

- Identify those who appear to be at increased risk of myocardial ischemic events, heart failure, dysrhythmias and other cardiac pathology that might disable a diver underwater and
- Establish the candidate has an adequate exercise capacity for diving.

Which divers with cardiovascular problems should not dive?

Diagnoses usually considered to make an individual unsuitable for diving include:

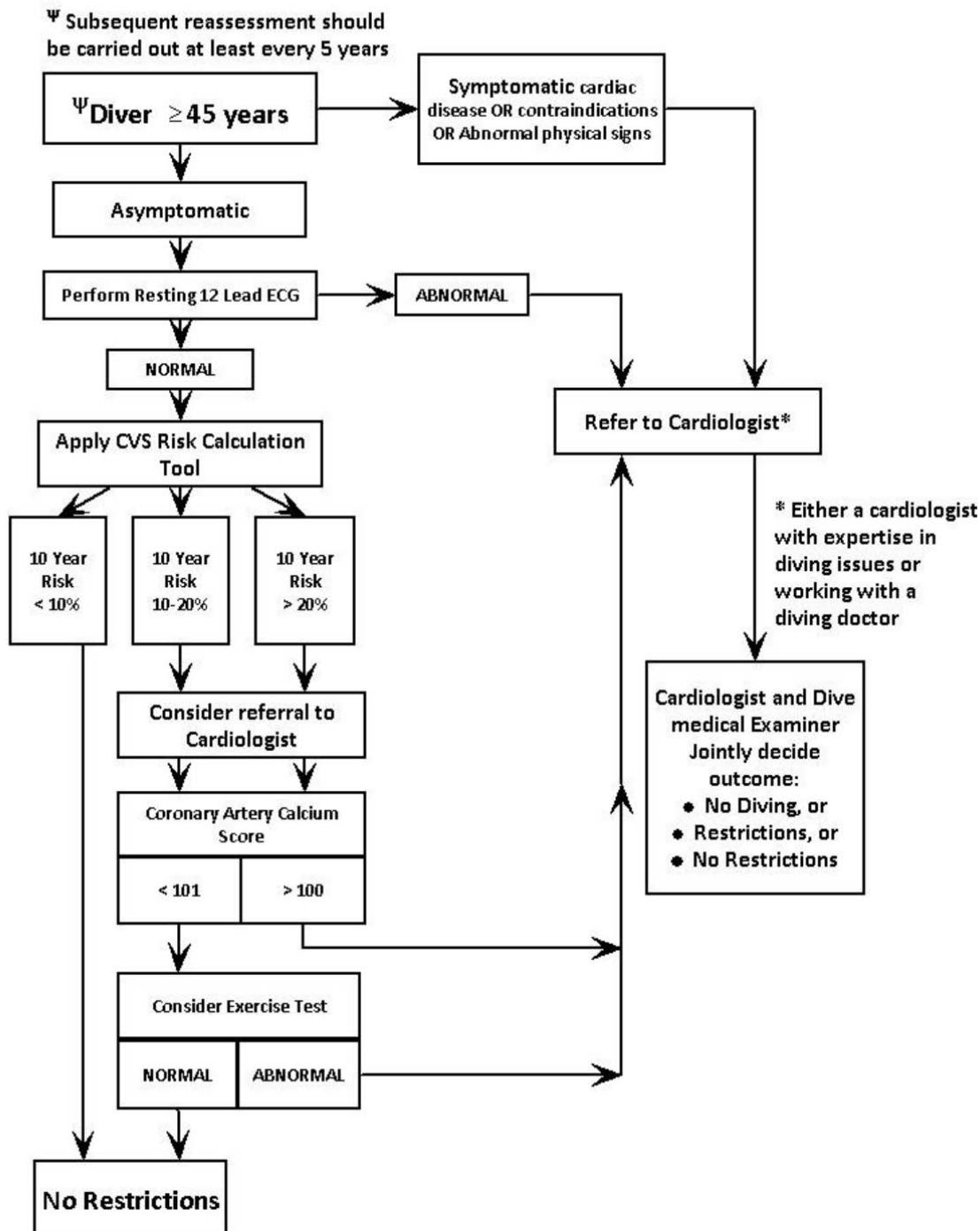
1. Untreated and/or symptomatic coronary artery disease
2. Left ventricular dysfunction of any cause. Divers with well treated or recovered left ventricular dysfunction with good ejection fraction (especially with EF > 50%) would usually be acceptable if there was good exercise capacity and the underlying causes treated. All such divers require cardiology review.
3. Hypertrophic cardiomyopathy would usually preclude diving. Cardiology review is required in all cases.
4. Congestive heart failure
5. Pulmonary hypertension
6. Long QT syndrome or other arrhythmia-inducing ion channelopathies
7. Paroxysmal arrhythmias causing unconsciousness or impairment of exercise capacity
8. Poor exercise capacity of apparent cardiac origin
9. Moderate to severe valvular lesions

10. Complex congenital cardiac disease. (Note that an ASD is not included here – ASD patients are at increased risk of neurological DCI and should be assessed by a diving doctor and a cardiologist before being cleared for diving).
11. The presence of an implanted cardiac defibrillator
12. Recurrent syncope
13. Anticoagulation – including warfarin, direct thrombin inhibitors (e.g. dabigatran), and factor Xa inhibitors (e.g. rivaroxaban, apixaban) or similar – for whatever reason.* [This does not include single antiplatelet therapy (e.g. aspirin).]

**Some experts allow single anticoagulant therapy under selected circumstances. This remains a controversial area and the committee acknowledges the lack of reliable evidence to support either position.*

The successful treatment of some of these disorders may result in a candidate becoming suitable for diving. In particular, a candidate with coronary artery disease who has been successfully revascularised may be suitable for diving if inducible ischemia can be excluded and adequate exercise capacity demonstrated (see below). Another example is a candidate with a history of paroxysmal arrhythmia who has undergone successful pathway ablation. Following successful cardiac intervention, candidates may require some recovery time before commencing/resuming diving. Many cardiologists and diving physicians would not allow diving while on dual antiplatelet therapy. The precise period of diving abstinence should be determined by the cardiologist and diving physician.

Candidates with any of the above diagnoses who wish to consider diving after appropriate treatment should be referred to a physician with training in diving medicine for evaluation.

Figure 1. Flow diagram for the recommended screening of divers aged ≥45 years

Notes to accompany Figure 1:

1. All symptomatic candidates should be referred to a cardiologist for investigation.
2. Candidates with a positive cardiovascular history (including younger diving candidates or established divers < 45 yrs) should undergo a focused medical assessment; initially by a doctor with training in diving medicine. Cardiology referral should be considered.
3. All asymptomatic divers or candidates ≥ 45 yrs should have a resting ECG performed and any significant abnormalities should prompt referral to a cardiologist.
4. Asymptomatic candidates or divers ≥ 45 years should be assessed with a standard, validated, cardiovascular risk assessment tool (e.g the National Vascular Disease Prevention Alliance in Australia). [2] The specific tool used may vary.
5. Candidates with an estimated 10-year risk $< 10\%$ may proceed to diving with no further assessment. Some diving doctors would also perform a standard exercise test (with ECG monitoring). The diving medical may also prompt a discussion of life-style modification.
6. Candidates with a higher risk should have a coronary calcium score and those at $> 20\% 10$ -year risk should have a CT angiogram and/or functional stress test. Such testing may be best organised by a cardiologist.
7. A normal CT angiogram or a functional stress test negative for ischaemia suggests that the candidate should be able to dive without important excess risk.
8. A plan (including review frequency) for follow-up cardiac health surveillance tailored to the diver's risk profile should be established at the time of the initial evaluation.

Assessment of divers with known or symptomatic cardiovascular disease

All candidates for diving, or seeking ongoing monitoring for the suitability to continue diving should complete the full questionnaire that forms part of the *SPUMS Guidelines on Medical Risk Assessment*.

Candidates who have responded indicating they may have known or symptomatic cardiovascular disease need further specialist investigation by an appropriate physician. This may include myocardial perfusion scan, stress echocardiography or stress exercise ECG ("stress test"). Although an exercise ECG is relatively insensitive to early coronary disease, it has the advantage of demonstrating exercise capacity and can be modified to test sustained exercise at 6 MET. *Sustained exercise at a minimum of six METs is a pragmatic expectation for a recreational diver but there may be an occasional need to exercise transiently at higher levels during diving.*

Notes on specific diagnoses

1. *Treated hypertension* with adequate control and in the absence of other risk factors that would indicate screening for coronary artery disease is acceptable for diving. Although local practices may vary in some details, hypertension should always be investigated and treated according to contemporary evidence-based guidelines.⁴ Hypertension above 160/100 mmHg is a contraindication until investigated and treated.

For divers taking antihypertensive drugs, certain antihypertensive drugs may be preferred to others in the context of scuba diving, and participation in scuba diving may be of consequence for antihypertensive treatment choices. Expert opinion should be sought. It is recommended that subjects with hypertension be assessed for signs of cardiac ischemia and/or dysfunction and be referred to a vascular specialist or cardiologist for cardiovascular screening when deemed appropriate. Divers with hypertension be informed about the symptoms of immersion pulmonary oedema and receive specific instructions to immediately abort a dive in case of these symptoms.

2. *Atrial fibrillation* where the rate is adequately controlled in a candidate without inducible myocardial ischemia and who exhibits adequate exercise capacity is acceptable in diving. However, many such patients are anticoagulated and anticoagulation is itself a contraindication for diving (see above). All patients with atrial fibrillation should have a cardiac echocardiogram to exclude structural heart disease and assess for diastolic dysfunction. Successful aberrant pathway ablation in case of Wolff Parkinson White (WPW) syndrome and atrio-ventricular nodal re-entry tachycardia (AVNRT), or pulmonary vein isolation in case of atrial fibrillation may also render the candidate acceptable for diving, however these individuals should have a bubble-contrast echo to ensure no persistent hole remains through the inter-atrial septum.

3. *A cardiac pacemaker* is not an absolute contraindication to continued diving, but the underlying pathology is important to consider, as is the proven ability of the device to function at depth. Pressure capability of a device can usually be obtained from the manufacturer.

4. A previous episode of *immersion pulmonary oedema*, *Takotsubo cardiomyopathy* or a diagnosis of *obstructive cardiomyopathy* should contra-indicate further diving until appropriately assessed.

A diver or new diving candidate with such a history should be referred to a physician with training in diving medicine for discussion of the relevant issues.

5. Patent Foramen Ovale

*SPUMS does not advise routine testing for the presence of a Patent Foramen Ovale (PFO).*⁵

A PFO that exhibits right to left shunting with no or minimal provocation is a risk factor for serious neurological decompression sickness (DCS). In established divers, such lesions are usually discovered by bubble contrast echocardiography conducted after a relevant episode of DCS or the development of a suspicious rash following shortly after diving. These divers are usually advised to cease diving, modify their diving to reduce venous bubble formation or to have the PFO repaired. There are some data to suggest the incidence of DCS remains high in those who elect to modify their diving, and this option is less often recommended than previously.⁶ When this option is taken for whatever reason, it would be reasonable to advise diving more conservatively in order to minimise venous bubbles. There are various strategies that might be employed to reduce the risk of significant venous bubble formation after diving, or the subsequent right-to-left shunting of such bubbles across a PFO.

The appropriateness of this approach, and the strategies chosen, need to be considered on an individual basis, and in discussion with a diving medicine expert. Examples include reducing dive times to well inside accepted no-decompression limits; restricting dive depths to less than 15 metres; performing only one dive per day; use of nitrox with air dive planning tools; intentional lengthening of a safety stop or decompression time at shallow stops and avoidance of heavy exercise and unnecessary lifting or straining for at least three hours after diving.⁵⁻⁷

Occasional new diver candidates have a previously discovered PFO and in such cases an objective assessment of the shunting behaviour of the lesion is required in order to adequately counsel the candidate about the implied risks in diving. If not already done, this is best achieved using a bubble contrast echocardiogram and provocative manoeuvres.

It is strongly recommended the results of such tests are discussed with a physician who has training in diving medicine.

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4. Williams B, Mancia G, Spiering W, Rosei EA, Azizi M, Burnier M, Clement DL, Coca A, de Simone G, Dominiczak A, Kahan T. 2018 ESC/ESH Guidelines for the management of arterial hypertension: The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. The Task Force for the management of arterial hypertension of the European Society of Cardiology and the European Society of Hypertension. Journal of hypertension. 2018 Oct 1;36(10):1953-2041.
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7. Koopsen R, Stella PR, Thijss KM, Rienks R. Persistent foramen ovale closure in divers with a history of decompression sickness. Netherlands Heart Journal. 2018;26(11):535-9.

SGS-2 – Is Joe fit to dive?

Aims

This session aims to support students to:

- Gain a deeper understanding of cardiovascular risk factors
- Develop an awareness of the global burden of cardiovascular disease
- Understand how to consider cardiovascular risk factors when making decisions on cardiovascular fitness

Key concepts

- Risk factors associated with cardiovascular health
- Making a decision: Is Joe fit to dive?

Information for students

In this session you will:

1. Finalise individual assignments and group projects
2. Review the risk factors for cardiovascular health
3. Bring together material you have learned about normal cardiovascular function to debate whether Joe should be certified ‘fit to dive’.

Process

Activities
1. Choosing individual assignments and group projects
2. Risk factors for cardiovascular health
3. Global burden of cardiovascular disease
4. Identifying personal experience with cardiovascular risk factors
5. Is Joe fit to dive? Student presentations
6. Pre-reading for SGS-3

Activity 3. Global burden of cardiovascular disease

The articles on this topic should have been read as preparation for this SGS:

Mensah et al. (2024). Turning Data Into Action: The JACC Global Burden of Cardiovascular Diseases and Risks Interactive Tool and Resources. *Journal of the American College of Cardiology*. 83(24):2610-2613.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62239147850001731?auth=SAML

Related website: <https://www.jacc.org/global-burden-cardiovascular-disease>

Interactive tool: <https://vizhub.healthdata.org/gbd-compare/>

Vogel et al. (2021). The Lancet women and cardiovascular disease Commission: reducing the global burden by 2030. *Lancet*. 397(10292):2385-2438.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62239175350001731?auth=SAML

Activity 6. Pre-reading for SGS 3

Before SGS-3, you should read Prof Richmond’s handout on “The Model of Stage of Readiness to Change Applied to Smoking” and take a look at the “5As structure for smoking cessation”. These are provided under SGS-3.

Scenario 2 – Eric's worries

Schedule

Learning Activity	Principal Teacher
Scenario Group Session 3: Stages of readiness to change and Effects of exercise	Murphy, Timothy
Hospital Clinical Skills Session 1: Cardiac symptoms, risk factors & blood pressure	Spencer, Kalli
Lecture 10: Introduction to lipids	Brown, Andrew
Lecture 11: Lipoproteins 1 - the metabolic vessels	Brown, Andrew
Lecture 12: CVS Pharmacology 1	Morris, Margaret
Lecture 13: CVS Pharmacology 2	Morris, Margaret
Scenario Group Session 4: Eric visits the emergency department	Thomas, Shane
Lecture 14: Public Health: Primary, secondary & tertiary prevention	TBA
Lecture 15: Lipoproteins 2	Brown, Andrew
Online Activity: Part 1: The Effects Of beta-Adrenoceptor Antagonists On Exercise Induced Cardiovascular Changes	Binder, Trudie
Science Practical 4: The Effects Of beta-Adrenoceptor Antagonists On Exercise Induced Cardiovascular Changes	Binder, Trudie
Science Practical 5: Measurement of HDL and LDL cholesterol	Brown, Andrew
Lecture 16: Clinical Skills Review	Spencer, Kalli Britton, Sue
Lecture 17: Consequentialist approaches to ethics	Langendyk, Vicki
Tutorial 2: Ethics - The greatest good for the greatest number	Langendyk, Vicki
Campus Clinical Skills Session 2: Lifestyle change and CVS disease; BP measurement and peripheral vascular examination	Spencer, Kalli
Scenario Group Session 5: Presentations on smoking	Thomas, Shane
Lecture 18: Overview of the Autonomic Nervous System	Shirazi, Reza
Lecture 19: Haemostasis	Ulman, Lesley
Lecture 20: Thrombosis	Velan, Gary
Lecture 21: Embolism	Velan, Gary
Scenario Group Session 6: Cardiovascular Pharmacology	Binder, Trudie
Online Activity: Post prac revision: Effects of beta-adrenoceptor antagonists on exercise-induced cardiovascular changes	Binder, Trudie
Lecture 22: Understanding Statistical Tests 1	Ariff, Amir
Lecture 23: Tissue Perfusion	Murphy, Timothy
Science Practical 6: Anatomy of the peripheral vascular system	Kotsidis, Kosta
Online Activity: Post prac revision: Anatomy of blood vessels of the peripheral vasculature	Kotsidis, Kosta
Online Activity: Part 1: Recording and interpretation of the ECG	Gibson, Karen
Science Practical 7: Recording and interpretation of the ECG	Gibson, Karen
Online Activity: Post prac revision: Recording and interpretation of the ECG	Gibson, Karen

Visit 1: EXPO: Community health agencies	Arnhold, Kerrie
Lecture 24: Myocardial infarction	Weber, Martin
Lecture 25: Control of organ blood flow	Murphy, Timothy
Science Practical 8: Cardiac histology and the histopathology of myocardial infarction	Weber, Martin Hulme, Anneliese
Online Activity: Post prac revision: Cardiac histology and histopathology of myocardial infarction	Martin Weber Hulme, Anneliese
Scenario Group Session 7: Cardiovascular Health	Thomas, Shane
Lecture 26: Understanding Statistical Tests 2	Ariff, Amir
Lecture 27: Understanding Statistical Tests 3	Ariff, Amir

Note: This schedule is subject to change. It only shows the first instance of any one activity. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

Overview

Eric's worries are based on a series of episodes that are revealed to students in two parts. In the first part, Eric wants his GP to prescribe a new drug that he has heard will help him to stop smoking. In the second part, Eric has an acute ischaemic episode, and is hospitalised. Thus, the scenario looks specifically at the problem of ischaemic heart disease, and the issues that it encompasses.

The scenario also provides students with an opportunity to see hospitalisation from the point of view of an otherwise healthy individual, and appreciate the significant psychological, financial and social effects that sudden illness can bring.

Learning outcomes for the scenario

Students should be able to:

- Describe the stages of the readiness to change model and how it can be used in advising patients on lifestyle changes
- Describe the burden of disease caused by smoking, physiological effects of smoking and pharmacotherapies, which may assist patients in giving up smoking
- Describe causes, risk factors, patho-physiology, clinical effects, and principles of management of ischaemic heart disease

SGS-3 – Stages of readiness to change and Effects of exercise

Aims

This scenario group session aims to support students to:

- understand the social context and health impact of smoking
- understand the stages of ‘readiness-to-change’
- gain a practical understanding of the relationship between exercise, heart rate and blood pressure

Key concepts

- Model of stages of readiness to change
- Practical application of the model of readiness to change
- The medical sciences related to normal cardiovascular function
- What is meant by “normal” and “fitness” for an individual?
- Effect of exercise on BP and HR, and sources of variability

Information for students

In this session the Eric scenario will be introduced with Eric visiting his doctor for advice on giving up smoking. We will explore the concept of ‘Stage of readiness to change’ including a discussion surrounding Eric’s “Stage of readiness” to give up smoking. We will practise using this concept as an aspect of patient assessment on our fellow students.

We will then carry out an experiment to assess the effects of exercise on heart rate as a cardiac parameter. Information relating to the Aerobic Step Tests can be accessed through Moodle.

You will also select a topic for preparation of a presentation for SGS 5.

Process

Activities
1. Eric video part 1 and discussion of learning issues from the video
2. Applying the stage of readiness to change to Eric’s smoking and to your own risk factor
3. Exercise, fitness, and wellbeing of medical students
4. Select topics for presentation in SGS5
5. Reminder - Bring cardiovascular lecture notes/textbooks to SGS4

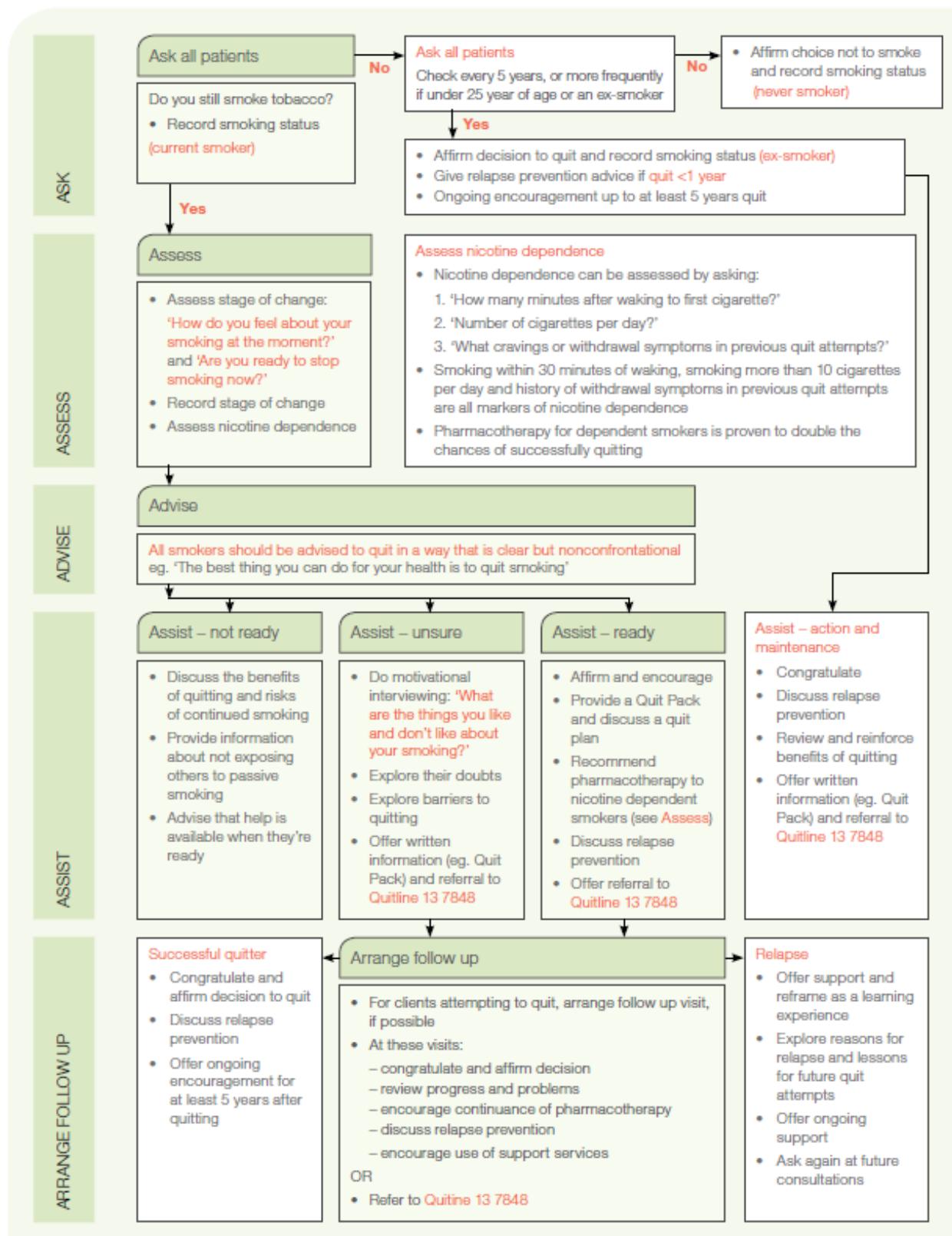


Figure 1. The 5As structure for health professionals for smoking cessation

SGS-3 Handout: The Model of Stage of Readiness to Change Applied to Smoking

Written by Professor Robyn Richmond

Definition of Stage of Readiness to Change

The model of stage of change was originally developed by Prochaska and DiClemente at the University of Providence, Rhode Island, USA¹. (It is also known as the Transtheoretical Model of Change). The model consists of different stages that help identify where a smoker is regarding their readiness to quit smoking. The model is a dynamic continuum in which people move from one stage of readiness to another. It can be applied to several different behaviours such as smoking, physical activity, alcohol, unsafe sex, etc. In this handout the stage of readiness is applied to tobacco use. There are four main stages.

1. **Precontemplators** are not thinking about quitting and are described as not ready to change or quit smoking. Precontemplators do not believe they have a problem and don't want to talk about quitting.
2. **Contemplators** are ambivalent and may be thinking about stopping smoking in the next six months and are described as unsure. They are going through the process of weighing up the pros and cons.
3. Those in the **Action** stage intend to take action to quit within the next 30 days and may have already made a recent attempt to stop smoking.
4. Those in **Maintenance** have successfully quit smoking for more than 6 months but are still at risk for relapse. Up to 40% of ex-smokers who remain abstinent for one year return to smoking.

Each one of these stages describes a smoker's readiness to quit tobacco use. As smokers are in different stages of readiness to change, they have different needs and require different approaches or interventions by the doctor. Figure 1 shows the model applied to smoking.

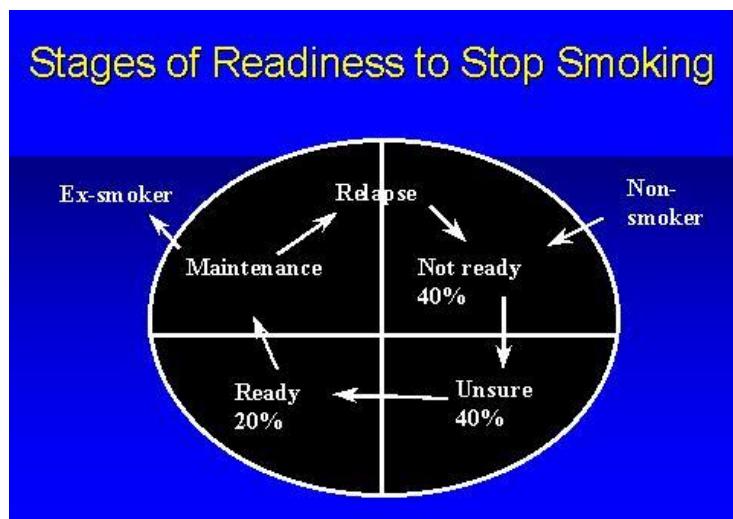


Figure 1: Stage of Readiness to Change applied to Smoking

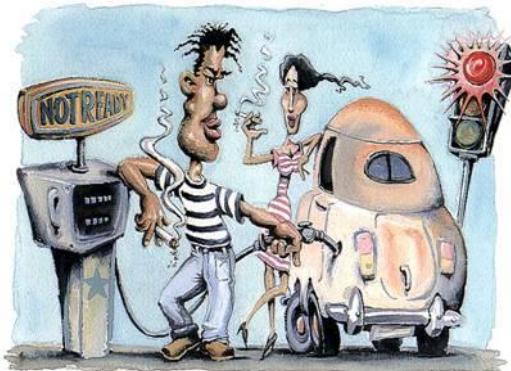
Sources: Prochaska, DiClemente et al (1992)²; Velicer et al (1995)³; Zwar, Richmond and Harris⁴. The percent for each stage of readiness relates to smokers in the Australian population⁴. Other countries have very different proportions in each stage of readiness, e.g., in low-income countries, the percent who are ready to quit is low.

Smokers move from one stage of readiness to another if:

- Priorities change, such as ageing, the birth of a child, or the death of someone close due to a cigarette related disease.
- There are environmental changes, such as a change in employment where smoking is not allowed, or a move to another area.
- There are social changes, such as a partner threatens to leave; or the children lecture the parent to stop smoking as it is harmful to health; or new relationships and interests develop that are not compatible with continued tobacco use.
- The woman becomes pregnant.
- He/she finds out new information about health status.

Pre-contemplation Stage (not ready to stop smoking)

Smokers in this stage have no desire to change their smoking status in the immediate future. Immediate future usually refers to within a six month time period because this is about as far in the future that most people plan a specific behaviour change. Most people are concerned with the present and don't plan far in the future. Some smokers in this stage are very aware of the consequences of their tobacco use but may avoid getting involved in smoking cessation treatment programs. Smokers may also be tired of trying and failing to quit smoking.

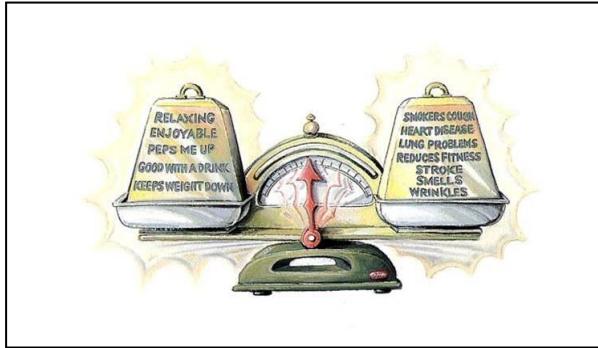


Cartoon from the Smokescreen Program⁵

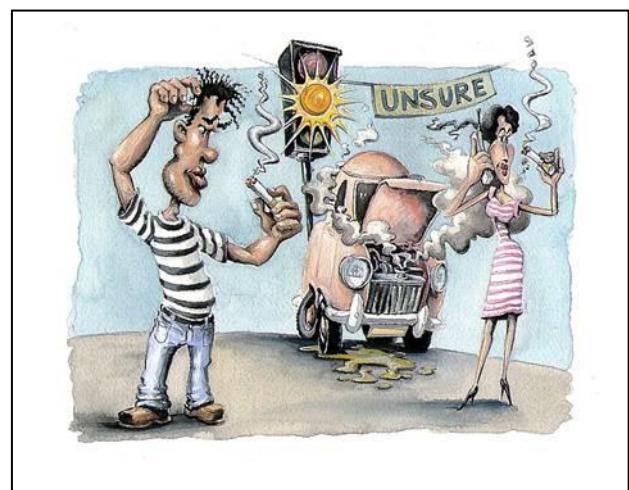
In this stage, the smoker thinks there are more positive aspects of continuing to smoke, and does not want to acknowledge the disadvantages of continued tobacco use. It is possible for the smoker to move from pre-contemplation to the contemplation stage by increasing awareness of the harms of smoking from prolonged tobacco use. Mass media can influence awareness such as the Quit Campaigns in Victoria and New South Wales (refer to lecture). Also setting goals that can easily be attained may help smokers to be successful by increasing confidence in themselves that they can successfully quit smoking. Relevant information about risks and how to minimise them may be well received at this stage.

Contemplation Stage (unsure about quitting)

In this stage the smoker intends to quit within the next six months. Just as in the precontemplation stage, the six-month timeframe is used because this is about as far in the future that most people can plan to change a specific behaviour. The smoker who is at this stage is unsure



or ambivalent about his/her continued smoking: the positive benefits of smoking are weighed up against the disadvantages of continued tobacco use. The smoker may also be ambivalent about quitting smoking; seeing the positive aspects of quitting as well as the disadvantages. He/she is aware of the benefits and barriers of quitting. While the benefits of quitting maybe somewhat obvious, the barriers will be different for each smoker. This balance between the costs and benefits of changing can produce profound ambivalence that can keep people stuck in this stage for long periods, even though there is an intention to quit sometime in the next six months. The aim with smokers who are unsure is to assist them to examine their habit, to help them weigh up the pros and cons of smoking and decide whether continuing to smoke is worth it. They can also weigh up the pros and cons of quitting. Encouragement and motivational interviewing techniques can be used to persuade the unsure smoker to the next stage of readiness to take action and quit. Discussion of particular concerns about quitting will often uncover the main barriers to making a quit attempt. It is important to offer counselling to address stress and previous trauma if the patient is self-medicating with smoking.



Action Stage (ready to quit smoking now)

The action stage is a period of time between 0 and 6 months in which a quit attempt is made. During the action stage, the smoker has made a commitment to seriously attempt to quit smoking. When weighing up the pros and cons of quitting tobacco use, the perceived pros of quitting outweigh the perceived cons of quitting.

Smokers who are ready to quit need specific advice, support and follow up, and may require several attempts before they quit successfully and long term. Offering cognitive behavioural therapy (CBT) and pharmacotherapy will assist in the quitting process. CBT includes DEADs: Delay having a cigarette; escape the smoking triggers and cues to smoking; avoid smoking situations; do something else when experiencing a craving for a cigarette; and seek social support for non-smoking. There is a wide range of pharmacotherapies that can assist the smoker to quit. They range from a variety of nicotine replacement therapies (gum, patch, lozenge, inhaler) to sub clinical doses of anti-depressants (Bupropion, also known as Zyban, and nortriptyline). There are several new pharmacotherapies which are coming on the Australian market: varenicline, rimonabant, and a nicotine vaccine (nicovax)



Cartoon from the Smokescreen Program⁵

Maintenance Stage

This stage is one that starts six months after the action stage and can last for several years, or a lifetime. It is in this stage that one's confidence to quit and maintain abstinence is at its highest, especially when compared to the three preceding stages. Relapse prevention is a self-control program designed to teach ex-smokers how to anticipate, cope and overcome the problem of relapse.

Since the stage of change model is dynamic and cyclical, the smoker may relapse from any one of the stages to the previous one, and several times during the process of quitting. Therefore, they need to be prepared and know what to do about it, and to view lapses as learning experiences and not as failures.

The value of the model for medical practice

There are many benefits of categorising people according to their readiness to change tobacco use. For one thing, categorising smokers in this way maximises the use of the doctor's resources as little time is wasted on smokers who are not yet ready to quit, and more time can be spent with those who are most likely to benefit from the doctor's advice. Brief interventions are available for smokers who are in different stages of readiness to change. By using this approach, the doctor is spared much of the frustration of repeated failures where time is spent with those not ready to change. This allows the doctor to maintain enthusiasm to help those who are ready to quit smoking.

Questions used to ascertain the stage of readiness to quit smoking are:

You ask:

Are you currently a smoker?

The patient responds:

No – I quit in the last 6 months (action)

No – I quit more than 6 months ago (maintenance)

Yes *(smoker needs to be categorised according to their readiness to change)*

If yes, ask:

How do you feel about your smoking at the moment?

The smoker responds:

I do not intend to stop smoking in the next six months; or
I'm not interested in quitting at the moment – I enjoy it.

(precontemplation)

I am unsure about quitting in the next six months; or
I'd like to stop but I've tried before and failed.

(contemplation)

I seriously plan to quit smoking within the next 30 days and have made
at least one attempt to do so within the past year; or
I really want to stop but I don't know how.

(action)

I am a former smoker and have continuously quit for less than six
months.

(action)

I am a former smoker and have continuously quit for more than six
months.

(maintenance)

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SGS 3: 5As worksheet

1) Ask about the Risk Factor and Take a History:

2) Assess: What is their stage of readiness to change?

- *What stage of readiness to change their lifestyle behaviour are they in: not ready to change; unsure or ambivalent about changing; ready to change their behaviour now; or have they successfully modified/changed their behaviour and are now maintaining the desired behaviour?*

3) Advise:

- *Should they reduce their risk? Why?*

4) Assist:

- *How does this depend on stage of readiness to change?*

- *Are there any social, cultural or environmental influences that inhibit or enhance the likelihood for change? Are there any personal stresses or mental health issues that will need to be addressed by referral to a counsellor?*

- *What new information would enable them to change their behaviour?*

- *What are the priorities for change?*

- *Are there any previous factors that need to be recognised?*

5) Arrange:

Activity 3. Exercise, fitness and wellbeing of medical students

Aims

- Demonstrate achievable time limited exercises for maintaining fitness in a busy deskbound role such as being a medical student
- Measure students' current level of fitness
- Show how changes can be monitored
- Understand the Rating of Perceived Effort (RPE) and its uses
- Effect of cardiovascular and strength exercise on pulse rate

Key concepts

- What is fitness and its role in 'wellbeing'
- How can fitness be measured and monitored in the clinical setting- RPE scale
- Difference between cardiovascular fitness and muscular strength exercises
- Australian exercise guidelines
- 'Exercise snacks'- a relatively new approach to maintaining fitness

Information for students

In the context of wellbeing of medical students, we will look at the role of exercise today. Components of wellbeing integrated into the Phase One curriculum are mental health, exercise, sleep, and nutrition.

We will cover the current Australian exercise guidelines and new areas of research into minimal time exercises for maintenance of fitness called 'exercise snacks'.

We will measure your fitness, or not!

Activity 3.1 Minimum effective dose

The concept of "exercise snacks" and more recent research looking at the minimum effective dose for the busy desk worker.

- Cardiovascular exercise: 1 min/day, 3 times per week
 - *Sprint Exercise Snacks: A Novel Approach to Increase Aerobic Fitness* ([Little et al., 2019](#))
 - *Do Stair Climbing Exercise "Snacks" Improve Cardiorespiratory Fitness?* ([Jenkins et al., 2019](#))
- Muscle strength – 1 set, 1-3 times per week
 - *The Minimum Effective Training Dose Required to Increase 1RM Strength in Resistance-Trained Men: A Systematic Review and Meta-Analysis* ([Androulakis-Korakakis et al., 2020](#))
- Intensity matters – need this to be difficult!

Activity 3.2. Measuring HR and RPE before and after 'exercise snacks'

1. Partner up in breakout groups of 2
2. Each partner will measure their own resting heart rate
3. Partner 1 will perform 2 minutes of cardiovascular exercise (e.g. star jumps, jogging on the spot). At the end of the 2 mins, record your RPE and HR
4. Swap over. Partner 2 performs 2 minutes of cardiovascular exercise and records HR and RPE at the end.
5. Repeat the above but for a muscle strength/endurance exercise of your choosing e.g. push-ups (if you know how to do these) or wall sits (repeated stand up- sit down with chair pushed against wall so chair does not traverse backwards and result in a fall!)
6. Discuss with your partner differences in HR and RPE during cardiovascular and strength exercise
7. Brainstorm with your partner ways to incorporate 'exercise snacks' into your day. Remember – exercise does not have to be performed all at once for benefits. It can be broken up into smaller bouts across the day, even as little as 1 minute at a time x 3 per day is enough to gain fitness.

Activity 4. Select topics for presentation in SGS 5

Students should prepare a presentation on their topic for SGS-5. Each group will be given 15 minutes to present and answer questions. The presentations should take about 10 minutes plus about 5 minutes for answering questions and providing feedback.

The topics are:

- Burden of disease caused by smoking
- The clinical role of the doctor in smoking cessation
- Physiological effects of smoking
- Assisting Eric to stop smoking

Prompt questions are provided for students on each topic and can be found in the Student Guide and in Moodle under SGS-3 together with a list of suggested resources. Students should attempt to answer these questions. The presentation can take the form of a PowerPoint presentation, role play, a quiz for the rest of the group, a poster or any other format of their choosing. Students are expected to engage the rest of the scenario group wherever possible.

Activity 5. Reminders

You will need to bring cardiovascular lecture notes/textbooks to SGS-4.

Questions and Resources for smoking homework topics for SGS-5

Topic 1: Burden of disease caused by smoking

Prompt questions:

Question 1: Who are the populations in the Australian community who smoke the most?

Question 2: How does Australia compare to other countries in terms of smoking rates?

Question 3: What are the 10 leading causes of disease burden among men and women in Australia? Which of these diseases has smoking as a major cause? Question 4: What are the main health effects of passive smoking?

Question 5: How do the costs of smoking compare to other lifestyle issues and to other drugs?

Some resources that you may wish to consult:

AIHW. (2024). *Alcohol, tobacco and other drugs in Australia*

<https://www.aihw.gov.au/reports/alcohol/alcohol-tobacco-other-drugs-australia/contents/drug-types/tobacco>

AIHW (2024). *National Drug Strategy Household Survey 2022-2023: detailed findings*. Drug statistics series no. 32. [Cat. no. PHE 270]. Canberra: AIHW.

<https://www.aihw.gov.au/reports/illicit-use-of-drugs/national-drug-strategy-household-survey/contents/about>

Greenhalgh EM, Scollo MM and Winstanley MH. *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria; 2024. Available from www.TobaccoinAustralia.org.au

AIHW (2023). *Australian Burden of Disease Study 2023*. Australian Burden of Disease Study series. [Cat. no. BOD 29]. Canberra: AIHW.

<https://www.aihw.gov.au/reports/burden-of-disease/australian-burden-of-disease-study-2023/contents/summary>

Supporting smoking cessation: a guide for health professionals. Melbourne: The Royal Australian College of General Practitioners, 2011 [Updated July 2021].

<https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/supporting-smoking-cessation>

Tobacco Free initiative page, World Health Organization site – <http://www.who.int/tobacco/en/>

Quit Victoria – <http://www.quit.org.au>

Australian Institute of Health and Welfare - <http://www.aihw.gov.au>

Topic 2: The clinical role of the doctor in smoking cessation

Prompt questions:

Question 1: What is the evidence for the effectiveness of doctors in providing advice on smoking cessation?

Question 2: What is the 5A's approach to smoking cessation?

Question 3: What proportion of smokers relapse and how does this compare to other drugs?

Question 4: What are some of the high-risk smoking situations that can lead to relapse?

Question 5: What are some of the key barriers to greater involvement of doctors in providing smoking cessation advice and treatment?

Some resources that you may wish to consult:

Supporting smoking cessation: a guide for health professionals. Melbourne: The Royal Australian College of General Practitioners, 2011 [Updated 2021].

<https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/supporting-smoking-cessation>

Porter, J.E., Soldatenko, D., Borgelt, K., Sewell, L., Prokopiv, V., Simic, M., James, M., Reimers, V. (2024). The Latrobe Smoking Support Service: A quantitative study of participants in a regional area. *Health Science Reports* Vol. 7 Issue 5: e2088.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261101870001731?auth=SAML

Stead, L.F., Buitrago. D., Preciado, N., Sanchez, G., Hartmann-Boyce, J. & Lancaster, T. (2013). Physician advice for smoking cessation. *Cochrane Database of Systematic Reviews 2013*, Issue 5.

<http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000165.pub4/epdf/abstract>

Greenhalgh, EM, Scollo, MM and Winstanley, MH. (2022). *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria. <http://www.tobaccoaustralia.org.au/>

Quit Victoria – <http://www.quit.org.au>

Topic 3: Physiological effects of smoking

Prompt questions:

Question 1: What are some of the additives in cigarettes? What are some of the additives in nicotine vaping devices?

Question 2: What are the important physiological effects of nicotine on Eric's body?

Question 3: What are some of the withdrawal symptoms that Eric may experience when he tries to quit smoking?

Question 4: How do you describe nicotine dependence?

Question 5: Each member of the group performs the Fagerstrom Test of Nicotine Dependence on a smoker that they know. Comment on the level of dependence of the smokers tested.

Some resources that you may wish to consult:

Greenhalgh, EM, Scollo, MM and Winstanley, MH. (2022). *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria. <http://www.tobaccoinaustralia.org.au/>

Fagerström, K. (2012). Determinants of tobacco use and renaming the FTND to the Fagerström test for cigarette dependence. *Nicotine Tobacco Research*, 14, 75–78.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261142950001731?auth=SAML

Rabinoff, M., Caskey, N., Rissling, A., & Park, C. (2007). Pharmacological and Chemical Effects of Cigarette Additives. *American Journal of Public Health*. 97(11), 1981–1991.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261165180001731?auth=SAML

Rose, J.J., Krishnan-Sarin, S., Exil, V.J., Hamburg, N.M., Fetterman, J.L., Ichinose, F., Perez-Pinzon, M.A. et al. (2023). Cardiopulmonary Impact of Electronic Cigarettes and Vaping Products: A Scientific Statement From the American Heart Association. *Circulation* Vol. 148 Issue 8, pp. 703–728.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261238100001731?auth=SAML

Fowler, CD, Turner, JR & Imid Damaj, M. (2020). Molecular Mechanisms Associated with Nicotine Pharmacology and Dependence. *Handbook of Experimental Pharmacology* 258:373-393. doi: 10.1007/164_2019_252

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261283270001731?auth=SAML

Ritter, J.M., Flower, R.J., Henderson, G., Loke, Y.K., MacEwen, D., Robinson, E. & Fullerton, J. (2024). *Rang and Dale's Pharmacology* (10th ed.). London; New York: Elsevier. Chapter 49.

<https://www.clinicalkey.com/student/content/toc/3-s2.0-C20200033281>

Topic 4: Assisting Eric to stop smoking

Prompt questions:

Question 1: What are the reasons that Eric smokes?

Question 2: Why do you think that Eric wants to quit smoking?

Question 3: What are the options for pharmacotherapy for smoking cessation?

Question 4: Construct a table of the advantages and disadvantages of each pharmacotherapy option.

Question 5: Which would you prefer to recommend to smokers and why?

Some resources that you may wish to consult:

Supporting smoking cessation: a guide for health professionals. Melbourne: The Royal Australian College of General Practitioners, 2011 [Updated 2021].

<https://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/supporting-smoking-cessation>

Greenhalgh, E.M., Scollo, M.M. and Winstanley, M.H. (2022). *Tobacco in Australia: Facts and issues*. Melbourne: Cancer Council Victoria. <http://www.tobaccoaustralia.org.au/>

García-Gómez, L., Hernández-Pérez, A., Noé-Díaz, V., Riesco-Miranda, J.A., Jiménez-Ruiz, C. (2019). Smoking Cessation Treatments: Current Psychological and Pharmacological Options. *Revista de Investigacion Clinica* Vol. 71 Issue 1: 7-16.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261297210001731?auth=SAML

Kotz, D., Brown, J. & West, R. (2014). 'Real-world' effectiveness of smoking cessation treatments: a population study. *Addiction* Vol. 109 Issue 3, pp. 491–499.

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62261299430001731?auth=SAML

SGS-4 – Eric visits the emergency department

Aims:

- To develop an awareness of emerging trends in the management of cardiovascular disease
- To understand the contexts within which ischaemic heart disease occurs, and to develop an awareness of how the condition is managed in its acute stage.
- To understand the anatomical and physiological basis for symptoms of ischaemic heart disease
- To understand how modifying risk factors can impact on patient outcomes

Key concepts:

- Blood flow and consequences of a reduction in blood supply to organs
- How Eric's symptoms arise and their explanation
- The impacts of cardiovascular risk factors on an individual

Information for students

The second part of Eric's story will be viewed where we find Eric in the emergency department at the nearest hospital following an episode of acute and severe chest pain at work. Finally, students will work in small groups to answer questions related to the Eric video. Bring textbooks and lecture notes.

Resources needed:

- "What's going on with Eric?" worksheet - in Student Guide
- "Absolute cardiovascular disease risk assessment – quick reference guide for health professionals"
[Absolute_CVD_Risk-Quick_Reference_Guide.pdf \(cdn-website.com\)](Absolute_CVD_Risk-Quick_Reference_Guide.pdf (cdn-website.com))
- "2023 Guideline for assessing and managing CVD risk and Australian CVD risk calculator"
<https://www.heartfoundation.org.au/for-professionals/guideline-for-managing-cvd>
- Relevant cardiovascular lecture notes and textbooks

Process:

Activities
1. Eric video part 2 – in hospital
2. What's going on with Eric? Students work in small groups on questions related to the Eric video.
3. Remind students about the presentations for the next session.

“What’s going on with Eric?” Worksheet

1. Although Eric has experienced chest pain for a few weeks, he saw his GP only 3 days before his presentation to hospital and spoke only of smoking and wanting to quit. Can you think of any reasons why Eric may not have told his GP about his symptom of chest pain initially?
 2. What other structures in the chest could cause chest pain? How might that pain be different?
 3. What determines how O₂ is exchanged between vessels and tissues?
 4. What tissues are most susceptible to ischaemia? What factors are involved?
 5. Why is it painful when not enough oxygen is supplied to the heart? Consider each of these possibilities.

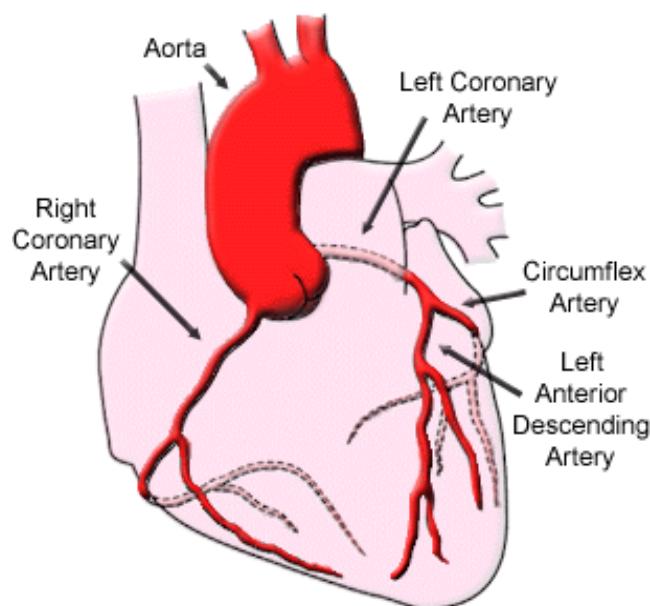
 1. Blood vessels send pain signals to the brain if their blood flow is reduced.
 2. Thrombi form in the blood vessels and these cause a painful stimulus.
 3. Constriction of blood vessels triggers nociceptive (pain-sensing) nerves.
 4. Myocardial cells lacking oxygen produce lactic acid, which triggers nociceptive nerves.
 5. Necrosis of cardiomyocytes releases substances that trigger nociceptive nerves.

6. What are some goals of Eric's management in the 24 hours after presentation, given your knowledge of his condition?

7. Given your recent lectures on risk factors for cardiovascular disease, which *risk factors* may have been important to Eric? Could this presentation to hospital have been avoided?

8. Why did the doctor want Eric to keep his O₂ mask on?

9. What are the names of the arteries indicated by the arrows in the diagram below? Where are these likely to be affected or blocked in Eric's case?



Eric has had a heart attack – but what if he changed his risk factors?

In question 7, you considered Eric's risk factors and whether this hospital presentation could have been avoided. If Eric stopped smoking a year ago, would that have made a difference? In the next exercise, we will consider the *impact of cardiovascular risk factors on an individual and quantify those risks.*

Using the “Absolute cardiovascular disease risk assessment – quick reference guide for health professionals”, answer the following questions:

- 10. Define “absolute cardiovascular risk”.**

- 11. What numerical absolute risk level for cardiovascular disease is considered:**

Low risk:

Moderate risk:

High risk:

- 12. What conditions would make an adult already at high absolute cardiovascular risk?**

- 13. Imagine that Eric had decided to visit his GP 13 months earlier. The GP conducts a comprehensive cardiovascular risk assessment. Following is a summary of some of her findings:**

Age:	61 years
Gender:	Male
BMI:	30
Smoking status:	smoker
Blood pressure:	160/90
Fasting BSL:	5.5 mmol/L
Total cholesterol:	6.3 mmol/L
HDL-cholesterol:	0.9 mmol/L
Urinary albumin/creatinine ratio:	No microalbuminuria
ECG:	No evidence of atrial fibrillation or left ventricular hypertrophy

What was Eric's absolute cardiovascular risk at that time? (note: you can use the Australian cardiovascular risk charts in the document, or use the online calculator: <http://www.cvdcheck.org.au/>)

14. If Eric decided to do nothing else but give up smoking cigarettes 13 months ago (addressing none of his other risk factors), what impact would that have on his risk today?

Age: 62 years
Smoking status: non-smoker

Note: for the purpose of cardiovascular risk calculation, a "smoker" is someone who is currently smoking, or has quit within the last 12 months.

15. In this alternative scenario, Eric's GP recognised his high cardiovascular risk and manages his risk factors aggressively – with lifestyle changes (smoking cessation, better diet with less salt, reduced alcohol consumption, and increased exercise) and targeted pharmacotherapy (blood pressure and lipid management). He does very well.

In his review this year, the GP repeats the cardiovascular risk assessment. Following is a summary of some of her findings:

Age:	62 years
Gender:	Male
BMI:	25
Smoking status:	non-smoker
Blood pressure:	140/80
Fasting BSL:	4.9 mmol/L
Total cholesterol:	4.0 mmol/L
HDL-cholesterol:	1.1 mmol/L
Urinary albumin/creatinine ratio:	No microalbuminuria
ECG:	No evidence of atrial fibrillation or left ventricular hypertrophy

16. What is Eric's absolute cardiovascular risk now?

17. What implications might this have on your future practice as doctors?

Activity 3. Reminders for the next SGS

Remember that you will need to deliver your presentations on smoking in SGS-5, so have these ready. Also, there will be a 20-minute quiz activity related to the lecture material on cardiovascular physiology. Revise your lecture notes in preparation.

SGS-5 – Presentations on smoking

Aims

This session aims to develop students' understanding of smoking, its impact on individuals and society in general, and the physiological effects of smoking. The session also aims to support the development of an integrated understanding of the various issues that relate to Eric.

Key concepts

- Burden of disease caused by smoking
- Clinical role of the doctor in smoking cessation
- Physiological effects of smoking
- Effectiveness of pharmacotherapies for giving up smoking.
- Developing quiz questions for review of SGS 5 content

Information for students

In the first 60 minutes of this session, small groups will present their findings on one of the 4 topics chosen in SGS-3:

- Burden of disease caused by smoking
- Clinical role of the doctor in smoking cessation
- Physiological effects of smoking
- Assisting Eric to stop smoking

Students in the audience should complete question sheets to ensure they have learnt the material. Presenters will have the opportunity to receive feedback on their presentations.

Following the presentations, students will spend the next 30 minutes working on a concept map to help bring together the concepts that relate to the Eric scenario.

In the final activity of this session, there will be a small group activity where students will devise quiz questions on the SGS content and enter them into a Student quiz on Moodle.

Process

Activities
1. Student presentation & feedback: Burden of disease caused by smoking
2. Student presentation & feedback: Clinical role of the doctor in smoking cessation
3. Student presentation & feedback: Physiological effects of smoking
4. Student presentation & feedback: Assisting Eric to stop smoking.
5. Integrating content through a concept map or P2 peer teaching
6. Student Review Quiz
7. Reminder for SGS6

Topic 1: Burden of disease caused by smoking**Prompt questions:****Question 1: Who are the populations in the Australian community who smoke the most?****Question 2: How does Australia compare to other countries in terms of smoking rates?****Question 3: What are the 10 leading causes of disease burden among men and women in Australia? Which of these diseases has smoking as a major cause?****Question 4: What are the main health effects of passive smoking?****Question 5: How do the costs of smoking compare to other lifestyle issues and to other drugs?**

Topic 2: The clinical role of the doctor in smoking cessation**Prompt questions:****Question 1: What is the evidence for the effectiveness of doctors in providing advice on smoking cessation?****Question 2: What is the 5A's approach to smoking cessation?****Question 3: What proportion of smokers' relapse and how does this compare to other drugs?****Question 4: What are some of the high risk smoking situations that can lead to relapse?****Question 5: What are some of the key barriers to greater involvement of doctors in providing smoking cessation advice and treatment?**

Topic 3: Physiological effects of smoking

Prompt questions:

Question 1: What are some of the additives in cigarettes?

Question 2: What are the important physiological effects of nicotine on Eric's body?

Question 3: What are some of the withdrawal symptoms that Eric may experience when he tries to quit smoking?

Question 4: How do you describe nicotine dependence?

Question 5: Each member of the group performs the Fagerstrom Test of Nicotine Dependence on a smoker that they know. Comment on the level of dependence of the smokers tested.

Topic 4: Assisting Eric to stop smoking**Prompt questions:****Question 1: What are the reasons that Eric smokes?****Question 2: Why do you think that Eric wants to quit smoking?****Question 3: What are the options for pharmacotherapy for smoking cessation?****Question 4: Construct a table of the advantages and disadvantages of each first line pharmacotherapy option.****Question 5: Which would you prefer to recommend to smokers and why?**

Activity 6. Student Review Quiz

In small groups (including a mix of year 1 and 2 students), compose a minimum of 3 questions per group relating to the topics covered in this SGS for inclusion in a student quiz.

There are 3 types of questions available for inclusion in the quiz:

- Multiple choice
- Matching
- Missing word

Each group's questions should then be added to the Student Quiz activity on Moodle under SGS5 and at:

<https://moodle.telt.unsw.edu.au/mod/studentquiz/view.php?id=6725628>

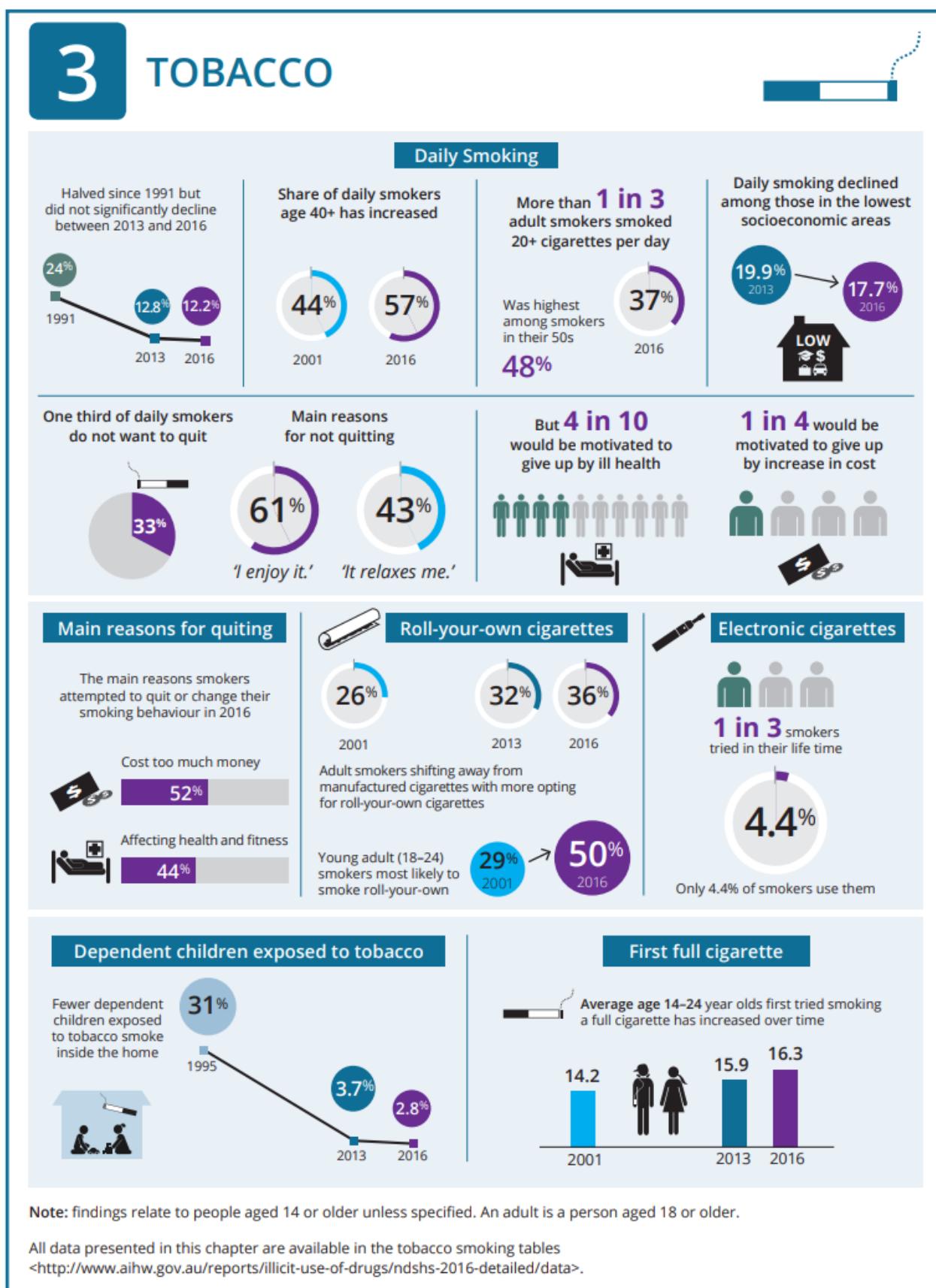
Support pages for using the Student quiz are available at: <https://student.unsw.edu.au/studentquiz>

All students will be able to attempt questions in the pooled quiz bank and are free to add further questions as the course progresses if they desire. Comments and discussion of the question's content are encouraged. Note these will not be seen by other students before they attempt the question.

Activity 7. Reminder for SGS-6

Please have your notes from BGDA Adrenergic lectures, and notes from Pharmacology Cardiovascular lectures available in SGS-6 to help with discussions.

Summary of Tobacco Use in Australia



Infographic FROM: AIHW (2017). National Drug Strategy Household Survey 2016: detailed findings. Drug statistics series no. 31. Cat. no. PHE 214. Canberra: AIHW. <https://www.aihw.gov.au/reports/illicit-use-of-drugs/2016-ndshs-detailed/data>

NOTE: See Also [National Drug Strategy Household Survey 2022–2023, About - Australian Institute of Health and Welfare \(aihw.gov.au\)](#) for more recent data on Tobacco use in Australia.

Oral Presentation Feedback Form

Criteria	Grade (P-, P, P+)	Comments
EXPLANATION OF TOPIC Questions were clearly explained and supported by evidence; any relevant methodology is explained.		
PRESENTATION Oral presentation was clear, well-structured and easily understood; Presentation demonstrated consistency in style <i>e.g. PowerPoint slides</i> Timing was controlled so that all questions could be covered; Audio visual aids or handouts were clear, well-structured and easy to read.		
UNDERSTANDING Group appeared to have a good understanding of the topic and could answer audience questions. A general conclusion was given.		
STIMULATING LEARNING Presentation was interesting; Significant issues and unanswered questions were highlighted; I learned a lot from this presentation;		
TEAMWORK The transition from one speaker to the other went smoothly Team members demonstrated support for the speaker <i>i.e. not talking amongst themselves when a group member was presenting</i> Presenters have minimal overlap in their presentations The group engaged the audience and demonstrated team unity		

Did the group meet the assessment criteria for the presentation adequately (i.e. a Pass level)? Yes / No

Please add specific comments (more space overleaf):

P- represents a relatively poor and/or incomplete performance, in terms of the assessment criteria
 P represents a performance that achieves most of the stated criteria, in a reasonably effective manner
 P+ means that all the criteria were attained, and that they were done in a way that demonstrated a clear understanding of and mastery of the topic.
 Full definitions at: <https://medprogram.med.unsw.edu.au/assessment#tab-303400201>

SGS-6 – Cardiovascular Pharmacology

Aims

- To understand the effects of the orally administered β -adrenoceptor antagonists, atenolol and pindolol.
- To develop an awareness of the drugs used to treat cardiovascular disease including their mechanism of action, uses and side effects

Key concepts

- Effect of beta blockers on blood pressure, heart rate and lung function at rest and after exercise in healthy subjects
- Regulation of the cardiovascular system by the sympathetic nervous system
- Pharmacotherapies for treating hypertension and heart failure.

Information for students

In this session you will complete the adaptive tutorial, 'The effect of β -adrenoceptor antagonists on exercise induced cardiovascular changes' and discuss the results of the β -blocker practical class

In the 2nd part of the session you will work through case studies on hypertension and heart failure.

Process

Activities
1. Beta blocker adaptive tutorial
2. Cardiovascular pharmacology – case studies
3. Group discussion
4. Community EXPO preparation

Activity 1. Online Tutorial: The effect of β -adrenoceptor antagonists on exercise induced cardiovascular changes
Complete the tutorial in groups of 2 or 3 and answer the following questions.

What happens to the autonomic nervous system (ANS) and cardiovascular system during exercise?

What effect does β -adrenoceptor blockade to have on:

(a) resting and exercise heart rates?

(b) resting blood pressure (systolic & diastolic)?

(c) lung function at rest?

(d) fatigue during exercise?

Activity 2. Cardiovascular pharmacology case studies and Activity 3. Group Discussion**Case A - Hypertension**

A 60-year-old man comes into your office as a new patient, having recently moved from interstate. Four years ago, he was diagnosed with hypertension. At that time, he was prescribed a calcium channel antagonist and encouraged to lose some weight and to increase his level of exercise. Since that time, the patient has not sought medical attention. During the past 2 months, he has been experiencing occasional headaches, which he attributes to increased stress at work. He denies chest pain, shortness of breath, dyspnoea on exertion.

On examination, the patient is obese, and you calculate his body mass index (BMI) as 30 kg/m². His blood pressure is 168/98 mm Hg. His blood pressure did not change with changes in position. His heart rate is 84 bpm.

Q1 Why is it important to control blood pressure?

Q2 What factors should be considered when making a diagnosis?

Q3 List the types of drugs that can be used to treat hypertension and describe how they work?

Q4 How would you treat this patient?

Case B - Heart Failure

Edward is a 66-year-old man who presents complaining of increasing shortness of breath on exertion. He smokes one pack of cigarettes per day. Edward was prescribed frusemide 40mg about one year ago for swollen ankles and has been taking it intermittently. He is now showing left ventricular systolic dysfunction and a diagnosis of systolic heart failure is made. You decide to initiate an ACE inhibitor.

Q1 What changes in lifestyle factors could minimise Edwards cardiovascular risk?

Q2 What is the rationale for drug therapy?

Q3 Why would you prescribe an ACE inhibitor? Give an example and describe its mechanism of action.

Q4 What type of drug is Frusemide? Describe its mechanism of action and side effects

Q5 Can beta blockers be used to treat heart failure? Why or why not?

Q6 a. What is the mechanism of action of the cardiac glycosides?

b. Would you consider prescribing digoxin for Edward? Explain your reasoning.

Activity 4. Preparation for the Community EXPO and EXPO presentations

On Friday 19th July, students will attend a community EXPO, in which various community agencies will set up display boards and discuss their preventative health strategies. Students will need to visit all agencies individually. Those students who have collected stamps from all agencies will be eligible for a prize.

Working in pairs or threes (if an uneven number in the SG), you should choose two of the agencies you have visited (including one that you had not heard of before) as focus organizations for critical analysis. The different pairs (or threes) should choose different agencies where possible to avoid repetition across the SG. You will be required to consider the work of the two selected agencies through the lens of the Ottawa charter in SGS 7. Note we have provided some guiding questions in a worksheet that will help you to think about and understand the role of the participating organisations. In preparation use the expo layout and list of organisations in Moodle to research two organization websites. Research those that interest you or that you have not heard of before.

EXPO Student Worksheet 2024

Note you should visit all organisations and those who have collected stamps from all agencies will be eligible for a prize. Analyse two organisations including one you have not heard of before. Be prepared to report back to your SG group.

- i) What is the aim of the organisation? What are they trying to achieve?
 - ii) What condition or issue or target population are they focussing on?
 - iii) For this condition, issue or target population:
 - a. What role do they play in supporting individuals?
 - b. How does the work of this organisation intersect with the work of carers, families and other healthcare organisations?
 - iv) Can you identify any specific challenges faced in achieving the organisation's goals?

SGS-7 – Cardiovascular health

Aims

This session aims to support students to:

- Apply the content learnt through the Eric scenario, to alternate scenarios
- Explore concepts around disease prevention and health promotion
- Develop an awareness of community health agencies and the various approaches adopted by them in health promotion and disease prevention

Key concepts

- Clinical reasoning and differential diagnoses.
- Community agencies and primary, secondary and tertiary prevention strategies.

Information for students

In this session you will use your understanding of the learning issues related to the Eric scenario to clarify the underlying pathophysiology in new but related scenarios.

You will then have the opportunity to explore concepts around health promotion and disease prevention. This will help you to consider whether the disease conditions that you explored in the case studies might have been prevented by earlier intervention.

This activity will flow on to a discussion of what you learnt by attending the ‘Virtual Community EXPO’.

Process

Activities
1. Working on alternate scenarios
2. Exploring concepts of health promotion and disease prevention
3. The role of community organisations in health promotion and disease prevention

Activity 1. Working on alternate scenarios

i) Answering the scenario questions

Using the information that has been gathered from lectures, tutorials and practicals, assess the following hypothetical scenarios in small groups, and answer the questions below for each scenario:

- a. Is your patient likely to have a cardiac problem? What is the differential diagnosis?
- b. What are the factors increasing cardiovascular risk and those decreasing risk in this patient?
- c. What issues are important in the presentation of this patient?
- d. What signs might you look for in examining this patient?

Scenario questions

Scenario 1

An 88-year-old male presents to the emergency department in the early hours of the morning. He woke at 2:00 am with marked shortness of breath, and he remains quite distressed. He is tachypnoeic with a respiratory rate of 26 breaths per minute. He had noticed increasing shortness of breath over the 24-hour period prior to presenting to hospital. He has had no chest pain.

He has noticed swelling of his legs over a 3-week period. This worsened gradually involving swelling of both legs and thighs.

He suffered a myocardial infarct at the age of 68 years. He has hypertension (on medication), hypercholesterolaemia, and well controlled, type-2 diabetes. He has otherwise been quite well and independent until the last three weeks. He still enjoys smoking but reduced after his heart attack from 30 cigarettes / day to just 2 cigarettes / day.

Scenario 2

A 22-year-old female attends the emergency department unable to 'catch her breath'. This has never happened before. She is with her boyfriend and he reports that they had an argument prior to this episode. She is very anxious, struggling for breath with a respiratory rate of 35/min. She complains of dizziness and feeling faint. She has never had asthma. Your rapid assessment indicates that there are no clinical signs of airway obstruction, with normal breath sounds and air movement throughout her lungs. During your examination, she begins to complain that her hands are cramping, and this is evident to observation. She has no chest pain. Her blood pressure is 138/74 mmHg, pulse 103 beats/min, and her oxygen saturation is 100%.

The patient says she has never smoked cigarettes and maintains a healthy diet. She trains at the gym 5 times per week. She drinks on weekends only, usually about four glasses of mixed drink on Saturdays, and admits to smoking a cannabis joint 3-4 times / week. She denies any other illicit drug use.

Scenario 3

A 46-year-old male banker presents to emergency at 06:30 am with a 1.5-hour history of severe, central crushing chest pain. There is no similar past history and he rarely sees his doctor. He smokes 15 cigarettes/day and does not exercise. His father died at the age of 42 years suddenly, attributed to a 'heart attack' while he was holidaying in Haiti (at the time and no formal investigations were done). He is on no medications.

On examination his skin is cool and he is very sweaty and appears pale and very sick. He appears to be in intense pain, which he says is across his chest and extends up into his shoulders. While you are examining him, he becomes unconscious and stops breathing. You note that his cardiac rhythm on the ECG monitor is no longer sinus rhythm but an unusual irregular waveform.

Activity 2: Explore health promotion and disease prevention

- A) Review the Ottawa Charter and **identify the five key action areas**
- B) Watch the following video while considering the five action areas of the Ottawa Charter:

What is the life course approach to public health? (5min)

<https://www.youtube.com/watch?v=3OBFYIXmAwQ&feature=youtu.be>

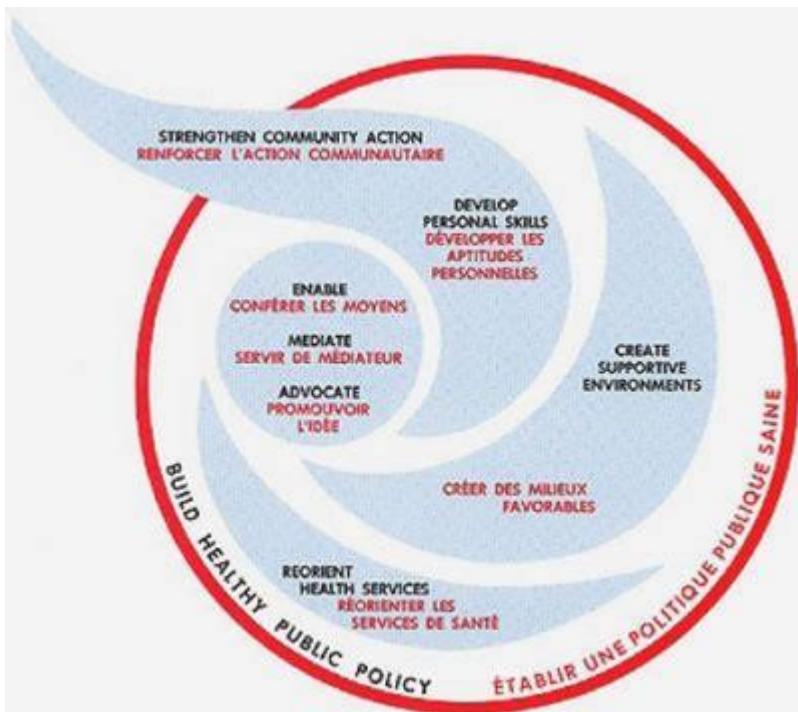
- C) Reflect on the three case studies and discuss how early intervention might have helped each of the patients
- D) What further information would you seek (if you were taking a social history from each of the three patients above), to tailor health promotion focused patient management strategies. Consider the social determinants and concepts such as risk and protective factors in thinking about the additional information you need.

Activity 3: The role of community organisations in health promotion and disease prevention

Drawing on the five action areas of the Ottawa Charter, consider the questions below:

1. What role do the selected agencies play in health promotions and disease prevention?
2. How can these agencies be of assistance to your future patients?
3. What mechanisms may be available for doctors to link relevant patients with these agencies?

Link to WHO Health Promotion page: <https://www.who.int/teams/health-promotion/enhanced-wellbeing/first-global-conference/actions>



WHO (1986). Health Promotion logo (HP logo).

Scenario 3 – Alice and Sophia

Schedule

Learning Activity	Principal Teacher
Scenario Plenary 2: Alice and Sophia	Mangos, George
Lecture 28: Physiology of CCF and oedema	Murphy, Timothy
Science Practical 9: Anatomy of ANS	Shirazi, Reza
Online Activity Online: Post prac revision: Anatomy of the autonomic nervous system	Shirazi, Reza
Scenario Group Session 8: What should we do with Alice?	Hulme, Anneliese
Lecture 29: Valvular heart disease	Weber, Martin
Lecture 30: Congestive Cardiac Failure	Weber, Martin
Tutorial 3: Cardiovascular Physiology	Murphy, Timothy
Science Practical 10: Visualising data using Prism	Ariff, Amir
Campus Clinical Skills Session 3: CVS Simulated Patient Session	Spencer, Kalli
Scenario Group Session 9: Congestive heart failure	Hulme, Anneliese
Lecture 31: The cardiovascular system: an integrative overview	Murphy, Timothy
Lecture 32: Cardiovascular disease in Indigenous populations	Malouf, Peter
Lecture 33: Lipid lowering drugs	Turner, Nigel
Tutorial 4: CVS Pathology 1 - Atherosclerosis and Myocardial Infarction	Weber, Martin
Scenario Group Session 10: Valvular heart disease	Thomas, Shane
Lecture 34: Skin and Infections	Zhang, Li
Lecture 35: Hospital acquired infections	Zhang, Li
Lecture 36: Introduction to antibiotics 1	Zhang, Li
Lecture 37: Introduction to antibiotics 2	Zhang, Li
Lecture 38: Introduction to antibiotics 3	Zhang, Li
Lecture 39: Ethics - Whose Health is it ?	Langendyk, Vicki
Tutorial 5: Ethics Tute 2: Ethics issues arising from scenarios	Langendyk, Vicki
Science Practical 11: Endocarditis and embolism	Weber, Martin Zhang, Li
Scenario Group Session 11: Project Presentations	Binder, Trudie
Hospital Clinical Skills Session 3: History taking and examining the PVS and CVS	Spencer, Kalli

Note: This schedule is subject to change. It only shows the first instance of any one activity. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

Overview

The third scenario looks at Alice, the matriarch of the family. Her specific problem relates to a chronic leg ulcer, underpinned medically by worsening cardiac failure on the basis of rheumatic heart disease, and in a social sense by her sense of independence, which makes it hard for her to seek or accept medical care. Alice's GP chooses to hospitalise her and this decision is called into question.

Learning outcomes for this scenario

Students should be able to:

- Describe common mechanisms and clinical manifestations of disturbances of peripheral circulation
- Understand the normal structure/function relationships in the heart and their disruption in common cardiac diseases
- Recognise common health problems that may arise as a result of hospitalisation.
- Understand the different classes of antibiotics and their use, and antibiotic resistance.
- Describe the cardiovascular functions of the autonomic nervous system
- Have an introductory overview of cardiovascular pharmacology

SGS-8 –What should we do with Alice?

Aims:

This SGS aims to support students to contextualise some complications of cardiovascular disease, and understand the real-world issues that patients encounter. The session also aims to support students to gain a deeper understanding of the key learning issues that relate to this scenario, including the cardiovascular system.

Key concepts

- problems of peripheral circulation
- hospital acquired infections

Information for students

This SGS is planned to give you an opportunity to respond to the issues raised in the plenary, and to engage in learning activities that will help develop your understanding about the key concepts of this scenario. It will also provide an opportunity to view Alice's problems in the context of the knowledge you have already gained about the peripheral circulation, appreciate the problems that can arise there, and the clinical consequences of those problems. **Please have access to the relevant anatomy and pathology texts or notes for this SGS.**

Process

Activity
1. Responses to Plenary, Learning issues and scenario overview
2. Understanding the scientific basis for Alice's condition or peer teaching
3. Circulation Activity: Pathophysiology of vascular syndromes in the limbs
4. Homework for SGS-9

Activity 4. Homework for the next session

Bring lecture notes on heart function to SGS 9.

Activity 3 Student Worksheet: Pathophysiology of vascular syndromes in the limbs.

Firstly, you are required to identify blood vessels on the diagrams of the vasculature of the upper and lower limbs. Write these on the diagrams as appropriate.

Next, for each of the 10 clinical problems below, discuss with your colleague the nature of the lesion(s) that would probably be responsible for the problem and their likely location. Choose from the lists supplied, the most appropriate combination of lesion and location. You may choose more than one combination, but if you do then you should indicate the one combination you think is most likely. In some cases, there may be more than one answer.

Clinical problem	Is due to [insert pathological lesion]	In the [insert anatomical location]
1. No pulses in the lower limb below the inguinal ligament		
2. Absence of right radial pulse and a fracture of the right distal humerus		
3. Varicose veins		
4. Blood pressure difference of 35mmHg systolic between the left and right arms		
5. Bruit over inguinal ligament		
6. Leg ulcer just above the medial malleolus		
7. Pain in the calf which is relieved by rest		
8. A pulsatile mass behind the knee		
9. Swollen arm and hand with pitting oedema		
10. Painful swelling of the calf		

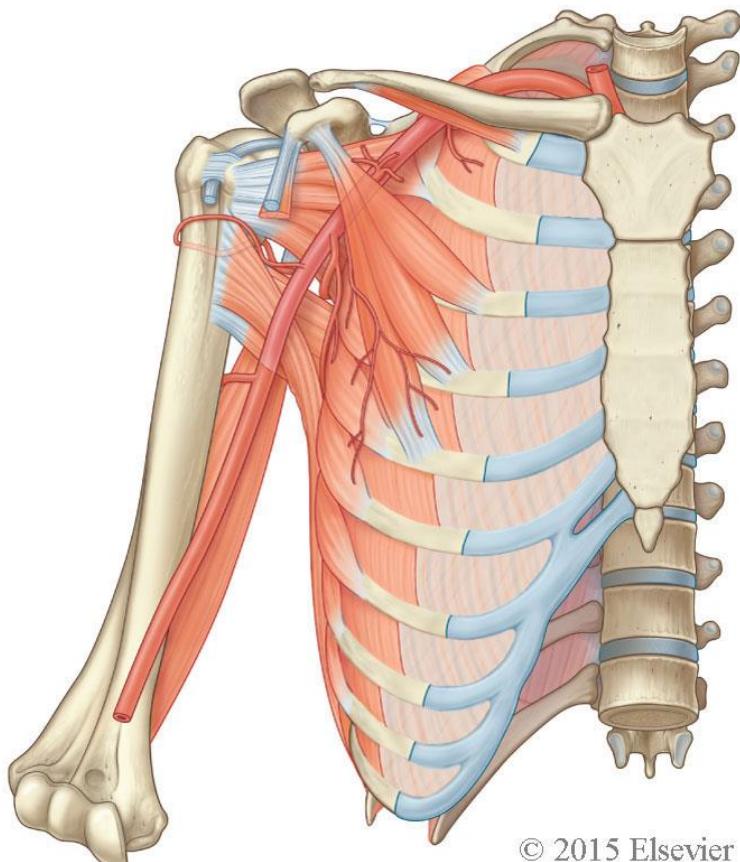
Anatomical locations:

Anterior tibial artery
Axillary artery
Axillary vein
Basilic vein
Brachial artery at the cubital fossa
Brachial artery
Brachial vein
Cephalic vein
Dorsalis pedis artery
Femoral artery at the level of the inguinal ligament
Femoral vein
Great (long) saphenous vein
Lateral plantar artery
Medial plantar artery
Median Basilic vein
Median cephalic vein
Perforating veins
Fibular (Peroneal) artery
Popliteal artery
Popliteal vein
Posterior tibial artery
Profunda brachii
Profunda femoris artery
Radial artery
Small (short) saphenous vein
Subclavian artery
Subclavian artery
Superficial femoral / Femoral artery (mid femur)
Ulnar artery

Pathological changes

Arterial aneurysm
Arterial embolism
Arterial hypertension
Atherosclerotic plaque complicated by occlusive thrombus
Atherosclerotic plaque with significant luminal narrowing (50%-70% stenosis)
Incompetent venous valve
Mechanical occlusion of artery
Occlusive venous thrombus
Venous hypertension
Venous thromboembolus

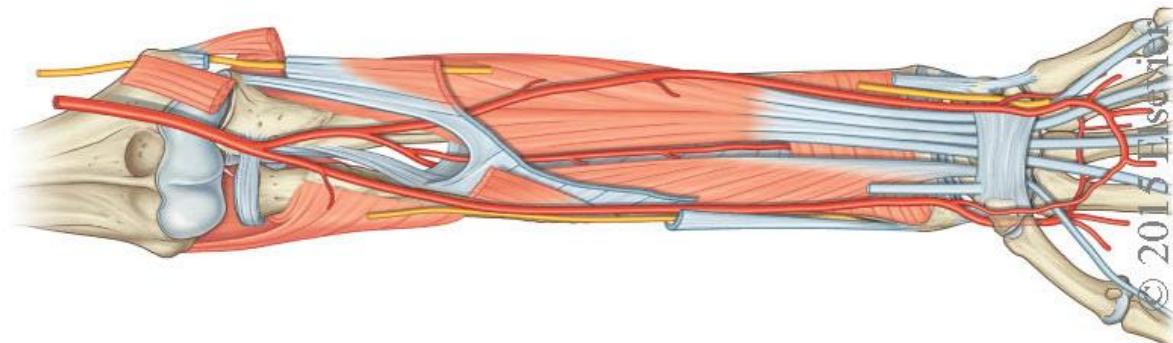
Upper Limb Arteries



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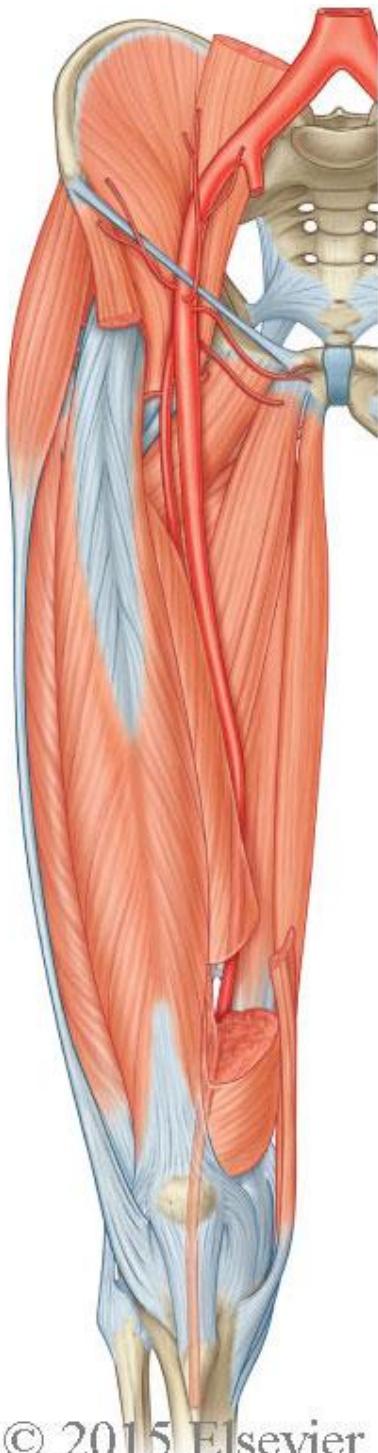
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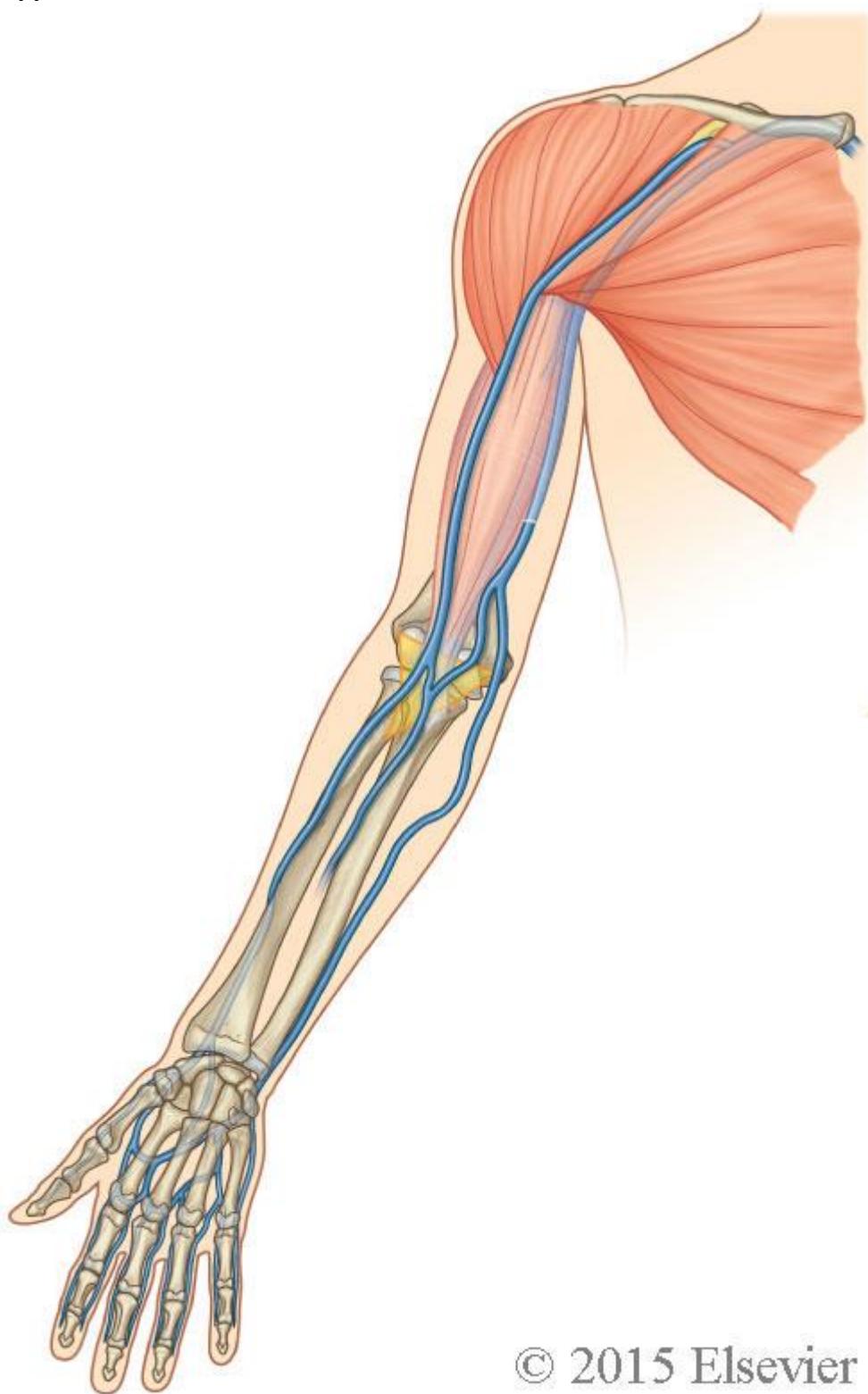
Lower Limb Arteries – posteromedial view

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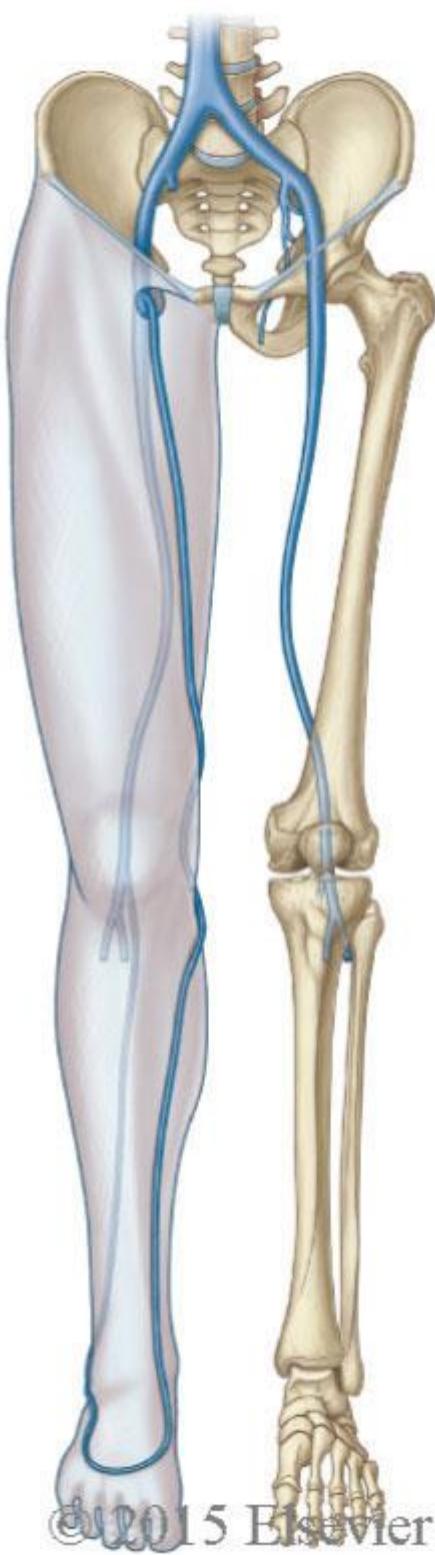
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Upper Limb Veins



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Lower Limb Veins

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Images: Gray's Anatomy for Students, 3rd Edition, Richard L. Drake.

SGS-9 – Congestive heart failure

Aims

This session aims to support students to:

- understand the anatomical and physiological consequences of abnormal cardiac valve function
- understand the causes and subsequent effects of congestive heart failure, and to be able to communicate these in lay as well as medical terms
- clarify any questions/difficulties that they may have with any aspects of the scenarios

Key concepts

- the mechanisms by which specific cardiac abnormalities can alter the normal functioning of the heart
- the mechanisms by which cardiac impairment leads to the signs and symptoms of congestive heart failure

Information for students

In the session, you will explore how specific heart abnormalities affect heart function and examine how congestive heart failure produces its associated symptoms. Please bring lecture notes and texts relevant for heart function.

Process

Activities
1. Effects of a specific heart abnormality on heart function
2. Explain diagrammatically the problem with Alice.
3. Student led activity
4. Preparations for SGS 10

Activity 1. Effects of specific abnormalities on heart function

Break into 4 groups. Each group will be allocated one of the following heart conditions:

- Leakage of the tricuspid valve
- Failure of the aortic valve to open properly
- Failure of the mitral valve to close properly
- Systemic arterial hypertension

Each group should:

- A. Consider how this condition would affect the functioning of the heart. Specifically, consider which parts of the cardiovascular system will be subject to greater load because of this condition, and define the nature of the load (is it a pressure load or a volume load).
- B. Prepare a diagram or other visual aid to explain the effect of the allocated condition on the heart function.
- C. Present a five-minute talk on their topic and answer any questions from peers.

Activity 2. Explain diagrammatically the problem with Alice

Break into two teams (Team 1 and 2). Each team should:

1. List the symptoms and signs of left and right sided cardiac failure
2. Provide an explanation, with the help of one or more diagrams, the association between congestive heart failure and leg ulcers, swollen ankles and shortness of breath, as was seen in the case of Alice.
3. Team 1 to prepare their explanation as would be appropriate for a **patient**.
4. Team 2 to prepare it in a manner suitable for a **medical student**.

Activity 4. Preparations for SGS-10

In SGS10 you will develop a good understanding of one of three causes of valvular heart disease. This can be done in two different ways.

- Group work - students work in 3 groups in the 1st hour researching one of the three topics, and then present their topic to fellow students in the 2nd hour. They should be prepared to answer questions on their topic.
- Students may choose to prepare these topics prior to SGS-10 for presentation in SGS-10. In this case, make sure groups and topics are organised before the end of this SGS. The three topics are available in the student guide or on Moodle under SGS10.

The topics are:

- **Degenerative disease of the aortic valve** (calcific aortic sclerosis)
Definition, clinical manifestations, diagnosis and outcome.
- **Rheumatic heart disease**
Predisposing factors, key pathological features of chronic rheumatic heart disease, common clinical effects, prognosis and complications
- **Infective endocarditis**
Definition, classification (aetiological and clinical), predisposing factors, common causative organisms, common clinical effects, diagnosis and principles of treatment.

Reminder for SGS-10: have access to the following prescribed textbooks.

- Kumar, V., Abbas, A.K. and Aster, J.C. (2023). Robbins' Basic Pathology (11th ed.). Philadelphia, Pennsylvania: Elsevier. Chapter 9: Heart.
https://unsw.almalibrisgroup.com/leganto/public/61UNSW_INST/citation/52581554370001731?auth=S_AML
- Goering, R., Dockrell, H., Zucherman, M. and Chiodini, P. (2024). Mims' Medical Microbiology and Immunology (7th ed.). London; Philadelphia: Mosby. Chapter 19 Page 197-199, Chapter 30 pages 404-407.
https://unsw.almalibrisgroup.com/leganto/public/61UNSW_INST/citation/53239303080001731?auth=S_AML

SGS-10 – Valvular heart disease

Aim

- To identify some important common causes of valvular heart disease
- To recognise the factors/conditions that leads to rheumatic heart disease and understand the relationship between this condition and infective endocarditis
- To recognise the clinical and pathological features of rheumatic heart disease, the predisposing factors and the prognosis following rheumatic heart disease
- To recognise the clinical features of infective endocarditis, the predisposing factors, the common causative agents and the effect of these agents on the heart valve

Key concepts

- Common causes of valvular heart disease, including degenerative, infective and autoimmune processes
- The different pathological features of different forms of valvular heart disease, and the way that this produces different clinical manifestations
- The pathology and pathophysiology of rheumatic heart disease
- The aetiology, predisposing factors, and clinical manifestations of infective endocarditis

Information for students

In this session, students work in small groups (4-5 students) using textbooks as reference material. Each group will be allocated one topic on valvular heart disease to research and will prepare a short presentation to present back to fellow students. Students should be allowed about 20 minutes for research and about 15 minutes for presentation and questions. Note: if the students chose to pre-prepare their group presentations before the SG then give them 5-10 minutes to finalise their preparations and then proceed with their presentations.

The topics are:

- Degenerative disease of the aortic valve (calcific aortic sclerosis)
- Rheumatic heart disease
- Infective endocarditis

Resources

- Kumar, V., Abbas, A.K. and Aster, J.C. (2023). Robbins' Basic Pathology (11th ed.). Philadelphia, Pennsylvania: Elsevier. Chapter 9: Heart. ([Link in Moodle](#))
- Goering, R., Dockrell, H., Zucherman, M. and Chiodini, P. (2024). Mims' Medical Microbiology and Immunology (7th ed.). London; Philadelphia: Mosby. Chapter 19 Page 197-199, Chapter 30 pages 404-407. ([Link in Moodle](#))

Process

Activities
1.1 Research on topics of valvular heart disease:
1.2 Presentation Topic 1. Degenerative disease of the aortic valve
1.3 Presentation Topic 2. Rheumatic heart disease
1.4 Presentation Topic 3. Infective endocarditis
2. Check progress of group project, Reminders about SGS11.

Activity 1. Presentation questions on valvular heart disease**TOPIC 1: DEGENERATIVE CALCIFIC AORTIC STENOSIS**

What is degenerative disease of the aortic valve (calcific aortic stenosis/sclerosis)?

What are the clinical manifestations?

How can it be diagnosed?

What is the treatment and treatment outcome?

TOPIC 2: RHEUMATIC FEVER AND RHEUMATIC HEART DISEASE

What is rheumatic heart disease?

What are the predisposing factor(s)?

What are the key pathological features of chronic rheumatic heart disease?

What are the common clinical effects? What are the complications?

What is the prognosis?

TOPIC 3: INFECTIVE ENDOCARDITIS

What is infective endocarditis?

How is it classified based on aetiological and clinical factors?

What are the predisposing factors?

What are common causative organisms?

What are the common clinical effects?

How is it diagnosed and what are the principles of treatment?

SGS-11 – Project Presentations

Aims

This session aims to support students to:

- Develop presentation and peer-teaching skills
- Gain experience in giving and receiving feedback, including making self assessments.
- Gain an understanding of the range of topics addressed by their colleagues through group projects

Key Concepts

- Presentation skills
- Criteria for assessing presentations
- Self assessment

Information for Students

In this SG you will present your group project findings as well as give and receive feedback. It is a good opportunity to finalise how clear your conclusions and methods are, and how well your project has met the assessment criteria. Attendance and participation form part of the project assessment and facilitators will be noting any absentees or any students noticeably not contributing.

Process

Activity
1. Establish order and time allowance
2. Group project presentations
3. Reminder: preparation for the cardiovascular and autonomic pharmacology quiz in SGS12

Activity 3. Reminders

You should revise your lecture/study notes and come prepared for a cardiovascular and autonomic pharmacology quiz in SGS12.

Group project presentation feedback form

Project title:		
Scenario Group:	Date:	Time:
Project Group members:		

Criteria	Grade	Comments
EXPLANATION OF PROJECT Project aim, methods and findings were clearly explained and understood; Findings are based on the evidence available; Methodology is appropriate and adequate for the task.	P- P P+	
UNDERSTANDING Project team appeared to have a good understanding of the topic; Project has an introduction and conclusion; Able to answer audience questions.	P- P P+	
PRESENTATION Oral presentation was clear, well-structured and easily understood; Presentation demonstrated consistency in style e.g. <i>PowerPoint slides</i> Timing was controlled so that most aspects were covered; Audio visual aids or handouts were clear, well-structured and easy to read.	P- P P+	
STIMULATING LEARNING Presentation was interesting and engaging; Significant issues and unanswered questions were highlighted; I learned a lot from this presentation; This presentation stimulated me to find out more about the topic.	P- P P+	
TEAMWORK The transition from one speaker to the other went smoothly Team members demonstrated support for the speaker i.e. <i>not talking amongst themselves when a group member was presenting</i> Presenters have minimal overlap in their presentations The group engaged the audience and demonstrated team unity	P- P P+	

Did the group meet the assessment criteria for the group project adequately (i.e. a Pass level)? Yes / No

Please add specific comments (more space overleaf):

- P- represents a relatively poor and/or incomplete performance, in terms of the assessment criteria
- P represents a performance that achieves most of the stated criteria, in a reasonably effective manner
- P+ means that all the criteria were attained, and that they were done in a way that demonstrated a clear understanding of and mastery of the topic.
- Full definitions at: <https://medprogram.med.unsw.edu.au/assessment#tab-303400201>

Scenario 4 – Recreational Drugs

Scenario 4 – Recreational Drugs

Schedule

Learning Activity	Principal Teacher
Scenario Plenary 3: Making sense of illegal drugs	Demirkol, Apo
Lecture 40: Introduction to risk taking	Mewton, Louise
Lecture 41: Alcohol and Other Drug (AOD) Use and Trauma	Marley, Catherine
Tutorial 6: CVS Pathology 2 - Thrombosis and Embolism	Weber, Martin
Scenario Group Session 12: Recreational Drugs	Binder, Trudie
Lecture 42: Illicit Drugs and Health	Demirkol, Apo
Lecture 43: Interventions for Illicit Substance Use	Demirkol, Apo
Science Practical 12: Skin Infections	Zhang, Li
Lecture 44: Thermoregulation	Gibson, Karen
Lecture 45: Pleasure and Reward- why people abuse drugs	Moorhouse, Andrew
Lecture 46: Temperature Extremes	Moorhouse, Andrew
Scenario Group Session 13: Study design for Ecstasy research	Bland, Karan
Lecture 47: Introduction to CNS acting drugs	Kumar, Natasha
Tutorial 7: Revision of the anatomy of circulatory and autonomic systems	Shirazi, Reza
Lecture 48: Withdrawal and cellular dependence	Binder, Trudie
Lecture 49: Anaesthetics	Kumar, Natasha
Scenario Group Session 14: Thermoregulation and presentations on recreational drugs	Khan, Shanzana
Science Practical 13: Body temperature & cutaneous circulation	Moorhouse, Andrew
Online Activity: Post prac revision: Body temperature and cutaneous circulation	Ulman, Lesley

Note: This schedule is subject to change. It only shows the first instance of any one activity. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

Overview

In this final scenario, we address our Health Maintenance themes (particularly homeostasis, risk factors & health promotion) in two related contexts, recreational drug use and thermoregulation. The plenary introduces the use of illegal drugs and perspectives from various points of view. Biological and social aspects of recreational drugs are introduced, predominantly by the consideration of the use of Ecstasy and other so called “party drugs” as well as the misuse and over-prescription of pharmaceuticals. This scenario will also cover aspects of thermoregulation and more general aspects of drug use and neuropharmacology.

Learning outcomes for this scenario:

Students should be able to:

- Discuss aspects of recreational drug abuse (including risk taking, pleasure seeking and health promotion, basics of their physiological effects, including an introduction to dependence and withdrawal, epidemiology, morbidity and mortality, public health and behavioural aspects)
- Describe basics of CNS pharmacology and drugs of abuse
- Describe principles of thermoregulation

Plenary: Making sense of illegal drugs

Overview:

The plenary aims are:

- To describe the definition of illicit substances
- To explain nature of illicit substance use in Australia
- To discuss the epidemiology of illicit substance use in Australia
- To discuss how illicit substances work and why people use these substances
- To explain the natural history of drug use
- To discuss the health and social consequences of illicit substance use
- To explain the impact of illicit substance use on the daily work of clinicians working in clinical settings other than drug and alcohol treatment facilities
- To explore the different perspectives on illicit drug use
- To appreciate the practical implications of the policy of global drug prohibition

SGS-12 – Recreational Drugs

Aims:

This session aims to support students to:

- Understand the social context of recreational drug use
- Understand the impact of recreational drug use on health and on society
- Understand the potential role of doctors / healthcare professionals in managing recreational drug use
- Review their understanding of cardiovascular and autonomic pharmacology

Key Concepts:

- Recreational drug use
- Pleasure seeking, risk taking & experimentation
- Perspectives on Drug Use: NUAA, Harm reduction; the Law, Government and Public Health Approaches
- Dependence on prescription drugs

Information for students

In the first part of this session you will consolidate the knowledge gained from the plenary presentation. The learning issues related to recreational drug use and drug dependence will be further explored using the 'Agony of ecstasy' documentary and the ABC video 'The opioid curse'. 43% of Australians have used illicit drugs at some point in their lives. Some of the most common recently used drugs were: cannabis, ecstasy, cocaine, hallucinogens and pain relievers including opioids (NDSHS, 2022-2023).

Process

Activity
1. Feedback and issues raised in the plenary
2. 'The agony of ecstasy' - medical, social and public health issues associated with ecstasy use.
3. The dangers of prescription drugs
4. Cardiovascular and Autonomic Pharmacology Quiz
5. Reminders.

Activity 1. Plenary Feedback

Notes and learning issues:

Activity 2. *The agony of ecstasy* video and discussion of drug use and the associated medical issues

Relevant learning issues, or interesting physiological, pharmacological, social and public health issues arising from the video”

Can ecstasy cause brain damage? What is the evidence for this?

Activity 3. The dangers of prescription drugs

After watching the video, discuss and research one of the following questions in pairs:

- What role do doctors play in opioid dependence?
- Are opioids over prescribed for chronic pain?
- How ‘safe’ are opioids?
- What are the risks and benefits of opioid use?
- Did the medical profession get it wrong?
- What can be done to improve opioid prescribing?
- What are some alternatives to using opioids for treating chronic pain?

Activity 5. Reminder – Preparation for SGS13

Complete the pre-reading about planning a research protocol for next SGS (Enarson et al., 2004, link provided on Moodle).

SGS-13 – Study design for Ecstasy research

Aims:

- To develop an awareness of the research process and its role in investigating questions of scientific interest
- To develop an awareness of the various types of research approaches and design

Key Concepts:

- Design of research studies
- Advantages and disadvantages of different research and scientific approaches
- Short-term vs. long-term studies
- Animal vs. human studies

Information for students

In this session you will explore the many issues that need to be considered in designing a research study to investigate the effects of Ecstasy. Make sure you have read the pre-reading on Moodle (Enarson et al., 2004).

Process:

Activity
1. Research questions and types of study designs
2. Discussion of the advantages of human vs. animal research studies
3. Small groups design, present and discuss 4 different study designs
4. Conclusion and return to discussion of scenario
5. Allocation of homework topics for SGS-14

Activity 1. Research questions and types of study designs

What do we know about the biological actions of Ecstasy? Does short-term or long-term Ecstasy use damage human health?

How might we narrow the question down to something that is testable and answerable?

Activity 2. Discussion of the advantages of human vs. animal studies

Before you start planning a study around your own research question, think about the advantages and disadvantages of human and animal studies; complete the table below:

ANIMAL STUDIES: Advantages	ANIMAL STUDIES: Disadvantages
HUMAN STUDIES: Advantages	HUMAN STUDIES: Disadvantages

Activity 3. Develop and present a study

In groups, design a study to address the question, ‘Does use of Ecstasy cause damage to the brain?’ Clearly you will not know technical details, but you should attempt to think through as many of the issues as possible. You should have read the article: “Getting started in research: the research protocol” ([Enarson et al., 2004](#)), but may wish to revisit this before beginning to plan your study. In your protocol do not give specifics, but talk about what you would want to do.

Each group will design their study following one of these approaches, a journal article with an example approach is linked to each topic.

- 1) Acute/short term animal experiments ([Ando et al, 2006, Neuropharmacol, 50 \(7\), 884-896](#))
- 2) Acute/short term human experiments/studies ([Holze et al, 2019, Neuropsychopharmacol., 45, 462-471](#))
- 3) Long-term animal experiment ([Hsin-Hsien Yeh et al \(2022\), Frontiers in Neurosci., 16](#))
- 4) Long-term human studies ([Thomasius et al, 2006, J. Psychopharmacol., 20\(2\), 211-225](#))

You will need to write a **title, aim (including specific hypothesis)**, general **methodology**, possible **outcomes** and how these may relate to the aim, as well as other relevant things needed in a protocol. Where you do not have enough information to specify something, write where/how you would get this information.

- The four groups will then present their proposed study (using the white board or power-point presentation to outline main points). Discuss benefits and pitfalls of each experiment, concentrating on how the different methods used may be appropriate or insufficient to answer the research question.
- The class may like to award a maximum of four stars for each project (pretending they are the funding body) with the one voted best being funded.
- Remember that content is not as important here as study design. Possible issues to be discussed include:
 - *What are the aims of your proposed study/experiment?*
 - *What study type will you use to answer your research question?*
 - *Who will be your study population?*
 - *Will you have a control group, and what sorts of controls are required?*
 - *How many animal subjects/human participants are required to ensure that your study has statistical power?*
 - *How will you collect your data?*
 - *How will you analyse your data (e.g., what statistical test will you apply)?*
 - *What will you measure?*
 - *What is the duration of your study?*
 - *Feasibility of producing valuable results?*
 - *Are you able to generalize your findings to other settings?*
 - *Could some metabolite of MDMA or impurities in an “Ecstasy” tablet contribute?*
 - *What other variables may affect the experimental results (can these also be controlled)?*
 - *Does the study seem feasible with limited resources typically available?*
 - *Consideration of ethical aspects*
 - *Why was a human/animal model appropriate for aims?*
 - *If animal, could there be species differences?*
 - *If human, could there be genetic and cultural differences?*
 - *Why was a short term/long-term study appropriate for aims?*
 - *What are the strengths and the limitations of your study?*

Activity 5. Preparation for SGS-14

You should attend or view the lecture on Temperature Extremes and have completed the related worksheet before SGS14 and bring it to the SGS. You will be placed into pairs and allocated a topic and questions on which to prepare a 6-8 minute presentation for SGS14.

You should also read the recent article “Premier backs pill testing trial” (*The Age*, 16 Jun 2024) which is available on Moodle.

References (Link available on Moodle)

[Enarson et al. \(2004\)](#). Getting started in research: the research protocol. *International Journal of Tuberculosis and Lung Disease*, 8(8), 1036-1040. This paper describes the components of a research protocol.

SGS-14 – Thermoregulation and presentations on recreational drugs

Aims:

This session aims to support students to:

- Apply their understanding of thermoregulation to a real-world situation
- Understand the effects of temperature extremes
- Understand different aspects of recreational drug use
- Develop skills in presenting information to peers

Key Concepts:

- Thermoregulation and homeostasis
- Epidemiology of recreational drug use and associated adverse health problems
- Public health approaches to minimisation of risk from recreational drugs
- Medical aspects of recreational drug use

Information for students

Groups and topics were allocated as homework in SGS13. Prepare to give a brief presentation (6-8 mins) to your fellow students. You will also complete a thermoregulation work sheet. There will be a final quiz based on the whole course. You will also have an opportunity to complete the myExperience surveys and will farewell your facilitator and SG for this course.

Process

Activity
1. Thermoregulation worksheet
2. Student presentations on recreational drugs
3. myExperience course and teacher evaluation
4. Quiz

Activity 1. Temperature Extremes (Thermoregulation) Worksheet

Students should reflect on the Temperature Extremes lecture and have completed the related worksheet but may have a few minutes to finalise this.

The full BBC video, Wild Weather is available on Moodle if some students wish to clarify some segments.

Activity 3. myExperience Evaluation

Students should complete the course myExperience evaluation survey via the link from the HMA Moodle module. We value your feedback on this course and the Course Design and Implementation Group look at students' comments carefully in guiding the development of the course each year.

Temperature extremes: Worksheet Questions

Acute responses to the **cold** environment

- **What** were the presenter Donald's responses to the lowering of environmental temperature?
- **Why** did these occur? (Think about homeostasis).
- What may be the physiological **mechanisms** at play?

Health effects of the **cold** environment

- **What** are the causes of injury and death due to cold?
- **How** could these occur?

How do changes in the CVS contribute to cold-related increase in mortality?

It is estimated ~50% of increased winter mortality is due to cardiovascular events (and ~50% is due to respiratory infections) (Mercer et al. 2003).

How does cold weather affect the cardiovascular system? Would this increased risk of ischaemic heart disease/myocardial infarct, cerebrovascular strokes or thrombosis?

List 1 or 2 possible consequences of the following that may occur during cold weather:

- Sympathetic activation
- Redistribution of blood from the skin
- Systemic infection

Acute responses to the **hot** environment

- **What** were the presenter Donald's responses to heat?
- **Why** did these occur? (Think about homeostasis).
- How did they change in different environments?
- What may be the physiological **mechanisms** at play?

Health effects of the **hot** environment

- **What** are the causes of injury and death due to heat?
- **How** could these occur?

Why are there differences between cold and moderate climates?

What are three public health approaches that could minimise harm from the cold?

Computer-based exercise on recreational drug use.

Student groups and Questions (allocated in SGS 13):

- | | |
|-----------|--------------------|
| - Group 1 | Questions 1 and 2 |
| - Group 2 | Questions 3 and 4 |
| - Group 3 | Questions 5 and 6 |
| - Group 4 | Questions 7 and 8 |
| - Group 5 | Questions 9 and 10 |

Scenario: Drugs on the dance floor

Simon is a 24-year-old who moved to Sydney from Queensland 3 years ago. For the last 5 years he has been a weekend cannabis user and has been using ecstasy at dance venues since he was 21 years old. He has Ventolin controlled asthma and has no significant other medical or psychiatric health problems and drinks about 4-6 schooners on Fridays and Saturdays, except when he goes clubbing, when he drinks vodka shots and tequila. At 3.30 am on Sunday he was admitted to St Hopeless after he collapsed on the 'Scatterbrain' night at Les Bollox. On admission to the emergency dept he has dilated pupils, is confused, pyrexial 40.5 °C, tachycardic (P- 140bpm), hypotensive (90/60 mmHg) and sweaty. His friend, Tim, said he'd taken 3 Ecstasy pills between 10.30pm and 2am, has drunk about 10 shots of vodka and had been dancing 'like a mad orang-utan' since 11pm.

After a rough night in hospital, IV fluids, cooling and a lecture on why he must not take pills again, Simon gets up and goes home. He is scared by his experience and vows to stop clubbing and never take pills again. Nevertheless, a few months later at his girlfriend's suggestion they go clubbing back to Bollox but agree not to take any pills that night. He gets a bit drunk and is then offered some GHB. His mate says it will help him dance. He takes a gulp. The taste is bitter. He passes out and finds himself in St Hopeless Hospital with a Glasgow Coma Scale of 6, a respiratory rate of 6/min with vomit over his glow green top. His girlfriend is next to him screaming. He is soon ventilated as his respiratory rate and O2 sat falls below 90%. He wakes up 2 hours later pulling out his tube and hitting the nurse who is taking his observations.

Q1 Why did Simon develop tachycardia, hyperthermia and dehydration at "Scatterbrain"?

Q2 What is the management of hyperthermia and ecstasy intoxication?

Q3 What could Simon have done to reduce the chances of causing himself harm at Bollox?

Q4 What could Scatterbrain and Bollox have done to make clubbing safer for Simon?

Q5 Did Simon really take ecstasy and GHB? How would you test for this? What other substances are typically found in pills?

Q6 Why do people mix drugs and what are the risks of mixing drugs? Give examples of the dangers associated with polydrug use.

Q7 What is GHB and why did Simon fall into a coma?

Q8 What other complications may arise from taking GHB?

Q9 How common is Simon's experience? Describe the incidence of ecstasy and GHB use in young Australians, with special emphasis on clubbers.

Q10 What advice would you give to clubbers about GHB and how would you disseminate it?

Assessment

Assessment overview

Assessment in this course involves an assignment, a group project, a course examination and attendance requirements. You must complete one group project and one assignment. The assignment may be chosen from the set list or negotiated on a topic of your choice which is relevant to the themes of the course. You are reminded of the program requirements to negotiate at least one assignment during Phase 1.

Successful completion of the assignment and project work is necessary before your exam results will be released.

You are reminded that questions relating to the tutorials and scenario group sessions may be included in the end of course examination. Refer to the Phase 1 guide and Medicine Program website for information on the format of the end of course examination and for detailed progression rules. A formative online assessment will also be available.

While your final result for the course will largely be determined by your performance in the end of course examination, the assignment and project work is also an important component of the assessment for the course. The graded assignments and projects will form part of the portfolio examination at the end of your second year, where they will be used as evidence of your achievement in each of the capabilities.

Academic honesty and plagiarism

Students should be familiar with the UNSW Student Conduct Policy and the policies relating to code of conduct particularly relating to academic misconduct and plagiarism

<https://student.unsw.edu.au/conduct>

The Faculty of Medicine regards the maintenance of academic integrity by staff and students as a matter of the highest priority. The Faculty participates in the University's use of the similarity detection software Turnitin (see <http://www.turnitin.com>). Students' work submitted to the eMed Portfolio system will be compared to other items in the eMed system, to material on the Internet, electronic publications and to items in the Turnitin database.

You can check your own assignments and projects against Turnitin before you submit it to eMed Portfolio by using the link in the Moodle module for this course located under "Assessment Activities".

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources are located at: <https://student.unsw.edu.au/plagiarism>

Use of AI in Phase 1 Assignments & Projects

During the early planning, researching and evaluation stage of your assignment or group project you are permitted to use software to generate initial ideas and structures. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the software should not be a part of your final submission. It is a good idea to keep copies of your initial drafts to show the convenors if there is any uncertainty about the originality of your work.

If you have used AI tools during any stage of your assignment or project, you should reflect on this usage in your generic reflection/teamwork reflection including how it helped your learning or preparation. All students are required to include the Phase 1 AI declaration on the title page of their assignment.

Please note that your submission will be passed through an AI-text detection tool. If your marker has concerns that your answer contains passages of AI-generated text that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text as a starting point and some traces may remain. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

Phase 1 AI Declaration

Please include ONE of the following declarations on the title page (not included in word count).

- During the preparation of this assessment, I/we used [NAME of TOOL/ SERVICE/ SOFTWARE] for the purpose of [briefly explain]. After using this AI assistance, I/we reviewed and edited the content and take full responsibility for the content of this assessment.

OR

- During the preparation of this assessment, I/we did **NOT USE ANY** AI tools, services or software.

Assignments and Projects offered in HMA 2024

There is a discussion board open for each assignment and project in Moodle.

Individual Assignments

	Title	Capabilities
A1	Global Tobacco Control	<ul style="list-style-type: none"> Social and Cultural Aspects of Health and Disease Ethical and Legal Responsibilities
A2	Integrating sociocultural themes across courses	<ul style="list-style-type: none"> Social and Cultural Aspects of Health and Disease Development as a Reflective Practitioner
A3	Health Problems Related to Seasonal Temperature Variations	<ul style="list-style-type: none"> Using Basic and Clinical Sciences Social and Cultural Aspects of Health and Disease
A4	Sex Differences in the Epidemiology and Clinical Outcomes of Ischaemic Heart Disease	<ul style="list-style-type: none"> Using Basic and Clinical Sciences Social and Cultural Aspects of Health and Disease
A5	Combination Therapy in the Management of Hypertension	<ul style="list-style-type: none"> Patient Assessment and Management Self-Directed Learning and Critical Evaluation
A6	Coronary Heart Disease and Exercise	<ul style="list-style-type: none"> Using Basic and Clinical Sciences Effective Communication

Group Projects

	Title	Capabilities
P1	The problem of bacterial resistance to antibiotics: responses of the pharmaceutical industry and medical research community	<ul style="list-style-type: none"> Using Basic and Clinical Sciences Effective Communication
P2	Integrating learning through developing a tutorial storyboard	<ul style="list-style-type: none"> Self –Directed Learning and Critical Evaluation Teamwork
P3	Statins and plasma lipid imbalance: improving cardiovascular health	<ul style="list-style-type: none"> Patient Assessment and Management Self –Directed Learning and Critical Evaluation

Please note that project groups will be expected to report to their scenario group **in Scenario Group Session 11**, and that all members of the group will be expected to answer questions from the group and the facilitator on the presentation.

All assignments and projects will also be assessed for each of the generic capabilities, as outlined below.

Capability	Criteria
Effective communication <i>(applicable to both assignments and projects)</i>	<ul style="list-style-type: none"> Clarity (clear, simple, grammatical language, terms explained) Logical structure. Appropriate language, length, style and format for the intended audience Appropriate use of media (visuals, graphs, video, etc.)
Self-directed learning and critical evaluation <i>(applicable to both assignments and projects)</i>	<ul style="list-style-type: none"> Sources (range, citation standards, quality, relevance, search strategy, people consulted) Scope (addresses all requirements of the assignment or project) Critical thinking (evidence of awareness of bias in sources, others' viewpoints, own views, logical argument) <p><i>Negotiated assignments will be marked on the following additional criteria:</i></p> <ul style="list-style-type: none"> Quality of the learning plan, including the assessment criteria. Time management, including reporting, drafts, deadlines Search strategy
Development as a reflective practitioner <i>(applicable to assignments)</i>	<ul style="list-style-type: none"> Provides a credible self-assessment of the quality of the assignment report in terms of its strengths and weaknesses in meeting the assessment criteria for the focus and generic capabilities. Identifies strengths and weaknesses of the research process used and articulates credible plans to improve research skills Reflects on the assignment topic, the research process and draws implications for wider learning and future practice.
Teamwork <i>(applicable to projects)</i>	<ul style="list-style-type: none"> Provides evidence of team meetings by appending to the project report documents such as: agendas, minutes, summaries of discussions, or lists of decisions made. Provides evidence of the evaluation of the group process using tools provided, focusing on at least one of the following: group roles and responsibilities, communication between group members, resolution of conflicts, behaviour in group meetings (task, support, non-productive). Identifies teamwork issues, (e.g. discussion of the contributions of team members as required) that facilitated or impeded the group process and outlines plans to address these in future group work.

Word Count

The word count for assignments and projects includes all the text in the report, apart from the cover page and the reference list. Assignments are up to 2000 words and projects up to 2500 words, unless there is an explicit exception for any individual assignment or project.

You should format your report in accordance with the specification on the Medicine program website and include a word count. Ensure that you carefully reference your written work using the UNSW Medicine referencing style (APA). (https://moodle.telt.unsw.edu.au/pluginfile.php/3305452/mod_resource/content/1/apa.html)

Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length:

<https://medprogram.med.unsw.edu.au/penalties> (login required)

Registration of interest

Assignments and Projects

You must register your choice of assignment and project by registering your preferences on the **eMed Registrations system**.

Expression of interest for Negotiated Assignments	9am Wednesday 3 rd July 2024
Submission of proposals for allocated Negotiated Assignments	9am Monday 8 th July 2024
Registration for all other assignments and projects*	4pm Friday 12 th July 2024

*NB: Only one student from your “group project” group should register in eMed on behalf of the group. Once you have been named in a project group you will not be able to register for any other group projects.

Negotiated assignments

There is a quota of 100 submissions for the negotiated assignments. You must register an Expression of interest (EOI) by **9am Wednesday 3 July 2024** with the eMed Registrations to be considered for a negotiated assignment. No details of the proposal are required for the EOI. Students will be notified if they are successful and may proceed to submit a negotiated proposal. Students who are unsuccessful, are to register for a set assignment by the appropriate date.

Proposals for a negotiated assignment must be submitted by **9am Monday 8 July 2024** to the **eMed Registrations system**. Do not proceed with your proposed assignment until you get approval from the Negotiated Assignment Group (NAG). **Unauthorised submissions for these assignments will not be accepted**, resulting in an overall fail for the assignment.

Note that you must include at the end of the title of your negotiated assignment, the discipline that is most relevant to your project, e.g. ‘Comparison of the pathogenesis of viral and bacterial pneumonia (PATHOLOGY’).

See the program website for information on the process for negotiating an assignment
<http://medprogram.med.unsw.edu.au/negotiating-assignment> .

A discussion forum is provided in the HMA Moodle site under the ‘Assessment Activities & Information’ section.

Due dates & submission instructions

Submission of Assignments other than Negotiated Assignments	9am Monday 29 th July 2024
Submission of Negotiated Assignments	9am Monday 5 th August 2024
Submission of Project reports and any supporting material	9am Monday 12 th August 2024

Submission to eMed Portfolio

Information on submitting assessments to eMed is available at:

<https://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1#tab-303400340>

Students submitting a website should submit a zip file to eMed; but if the website is too large (over 15Mb) then you should submit a dummy file on eMed and hand in a CD that is clearly labelled with your student number and the receipt number of your project to the Medical Education and Student Office. The dummy file should be a single page word document specifying your name, student number and project title and state that a CD has been submitted to the Medical Education and Student Office. **Please note that if you submit the website on CD, it will be destroyed after marking and will not be available for your Portfolio.**

Please refer to the Medicine Program website for penalties that you will incur if you submit after the due dates.
(<https://medprogram.med.unsw.edu.au/penalties>)

If there are extenuating circumstances that prevent you from meeting the due date for submission, contact the course convenors **before the due date** to request an extension. In most cases a medical certificate or a similar level of documentation will be required. Since assignments are due on Monday at 9 am in week 5 and projects are due on Monday at 9 am in week 7, requests for extensions should be submitted **by 3 pm on the previous Friday**. An exception may be made for an incident or misadventure during that weekend. Students experiencing ongoing issues must apply earlier.

SOCA Assessments

Refer to the Clinical Skills Moodle site and 2024 Phase 1 CCS Guide for details of the SOCA requirements.

Assignment A1: Global Tobacco Control

Graduate Capabilities assessed in this assignment:

- Social and Cultural Aspects of Health and Disease
- Ethics and Legal Responsibilities

The report will also be assessed for each of the generic capabilities for assignments (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner).

Introduction and aims:

The World Health Organisation (WHO) has developed a Framework Convention for Tobacco Control (FCTC), also referred to as the Global Alliance for Tobacco Control (GATC), outlining a range of public health approaches for reducing the adverse health impacts of smoking. The FCTC was launched in 2005 with approximately 180 countries since becoming signatories. This assignment asks you to give a brief overview of the FCTC, specifically describe the varied approaches that different countries have taken to implement the Convention and compare the different social, cultural, ethical and legal aspects to these approaches.

The aims of this assignment are to:

- Gain knowledge of the WHO FCTC, and the different public health approaches for tobacco control.
- Research and compare different global approaches to regulating tobacco supply and demand.
- Understand and compare the social, cultural, ethical and legal factors associated with tobacco control in Australia and worldwide.
- Reflect on legal and ethical aspects of current tobacco control regulation in Australia.

Course themes and relevant activities:

This assignment relates to the course theme Education, Health Promotion and Disease Prevention.

Task description:

1. Research the FCTC, its aims, history, outcomes and monitoring. Give a very brief overview of the FCTC in your introduction. Your task is to briefly summarise what the FCTC is, and the different classes of public health approaches recommended to reduce tobacco supply and demand.
2. Research how some of the FCTC regulations are being implemented in different countries. Choose **three** countries in addition to Australia as the focus of your deeper research. Two (including Australia) must be developed countries and the other two should be developing countries. Select **three** specific examples from the **FCTC Articles**, including **at least one from those related to reducing supply** (Articles 6-14) and **at least one from those related to reducing demand** (Articles 15-17). Select examples of FCTC Articles and countries for which you can find the relevant specific information for your report.
3. Primarily use published articles and/or relevant government or WHO websites and reports to compare the extent of tobacco use in the four chosen countries. For your chosen countries describe and compare the three different examples related to implementing the selected FCTC Articles. Identify relevant social, economic, cultural, and legal factors at work in each country that may influence tobacco usage, tobacco control policies and their effectiveness (if known). Use specific data/statistics to support your arguments where possible.
4. Reflect on the current ethical and legal aspects of tobacco control in Australia.
5. Write up your assignment under the following headings:
 - **Introduction** (brief overview of the FCTC, countries chosen and examples of FCTC articles selected)
 - **Results** (specific examples of how the selected FCTC articles are being implemented for your chosen countries and the effectiveness, if known, of these approaches on tobacco control)
 - **Discussion** (What social, cultural, ethical and legal aspects are relevant? How do the chosen countries compare?)
 - **Conclusion** (include **your views** of the current ethical and legal aspects of tobacco control in Australia).
 - **Reflection** (standard reflection that addresses the generic reflective practitioner capability)
 - **References** and sources of information including websites accessed.

Time allocation guide:

- Weeks 1-2:** Begin your research, choose your countries and select examples of FCTC articles on which to focus. Continue your research for evidence and relevant statistics/data to support your examples and review your findings.
- Week 3:** Prepare your report addressing the tasks as outlined above.
- Week 4:** Review and finalise your report.
- Week 5:** Submit the final report to eMed and Turnitin in Moodle with no track changes by the due date.

Report requirements:

The length of your written assignment is to be a maximum of 2000 words, including a separate reflective component addressing the generic reflective practitioner capability. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/policy>).

Assessment criteria:

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Social and Cultural Aspects of Health and Disease

- Adequately describes and compares specific examples of implementation of the FCTC articles in four different countries (including Australia). **(1.2.8 Describes primary, secondary, and tertiary approaches to disease prevention and health improvement)**
- Describes patterns of use of tobacco across four countries, including Australia. **(1.2.4 Describes and interprets patterns of illness including use of basic statistical and epidemiological concepts)**
- Describes social and cultural issues that influence patterns of tobacco use and the different approaches to tobacco control in different countries. **(1.2.1 Identifies environmental, psychological, social and cultural issues which contribute with health problems in a scenario)**

Focus Capability 2: Ethical and Legal Responsibilities

- Describes and compares ethical or legal aspects that may differ in the chosen countries and how this may relate to tobacco control and the FCTC. **(1.7.2 Develops sensitivity to different needs and values of others, including those from different social and cultural backgrounds, and acts with respect)**
- Relates legal or ethical differences relevant to tobacco control and FCTC to social, cultural and economic factors in those countries. **(1.7.2 Develops sensitivity to different needs and values of others, including those from different social and cultural backgrounds, and acts with respect)**
- Reflects on ethical and legal aspects of current tobacco control approaches in Australia. **(1.7.1 Explores the psychological, social and cultural determinants of one's own values and can discuss the relevance and appropriateness of personal values in clinical medicine).**

The generic capabilities (Effective communication, Self-directed learning and critical evaluation and Development as a reflective practitioner) will be assessed using the generic criteria listed in the Program guide, in this course guide, and on the Medicine Program website

References and resources:

The listed resources and references should be used as a starting point for your research on the topic. You should also carry out your own research of relevant resources and published literature.

- The Framework Convention Alliance, a group working to support the FCTC: <https://fctc.who.int/who-fctc/overview>
- The WHO homepage <http://www.who.int/en/> and the WHO FCTC website <http://www.who.int/fctc/en/>
- World Bank, especially regarding any financial aspects: <http://www.worldbank.org/>
- Australian Institute of Health and Welfare: <http://www.aihw.gov.au/>

- National Drug Strategy: <https://www.health.gov.au/resources/publications/national-drug-strategy-2017-2026>
- RACGP Smoking Cessation Guidelines: <http://www.racgp.org.au/your-practice/guidelines/smoking-cessation/>

Contact:

A discussion regarding this assignment is available through the HMA Course Moodle Discussion Forum.

Assignment A2: Integrating sociocultural themes across courses

Please note that this assignment is offered in several courses but may only be completed once during Phase 1.

Graduate capabilities assessed in this assignment

- Social and Cultural Aspects of Health and Disease
- Development as a Reflective Practitioner

The report will also be assessed for each of the generic capabilities (Effective communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner).

Aims

1. To develop an understanding of the importance of Public Health in Medicine by exploring sociocultural themes that run through Phase 1 scenarios
2. To develop the student's skills in reflecting on learning experiences and understanding relevance to future medical practice

Course themes and related learning activities

This assignment relates to course themes across Phase 1 courses.

Task description

1. Select two of the following **sociocultural themes**:
 - a. The influence of **socioeconomic determinants of health** on the presentation of common health conditions
 - b. The **health needs of specific groups** within the Australian population
 - c. **Screening** for diseases and risk factors
 - d. The **ethical issues** involved in balancing the health needs of individuals and the wider community/population
 - e. **Cultural competence** in communication
 - f. Issues related to **access to health care** by individuals or groups
 - g. The role of **disease prevention and health promotion** in health care
2. Select three scenarios that you have encountered in Phase 1 courses that relate well to both themes that you have selected above.
3. Discuss how the two selected themes apply to the three selected scenarios, highlighting commonalities and differences to demonstrate your understanding of the relevant content.
4. Identify what you need to do in order to better understand the themes and how they relate to the scenarios. Use timetabled and/or self-directed learning activities to achieve this. Reflect on the features of these learning activities that made them useful to you.
5. Reflect on the ways in which the selected themes apply to the practice of medicine in general:
6. Reflect on how a deeper understanding of the themes will influence your own future practice as a doctor. Reflect on how the experience of completing this assignment may have led to changes in your attitudes, conceptions or behaviours.

Time Allocation Guide

- Weeks 1-2: Choose your two sociocultural themes and conduct your literature search and background reading. Choose the three scenarios on which to focus, and explore how the themes feature within the scenarios.
- Week 3: Draft your report based on the **TWO** selected sociocultural themes and **THREE** scenarios.
- Week 4: Review and finalise your report. Conduct a self-assessment to check how well you have addressed all the assessment criteria. Edit the final report and proof-read.
- Week 5: Submit the final report into eMed and Turnitin via Moodle **with no track changes** by the due date.

Report requirements

The report should be 2000 words (maximum), including a separate reflective component addressing the generic reflective practitioner capability. This generic component should focus on the learning processes used by you, and the effectiveness (or not) of your choices. You could also reflect on integration and application of knowledge, and how this could lead to higher quality learning.

Use the references and readings provided as background material and, in addition, source your own references from the literature and consult other online resources and print media.

Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/penalties>).

Assessment Criteria

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Social and Cultural Aspects of Health and Disease

- Applies each selected theme across relevant scenarios (**1.2.1 Identifies environmental, psychological, social and cultural issues which contribute to health problems in a scenario**)
- Highlights similarities and differences in the ways in which each theme relates to different scenarios (**1.2.2 Explains the mechanisms by which those issues affect health**)

Focus Capability 2: Development as a Reflective Practitioner

- Reflects on the relevance of the identified sociocultural themes to the practice of Medicine (**1.8.4 Analyses the impact of own and others' behaviour and cultural background on self and others**)
- Reflects on how a deeper understanding of the themes may influence own future medical practice (**1.8.6 Identifies limits of own understanding and skill, and identifies issues for future learning**)
- Reflects on how the experience of completing this assignment may have led to changes in attitudes, conceptions or behaviours (**1.8.4 Provides accurate and neutral descriptions of own behaviour, emotions and intentions. Analyses the impact of own and other's behaviour and cultural background on self and others**)

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical Evaluation; Development as a Reflective Practitioner) will be assessed using the generic criteria available in the Program Guide, this Course Guide, and the Medicine program website.

References

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Contact

Please post any queries regarding this assignment in the discussion board available through Moodle.

Assignment A3: Health Problems related to Seasonal Temperature Variations

Graduate Capabilities assessed in this assignment

- Using Basic and Clinical Sciences
- Social and Cultural Aspects of Health and Disease

The report will also be assessed for each of the generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner).

Aims

Acute exposure to extremes in temperature increases morbidity and mortality. Some of this severe temperature-associated mortality has been attributed to increased cardiovascular disease. The aim of this assignment is to review the evidence and pathophysiological basis of cardiovascular mortality in severe cold or hot weather, to identify specific lifestyle and population risk factors, and to develop an evidence-based management strategy to minimise cardiovascular mortality for those particularly at risk in severe, seasonal temperature variations.

Course themes

This assignment relates to the Health Maintenance course themes of Homeostasis, Lifestyle factors that risk health, and Education, health promotion and disease prevention.

Task description

1. Research the major physiological effects of cold and hot environments, focusing on the cardiovascular system.
2. Perform a literature search to compare and contrast the effects of winter and 'cold snaps' with summer and 'heat waves' on mortality in Australia and the United Kingdom (UK) or a European country, and the proportion of mortality attributed to increased cardiovascular disease during cold spells and heat waves. Is winter or summer worse for cardiovascular health?
3. Research and review the pathophysiological basis of cardiovascular mortality in winter and summer.
4. Identify populations most at risk of cardiovascular mortality due to temperature variations, including those with occupational risks of exposure. Consider lifestyle risk factors that are most important for increased cardiovascular mortality.
5. Provide a clear and specific evidence-based guide for colleagues about how to best reduce the incidence of weather- or temperature-induced mortality.
6. Write up your assignment addressing the marking criteria.

Suggested time allocation:

Weeks 1 & 2 Background reading and research.

Week 3 Continue research, linking together the main concepts. Critically evaluate the literature. Begin drafting your report.

Week 4 Write up your report. Review carefully and make any necessary changes.

Week 5 Submit the final version of the report to eMed and Turnitin in Moodle by the due date.

Report requirements

The report should be a maximum of 2000 words, including a reflective component. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/policy>).

Assessment criteria

For a P grade your report should meet the following criteria:

Focus Capability 1: Using Basic and Clinical Sciences

- Describes the physiological effects of hot and cold temperatures on the human cardiovascular system. **(1.1.1 Explains mechanisms that maintain a state of health)**
- Describes the contribution of increased cardiovascular disease/events to severe temperature-associated mortality. **(1.1.4 Identifies the components of basic medical science that are necessary to understand a scenario that has not been studied, locates relevant information and interprets the scenario when the relevant information is available)**
- Describes the pathophysiological basis of temperature-related variations in cardiovascular disease/events, with reference to the scientific literature. **(1.1.3 Describes the patho-physiological process of health problems and can explain their basis at the whole person, organ system, cellular and molecular levels)**

Focus Capability 2: Social and Cultural Aspects of Health and Disease

- Identifies populations most at risk of the effects of hot and cold temperatures. **(1.2.1 Identifies environmental, psychological, social and cultural issues which contribute to health problems)**
- Describes specific evidence for the effects of cold snaps/heat waves on mortality in Australia and in the UK or another European country. **(1.2.4 Describes and interprets patterns of illness including use of basic statistical and epidemiological concepts)**
- Identifies and describes seasonal variations in lifestyle factors that may be associated with severe weather-induced changes in cardiovascular mortality. **(1.2.4 Describes and interprets patterns of illness including use of basic statistical and epidemiological concepts)**
- Provides a clear and evidence-based approach to minimising the adverse cardiovascular effects of severe temperature variations. **(1.2.8 Describes primary, secondary and tertiary approaches to disease prevention and health improvement.)**

The generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner) will be assessed using the generic criteria listed in the Program guide, this course guide, and on the Medicine Program website.

References:

These listed references should be used for background reading on the topic. You should also carry out your own research of the published literature.

- Alahmad, B., Khaishah, H., Roye, D., Vicedo-Cabrera, A. M., Guo, Y., Papatheodorou S.I., Achilleos, S., Acquaotta, F., Armstrong, B., Bell, M. L., Pan, S.-C., Coelho, M. S. Z. S., Colistro, V., Dang, T.N., Dung, D. V., De' Donato, F. K., Entezari, A., Guo, Y.-L. L., Hashizume, M.,Koutrakis, P. (2023). Associations Between Extreme Temperatures and Cardiovascular Cause-Specific Mortality: Results From 27 Countries. *Circulation*, 147(1), 35-46.
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Contact:

A discussion regarding this assignment is available through the HMA course Moodle Discussion Forum.

Assignment A4: Sex Differences in the Epidemiology and Clinical Outcomes of Ischaemic Heart Disease

Graduate Capabilities assessed in this assignment

- Using Basic and Clinical Sciences
- Social and Cultural Aspects of Health and Disease

The report will also be assessed for the generic capabilities for assignments (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner)

Aim

To consider the impact of sex/gender on the epidemiology, pathophysiology, presentation, treatment, and outcomes of ischaemic heart disease.

Course themes

This assignment relates to the course themes: Lifestyle Factors that Risk Health; Education, Health Promotion and Disease Prevention.

Task description and time allocation guide

Scenario

Ester is aged 52 and a businesswoman who lives in a regional centre in Australia. The high demands of her job cause Ester significant stress. She works late nights and frequently brings work home. To cope with her stress, she smokes 20 cigarettes per day and drinks four glasses of wine every night. On weekends she socialises with friends, usually eating highly processed foods and red meat and drinking alcohol. For the past six months she has experienced intermittent low mood and hot flushes, and has had some pain in her neck when she walks. Her last menstrual period was 12 months ago. Ester is unaware of any history of cardiovascular disease in her family.

Task description

1. Conduct a literature search to provide an epidemiological overview of ischaemic heart disease in Australia. In your review, indicate the prevalence, the impact IHD has on patients and the economic burden of IHD.
2. Consider the above scenario and present the evidence on sex-related differences in risk factors, psychosocial factors, clinical presentation and pathophysiology of ischaemic heart disease. Utilise infographics, figures and tables where appropriate.
3. Describe differences between men and women regarding outcomes of ischaemic heart disease (e.g. morbidity, mortality, revascularisation, quality of life).
4. Considering sex-related differences, describe primary prevention strategies for ischaemic heart disease in women and men.
5. Reflect on the implications of what you have learned and consider how it might affect your future clinical practice. This will form part of your generic reflection.

Time allocation guide:

Weeks 1-2: Conduct a literature search and review relevant articles.

Week 3: Using your findings prepare your report, addressing the assignment tasks.

Week 4: Review, edit, and finalise your report.

Week 5: Submit the final report to eMed and Turnitin via Moodle with no track changes by the due date.

Report requirements

The report should be a maximum of 2000 words, including a reflective component. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing

style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/penalties>).

Assessment criteria

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Using Basic and Clinical Sciences

- Demonstrates a clear understanding of the differences in biological risk factors, clinical presentation and pathophysiology of ischaemic heart disease in men and women (**1.1.3 Describes the patho-physiological process of health problems and can explain their basis at the whole person, organ system, cellular and/or molecular levels.**)
- Describes differences in prognosis/outcomes in men and women with ischaemic heart disease (**1.1.3 Describes the patho-physiological process of health problems and can explain their basis at the whole person, organ system, cellular and/or molecular levels.**)

Focus Capability 2: Social and Cultural Aspects of Health and Disease

- Describes the prevalence and the burden of ischaemic heart disease in Australia. (**1.2.4 Describes and interprets patterns of illness including use of basic statistical and epidemiological concepts.**)
- Identifies differences in prevalence and lifestyle risk factors for ischaemic heart disease between men and women. (**1.2.1 Identifies environmental, psychological, social and cultural factors that contribute to health or illness.**)
- Describes how existing strategies aimed at primary prevention of ischemic heart disease might be tailored to women versus men. (**1.2.8 Describes primary, secondary and tertiary approaches to disease prevention and health improvement.**)

The generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner) will be assessed using the generic criteria listed in the Program guide, this course guide, and on the Medicine Program website.

Resources

- Aggarwal, N. R., Patel, H. N., Mehta, L.S., Sanghani, R.M., Lundberg, G.P., Lewis, S.J., Mendelson, M. A., Wood, M.J., Volgman, A.S., & Mieres, J.H. (2018). Sex differences in ischemic heart disease: advances, obstacles, and next steps. *Circulation: Cardiovascular Quality and Outcomes*, 11(2), e004437.
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Contact:

A discussion regarding this assignment is available through the HMA course Moodle Discussion Forum.

Assignment A5: Combination Therapy in the Management of Hypertension

Graduate capabilities assessed in this assignment

- Patient Assessment and Management
- Self-Directed Learning and Critical Evaluation

The report will also be assessed for each of the generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, Development as a Reflective Practitioner).

Aim

Hypertension is one of the most common cardiovascular conditions (World Heart Federation). Persistent hypertension is a major risk factor for stroke, coronary heart disease, heart failure and kidney failure. There is good evidence that adequate treatment of hypertension can decrease the risk of associated health complications. In this assignment you will critically and concisely review how hypertension is currently managed pharmacologically with a focus on combination therapies.

Course themes and related learning activities

This assignment relates to the Health Maintenance course themes of 'Homeostasis, sustenance and equilibrium' and 'Education, health promotion and disease prevention'.

Task description and time allocation guide

1. Review the different stages used in the classification of hypertension and the long-term complications of hypertension.
2. Research and review drug classes commonly used to treat hypertension and their mechanisms of action. You should concentrate on a general overview of the drug classes, i.e. ACE inhibitors, diuretics, beta-blockers, calcium channel blockers drugs etc., rather than discussing individual drugs in detail.
3. Choose **two different** commonly used **combination** therapies for the treatment of hypertension. You are to consider the following areas:
 - The rationale behind the combination therapy options
 - Information from clinical trials that compare the efficacy and safety of combination therapies with monotherapies
 - Adverse effects and contraindications
 - A critical evaluation of the literature that you have used in your research, including the quality and relevance of the information from different sources, should be included in your discussion. Your research must include literature on clinical trial studies. You should also include a brief search strategy and a CRAAP analysis in your appendix as supporting evidence.

Suggested time allocation:

Week 1	Background reading and research.
Weeks 2 & 3	Continue research, linking together the main concepts and outlining your discussion. Critically evaluate the literature.
Week 4	Write up report. Proofread and edit your report.
Week 5	Submit final report to eMed and Turnitin via Moodle by the due date.

Report requirements

The report should be a maximum of 2000 words, including a reflective component. A brief search strategy and a CRAAP analysis should be attached as an appendix. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/policy>).

Assessment criteria

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Patient Assessment and Management

- Briefly describes the classification of hypertension and describes common long-term complications. **(1.3.2 Relates symptoms and signs to relevant underlying basic and clinical sciences.)**
- Explains the mechanisms of action of the various classes of pharmacological therapies used in the management of hypertension. **(1.3.9 Articulates a general strategy of management, consistent with the pathophysiological model of illness at an elementary level that includes an understanding of foundation principles, e.g. pharmacology.)**
- Describes two different combination therapies used in the treatment of hypertension, including the rationale underling combination therapy and a description of adverse effects and contraindications. **(1.3.8 Applies clinical reasoning to relevant health scenarios, including the identification of key features and clinical patterns.)**

Focus Capability 2: Self-Directed Learning and Critical Evaluation

- Researches and interprets relevant information from appropriate sources and critically evaluates the different sources used. **(1.6.4 Demonstrates skills in: Formulating and applying appropriate information searching strategies. Using databases such as Medline and other information sources appropriately. Appraising the quality and relevance of the information found. Using appropriate citation standards.)**
- Provides a logical argument for or against whether there is sufficient medical evidence to support these two combination therapy regimens over monotherapies. **(1.6.5 Demonstrates an understanding of basic statistical principles and ability in handling, interpreting and presenting quantitative, and to a lesser degree qualitative, information appropriately.)**

The generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner) will be assessed using the generic criteria listed in the Program guide, this course guide, and on the Medicine Program website.

References:

These listed references should be used for background reading on the topic. You should also carry out your own research of the published literature.

- Guerrero-Garcia, C. & Rubio-Guerra, A.F. (2018). Combination therapy in the treatment of hypertension. *Drugs in Context*, 7, 212531.
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- National Heart Foundation of Australia. (2016). *Guide to management of hypertension in adults*.
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Contact

A discussion regarding this assignment is available through the HMA Course Moodle Discussion Forum.

Assignment A6: Coronary Heart Disease and Exercise

Graduate Capabilities assessed in this assignment

- Using Basic and Clinical Sciences
- Effective Communication

The report will also be assessed for each of the generic capabilities for assignments (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner).

Aims

The aims of this assignment are to:

1. Gain a clear understanding of the relationship between physical activity and coronary heart disease (CHD). You will consider:
 - low physical activity predisposing to CHD
 - benefits of exercise to prevent or reduce morbidity and mortality from CHD
2. Appreciate the importance of using language and terminology which is appropriate for the intended audience.

Course themes and related learning activities

This assignment relates to the course themes of Lifestyle factors which risk health and Education, health promotion and disease prevention.

Task description

1. A 53-year-old man is admitted to hospital for placement of three stents following diagnosis of extensive coronary artery disease. His hypertension is well controlled with an ACE inhibitor. He does not have diabetes mellitus and is a nonsmoker. He works as an auditor and has had a sedentary lifestyle for the last 30 years. His father died of a myocardial infarct at age 57. On examination his BMI is 32 kg/m^2 . His fasting lipids are shown:

Investigation	Result	Reference interval
Cholesterol	5.6 (mmol/L)	<5.5
HDL cholesterol	1.5 (mmol/L)	>1.2
LDL cholesterol	3.7 (mmol/L)	<3.0
Triglycerides	1.8 (mmol/L)	<2.0

2. Produce a document (about 300 words) in the form of a letter from the patient to his brothers, explaining in lay terms the benefits of exercise to prevent CHD. The focus of the letter is to persuade them to take up exercise as they are also at familial risk for CHD. Your document should include the following:
 - the level of physical activity that confers protection against CHD
 - evidence for causal relationships between CHD, physical inactivity and low fitness

3. Prepare a written report summarising the evidence in the literature (about 1400 words) for interns at Literature Club, using appropriate medical terminology. Draw on recent and relevant literature to support your discussion. In doing so, you should be critical in your analysis to allow your peers to make informed conclusions based on the evidence available. For instance, you should seek to determine the relative importance and value of different reports in the literature. Where reports appear to conflict, you should evaluate the relative merits of these reports. Your report must be based on peer-reviewed literature, cited appropriately. The report is in text and not in PowerPoint.

Your report should include discussion of:

- the level of physical activity that confers protection against CHD
- evidence for causal relationships between CHD, physical inactivity and low fitness
- possible biological mechanisms by which exercise can prevent development of CHD

- your assessment of the strength of the evidence, to enable your peers to make an informed judgment.
4. Your generic reflection (max. 300 words) should include what you have learned in the process of writing the letter to family and the Literature Club report that surprised you, or with which you had difficulties, and detail how you planned or plan in future to remedy them. Your reflection should be included in the final report and will be assessed under the generic capability of Development as a Reflective Practitioner.

Time Allocation Guide

- Weeks 1-2 Review literature on relationship between physical activity and CHD.
 Week 3 Write the lay and professional documents, referring to literature as needed.
 Week 4 Reflect on your learning and write up final report.
 Week 5 Submit final report to eMed and Turnitin via Moodle by the due date.

Report requirements

You will submit a letter to his brothers of about 300 words, and a report to interns at Literature Club of about 1400 words, with a reflection and reference list. These will all be presented **in one document**. Total report will be 2000 words (max.), including the 300 word reflection. The reference list is not included in the total word count. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Please refer to the Medicine program website for penalties that will be applied to reports that exceed the maximum length (<https://medprogram.med.unsw.edu.au/penalties>).

Assessment criteria

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Using Basic and Clinical Sciences

- Accurately summarises the epidemiology of physical activity and CHD in Australia. **(1.1.2 Recognises health problems and relates normal structure and function to abnormalities.)**
- Explains causal relationships between CHD, physical inactivity and low fitness. **(1.1.3 Describes the pathophysiological process of health problems and can explain their basis at the whole person, organ system, cellular and molecular levels)**
- Discusses the level of physical activity that confers protection against CHD and supports claims with evidence. **(1.1.1 Explains mechanisms that maintain a state of health.)**
- Considers possible biological mechanisms by which exercise can prevent CHD. **(1.1.1 Explains mechanisms that maintain a state of health.)**

Focus Capability 2: Effective Communication

- Communicates about health behaviour to the patient's brothers in appropriate lay terms. **(1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups, 1.4.6 Writes clearly and logically, using appropriate language, media and style for the intended audience.)**
- Accurately presents information to medical colleagues using medical terminology. **(1.4.3 Presents reports effectively to groups of peers, 1.4.6 Writes clearly and logically, using appropriate language, media and style for the intended audience.)**

The generic capabilities (Effective communication, Self-directed learning and critical evaluation and Development as a reflective practitioner) will be assessed using the generic criteria listed in the Program guide, this course guide, and on the Medicine Program website.

References and Resources

- Aggarwal, M., Ornish, D., Josephson, R., Brown, T. M., Ostfeld, R. J., Gordon, N., Madan, S., Allen, K., Khetan, A., Mahmoud, A., Freeman, A. M., & Aspry, K. (2021). Closing gaps in lifestyle adherence for secondary

prevention of coronary heart disease, *American Journal of Cardiology*, 145, 1-11.
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Contact

A discussion regarding this assignment is available through the HMA course Moodle Discussion Forum.

Project P1: The problem of bacterial resistance to antibiotics: responses of the pharmaceutical industry and medical research community

Graduate Capabilities assessed in this assignment

- Using Basic and Clinical Sciences
- Effective Communication

The report will also be assessed for each of the generic capabilities for projects (Effective Communication, Self-Directed Learning and Critical Evaluation, and Teamwork).

Aims

The antibiotic revolution has resulted in people living longer and healthier lives, with life expectancy almost doubling over the last 100 years. However, in modern times antibiotic resistance has become a global problem with serious impacts on human health. The aims of this group project are to gain a better understanding of the factors that produce antibiotic resistance and to propose a plan for increasing worldwide efforts to discover new antibiotics before it is too late.

Course themes and related learning activities

This project relates to the Health Maintenance themes of Education, health promotion and disease prevention and Host defence, and learning activities on the mode of action of antibiotics and antibiotic resistance.

Task description

1. Outline the clinical problem of antibiotic resistance, in both hospital and community settings.
2. Explain the underlying mechanisms by which bacteria become resistant to antibiotics. You should provide a general overview and then focus on three classes of antibiotics and outline the specific mechanisms of resistance.
3. Discuss how the problem is being publicised - WHO, CDC Atlanta, European Centre for Disease Control and Prevention, medical associations, Bill Gates Foundation, academics etc.
4. Describe how the pharmaceutical industry is responding to this crisis.
5. Explain why the pharmaceutical industry might not engage in new drug discovery.
6. Propose a plan for increasing academic, philanthropic and industrial efforts to discover new antibiotics. Your plan should be a maximum of 500 words and outline strategies for increasing antibiotic drug development. This must be in written form e.g. pamphlet, infographic or poster (no videos or Podcasts).

Suggested time allocation:

- Weeks 1 & 2 Background reading and research.
Weeks 3 & 4 Continue research, linking together the main concepts and outlining your discussion. Critically evaluate the literature.
Week 5 Write up draft report.
Week 6 Present project to SG group.
Week 7 Submit final report to eMed and Turnitin via Moodle by the due date.

Report requirements

The report should be a maximum of 2500 words, including the 500 word proposal/ plan (which can be submitted as a separate file), and a component evaluating your group's teamwork. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. You may utilise a variety of resources, but primary scientific articles are preferred. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Refer to the Medicine program website for details of penalties which apply to excess length. <http://medprogram.med.unsw.edu.au/penalties>

Assessment criteria

For a P grade, the written report and the resource should meet the following criteria:

Focus Capability 1: Using Basic and Clinical Sciences

- Provides evidence of the impact of antibiotic resistance and describes factors that influence its development. **(1.1.2 Recognises health problems and relates normal structure and function to abnormalities).**
- Explains the microbial mechanisms that confer antibiotic resistance. **(1.1.3 Describes the patho-physiological process of health problems and can explain their basis at the whole person, organ system, cellular and molecular levels).**
- Describes the steps that could be taken to increase the discovery and development of antibiotic drugs. **(1.1.4 Identifies the components of “basic/ medical” science that are necessary to understand a scenario that has not been studied, locates relevant information and interprets the scenario when the relevant information is available.)**

Focus Capability 2: Effective communication

- Provides a feasible plan to increase awareness of the need for the development of new antibiotics, basing decisions regarding content on relevant medical literature. **(1.4.4 Develops clear written/ visual information in relation to health and health promotion for specific target groups).**
- Presents a logical and coherent proposal with readable layout and graphics which support the message. **(1.4.6 Writes clearly and logically, using appropriate language, media and style for the intended audience).**

The generic capabilities (Effective Communication, Self- Directed Learning and Critical Evaluation, and Teamwork) will be assessed using the generic criteria listed in the Program guide, in this course guide and on the Medicine Program website.

Teamwork requirements

You should evaluate how effectively the project group worked as a team and analyse the role of each project group member using an appropriate theoretical framework from the Teamwork for Group Projects webpage: <https://medprogram.med.unsw.edu.au/teamwork-group-projects>

References:

These listed resources should be used for background reading on the topic. You should also carry out your own research of the published literature.

- Antibiotic resistance infographic: NPS Medicinewise (2019). https://www.nps.org.au/assets/NPS/pdf/NPS2126_WAAW_2019_Infographic_A3.pdf
- Munita, J.M and Arias, C.A. (2016). Mechanisms of antibiotic resistance. *Microbiol Spectr*. 4(2): doi:10.1128/microbiolspec
- https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62336583070001731?auth=SAML
- World Health Organization – Antimicrobial resistance (2023) <https://www.who.int/news-room/fact-sheets/detail/antimicrobial-resistance>

Contact

A discussion regarding this project is available through the HMA course Moodle Discussion Forum.

Project P2: Integrating learning through developing a tutorial storyboard

Graduate Capabilities assessed in this project

- Self-Directed Learning and Critical Evaluation
- Teamwork

The report will also be assessed for each of the generic capabilities for projects (Effective Communication; Self-Directed Learning and Critical Evaluation; Teamwork).

A mix of first and second year students is mandatory for this project.

Aims

The aims of this project are to develop:

- a deep understanding of the learning issues that arise from the Eric scenario (“Eric’s worries” scenario-part 2) by using appropriate learning strategies
- skills in integrating knowledge from various disciplines, derived from various sources
- an understanding of how the content and principles learnt within a given scenario can be applied to an alternate scenario
- skills in self-directed learning and collaborative learning (teamwork).

Task description

1. Identify the key learning issues that arise from the “Eric’s worries” scenario-part 2
 2. Develop a deep understanding of these issues through scheduled and self-directed learning activities and group discussion
 3. Brainstorm, design and develop a storyboard for an adaptive tutorial that integrates concepts across at least two disciplines and aims to increase understanding of relevant learning issues through an alternate scenario.
- Resources for this task are found in Moodle and include:
- a. the post-prac adaptive tutorials in this course – these are examples of adaptive tutorials
 - b. an example of a completed storyboard (with feedback for correct and incorrect answers)
 - c. a PowerPoint storyboard template

4. Test the questions and feedback that you develop through peer-teaching in your scenario group. Time has been allocated in SGS 5, 8 & 9 for this purpose. If additional time is required, this should be arranged with your scenario group members outside of scheduled SG time.

Suggested time allocation:

Weeks 1 & 2	Identify issues and conduct background reading and research.
Weeks 3 - 5	Work on storyboard, linking together the main concepts across the two disciplines. Conduct peer-teaching in SG sessions, as allocated.
Week 5	Write up draft report.
Week 6	Present project to SG group
Week 7	Submit final report to eMed and Turnitin via Moodle by the due date

Report requirements

Your report should include:

1. A discussion of 4-6 key learning issues that arose from the scenario, including the relevant content and principles.
2. A discussion of how the group’s understanding of the 4-6 learning issues (above) was applied to the development of the adaptive tutorial.
3. A section that reflects on how your group worked together as a team. This section should:
 - a. Discuss how your project group collaborated to ensure that all project group members achieved a sound understanding of the learning issues, decided on the content for the tutorial and achieved the aims of the project.

- b. Discuss how your project group conducted peer teaching for your scenario group, including peer teaching strategies and the extent to which these strategies were effective.
- c. These sections (a & b) should be supported by evidence, which may take the form of self-assessments, peer or facilitator comments or any other evidence that the group may have generated.
- d. Analyse your project group's performance as well as the contributions made by each member of your project group. The analysis should be undertaken from the perspective of a relevant theoretical model on teamwork. (You may select a model from: <https://medprogram.med.unsw.edu.au/teamwork-group-projects>). Identify three strengths in the approach your group adopted, and identify three ways in which you could improve the process if you were to engage in a similar collaborative activity in the future. (This section (3c) will help you meet the requirements for the generic Teamwork capability.)

The report should be a maximum of 2500 words. Include a component on Teamwork as described above. Reports should be formatted in accordance with the specifications on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th Edition). Refer to the Medicine program website for details of penalties which apply to excess length. <http://medprogram.med.unsw.edu.au/policy>

Note: Your storyboard file [.ppt] should be submitted to eMed as a supporting file.

Assessment criteria

For a P grade, the written report and supporting file should meet the following criteria:

Focus Capability 1: Self-directed learning and critical evaluation

- Identifies questions and learning issues arising from the original scenario. (1.6.1 **Identifies questions and learning issues arising from scenario sessions and other teaching activities.**)
- Demonstrates an understanding of 4-6 of these learning issues through the development of a storyboard for an adaptive tutorial. (1.6.1 **Identifies questions and learning issues arising from scenario sessions and other teaching activities. Engages in appropriate activities to address identified needs.**)
- Discusses relevant aspects of the development of a storyboard for an adaptive tutorial using an appropriate level of content detail drawn from a range of sources. (1.6.1. **Engages in appropriate activities to address identified needs.**)

Focus Capability 2: Teamwork

- Develops appropriate methods of peer teaching and discusses the effectiveness of these methods. (1.5.1 **Identifies different purposes of group work, analyses how well groups work**)
- Identifies strengths and areas for improvement relating to the peer teaching. (1.5.1 **Discusses differences in contribution styles and identifies contributions in terms of task focused behaviour, group support behaviour, non-productive behaviour.**)
- Provides evidence of helping the wider scenario group to better understand the relevant learning issues, their inter-relationships, and how the selected learning issues can be applied to an alternate scenario. Uses an appropriate method to gather this evidence. (1.5.3 **Analyses and evaluates own roles and contributions to group work using own observations and feedback from others.**)

The generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation and Teamwork) will be assessed using the generic criteria listed in the Program guide, in this course guide and on the Medicine Program website.

In meeting the **generic Teamwork capability** requirements, you should evaluate how effectively the project group worked as a team and analyse the role of each project group member using an appropriate theoretical framework from the Teamwork for Group projects webpage: <https://medprogram.med.unsw.edu.au/teamwork-group-projects>

In doing so, you should identify strengths and areas for improvement, and discuss these in a constructive manner. Please ensure that you refer to the Teamwork generic capability criteria and address these criteria which include

providing documentation of team meetings, evaluation of group process and reflection on features that enhanced or impeded group process. Section 3c of the report requirements relates to meeting the generic teamwork capability.

References

- Glynn, L., Macfarlane, A., Kelly, M., Cantillon P. and Murphy, A. (2006). Helping each other to learn – a process evaluation of peer assisted learning. *BMC Medical Education* 6: 18.
https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62336774430001731?auth=SAML
- Jaques, D. (2000). *Learning in Groups* (3rd ed.). London: Falmer/Kogan Page.
- Johnson, D.W. and Johnson, R.T. (1994). *Learning Together and Alone: Cooperative, Competitive and Individualistic Learning* (4th ed.). Boston: Allyn and Bacon.
- World Health Organization (2010). Topic 4: Being an effective team player. WHO Patient Safety Curriculum Guide. https://cdn.who.int/media/docs/default-source/patient-safety/curriculum-guide/resources/ps-curr-teach-guides/topic-04_being-an-effective-team-player_teaching-slides.pdf?sfvrsn=57b7a95_9

Contact

A discussion regarding this project is available through the HMA Course Moodle Discussion Forum.

Project P3: Statins and plasma lipid imbalance: improving cardiovascular health

Graduate Capabilities assessed in this assignment

- Patient Assessment and Management
- Self-Directed Learning and Critical Evaluation

The report will also be assessed for each of the generic capabilities for projects (Effective Communication; Self-Directed Learning and Critical Evaluation; Teamwork).

Aims

Elevation of serum lipids is one of the leading risk factors for cardiovascular disease. Statins, drugs which reduce plasma cholesterol levels, have substantial benefits for both cardiovascular and general health. Atorvastatin is one of the most prescribed drugs in the world. The aims of this group project are to:

- gain a better understanding of the health risks associated with elevated plasma cholesterol and plasma lipid imbalance
- appreciate the biological targets and mechanism(s) of action of statins
- review the efficacy of statins in reducing the risk and burden of cardiovascular disease.

Course themes and related learning activities

This project relates to the Health Maintenance course themes of Homeostasis, sustenance and equilibrium, Lifestyle factors which risk health, and Education, health promotion and disease prevention.

Task description

1. Research the relationship between elevated plasma cholesterol and cardiovascular disease (CVD) risk. Include the various clinical measures of elevated or altered plasma lipid profile (cholesterol, triglycerides, low-density lipoproteins (LDL), apolipoproteins) and the ratios measured (LDL/HDL or apolipoprotein B/A1). Refer to the CVDs associated with elevated plasma cholesterol (ischaemic heart disease, cerebrovascular disease etc.).
2. Describe the pharmacological mechanism(s) of action of statins in reducing plasma cholesterol and improving the adverse lipid profiles (LDL, LDL/HDL etc.) discussed in Task 1 above.
3. Review the use of statins as therapeutic agents in the clinical setting. Are statins useful in primary prevention of CVD only, or both primary and secondary prevention? Are some statins more effective against certain types of CVD than others? Are some statins more effective in subsets of patients (men vs women; old vs young)?
4. Discuss potential adverse effects of statins, and situations involving increased plasma cholesterol or abnormal plasma lipid profiles where statins have proved ineffective or may be contraindicated.
5. Document the search strategy used to undertake these tasks. This search strategy should be included as an appendix.
6. Prepare the report, which should contain the following five components:
 - **INTRODUCTION:** Introduce the topic area; state clearly the purpose of the project; give the reader an indication of what to expect.
 - **BODY:** Cover the main points that you have researched and summarised, with supporting arguments and evidence to reflect your critical thinking and understanding of the topic.
 - **CONCLUSION:** Summarise the key points discussed. Critically evaluate the literature and the quality and relevance of the information found.
 - **TEAMWORK:** As a Project Group you will need to select one data collection tool of the four data collecting activities. These are drawn from aspects of teamwork theory and research and related to indicators in the capability statements for Teamwork for Phase 1. Use this to fulfil the teamwork assessment task.
 - **REFERENCES:** You may utilise a variety of resources, but primary scientific articles are preferred. You may include those on the reference list below.

Suggested time allocation:

- Weeks 1 & 2 Background reading and research.
- Weeks 3 & 4 Continue research, linking together the main concepts and outlining your discussion. Critically evaluate the literature.
- Week 5 Write up draft report.
- Week 6 Present project to SG group.
- Week 7 Submit final report to eMed and Turnitin via Moodle by the due date.

Report requirements

The report should be a maximum of 2500 words including a section evaluating your teamwork. Reports should be formatted in accordance with the specification on the Medicine program website (<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1>) and include a word count and AI declaration on the title page. Ensure that you carefully reference your work using the UNSW Medicine referencing style (APA 7th edition). Refer to the eMed website for details of penalties which apply to excess length. <http://medprogram.med.unsw.edu.au/penalties>

Assessment criteria

For a P grade, the written report should meet the following criteria:

Focus Capability 1: Patient Assessment and Management

- Demonstrates an understanding of the risk to health of elevated plasma cholesterol and associated compounds, and the pharmacological mechanism(s) of statins to improve the plasma lipid profile. **(1.3.9 Articulates a general strategy of management, consistent with the pathophysiological model of illness at an elementary level that includes an understanding of foundation principles, e.g. pharmacology.)**
- Provides evidence of the efficacy and safety of statins in improving cardiovascular health. Discusses cardiovascular diseases in which statin use is indicated / effective and use in primary and secondary disease prevention. **(1.3.8 Applies clinical reasoning to relevant health scenarios, including the identification of key features and clinical patterns.)**
- Explains the differing effects of statins in sub-populations of patients, regarding both lipid-lowering and adverse effects. **(1.3.8 Applies clinical reasoning to relevant health scenarios, including the identification of key features and clinical patterns.)**

Focus Capability 2: Self-Directed Learning and Critical Evaluation

- Demonstrates the ability to gather, select, organise, and document relevant information from the literature and other sources, including a description of the search strategy (as an appendix). **(1.6.4 Demonstrates the following skills in Phase 1: Formulating and applying appropriate information searching strategies.)**
- Evaluates the comparative efficacy of different statins in relation to subtypes of CVD and subsets of patients, specifically on a sex and age basis. Provides a conclusion about potential sources of differences as well as describing situations in which statin use would not be advisable. **(1.6.4 Demonstrates the following skills in Phase 1: Using databases such as Medline and other information sources appropriately; Appraising the quality and relevance of the information found.)**

The generic capabilities (Effective Communication, Self-Directed Learning and Critical Evaluation, and Teamwork) will be assessed using the generic criteria listed in the Program guide, in this course guide, and on the Medicine Program website.

Teamwork requirements

You should evaluate how effectively the project group worked as a team and analyse the role of each project group member using an appropriate theoretical framework from the Teamwork for Group projects webpage: <https://medprogram.med.unsw.edu.au/teamwork-group-projects>

References:

These listed references should be used for background reading on the topic. You should also carry out your own search of the published literature on statins (documenting your search strategy in an appendix).

- Cholesterol Treatment Trialists' (CTT) Collaboration, Baigent, C., Blackwell, L., Emberson, J., Holland, L. E., Reith, C., Bhala, N., Peto, R., Barnes, E. H., Keech A., Simes, J & Collins, R. (2010). Efficacy and safety of more intensive lowering of LDL cholesterol: a meta-analysis of data from 170,000 participants in 26 randomised trials. *Lancet*, 376(9753), 1670-1681.
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- Collins, R., Reith, C., Emberson, J., Armitage, J., Baigent, C., Blackwell, L., Blumenthal, R., Danesh, J., Smith, G. D., DeMets, D., Evans, S., Law. M., MacMahon, S., Martin, S., Neal, B., Poulter N., Preiss, D., Ridker, P., Roberts I., ...Peto, R., (2016). Interpretation of the evidence for the efficacy and safety of statin therapy. *Lancet*, 388, 2532–2561.
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- Faubion, S.S., Kapoor, E., Moyer, A.M., Hodis, H.N., & Miller, V.M. (2019). Statin therapy: does sex matter? *Menopause*, 26(12), 1425-1435.
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- Martirossian, A., & Goldberg, A. C. (2023). Management of patients with statin intolerance. *Best Pract Res Clin Endocrinol Metab*, 37(3), 101714.
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https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62336887910001731?auth=SAML
- Sirtori, C.R. (2014). The pharmacology of statins. *Pharmacological Research*, 88, 3-11.
https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/62336889690001731?auth=SAML

Contact

A discussion regarding this project is available through the HMA Course Moodle Discussion Forum.