



UNSW Medicine & Health

# MFAC1526: Ageing & Endings B

## Student Guide 2024

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## Welcome to Ageing and Endings B!

The Ageing and Endings (AE) courses in Phase 1 have been designed to help students gain an understanding of the health issues that arise particularly as people age, building upon learning done in previous courses.

The B-cycle (AE B) of the course in Term 4, focuses mainly on the course themes of:

- The Ageing Process
- Degenerative Disease
- Death and Dying

In this course neurological disease will be used to explore these themes. You will study the structure and function of the brain and central nervous system, the consequences of space occupying lesions, the pathology of stroke, and dementia, and relevant issues related to ageing, carers, and health professional teams. Relevant aspects of public health, including clinical epidemiology and community resources will be explored, whilst the learning of clinical skills will involve examination of the central nervous system.

### Space Occupying Lesions

### Stroke

### Parkinson's

We hope you enjoy the scenario sessions and the activities planned for this term.

## Ageing and Endings Cycle B Changes made in 2024 from 2022 Feedback

The previous offering of this course was in 2022. Leaving the pandemic behind, we started having more face-to-face teaching compared to 2020, and this generated a lot of positive feedback. Practically all myExperience comments regarding the delivery format asked for even more face-to-face activities, and we have realized this in the 2024 course schedule. At the same time, we maintain the online option by providing lecture recordings. The 2022 myExperience survey revealed an overall course satisfaction of 95.3% for the Kensington campus, 95.8% for Port Macquarie, and 95.5% for Wagga Wagga, all higher than the Faculty of Medicine & Health mean of 93.5%. We were very proud to achieve similar results across our three campuses and hope to be able repeat this fantastic outcome.

### More specifically, previous students in 2022 told us that:

- they felt supported in the online environment (94.7%)
- they were able to work effectively with others online (92.9%)
- they felt part of a learning community (90.5%)
- the feedback helped learning (95.8%)
- the online resources helped learning (96.4%)
- the assessment tasks were relevant to the course (97.9%)
- the course content was appropriate in breadth and depth (97.0%)
- students were enthusiastic about well-structured tutorials and review sessions
- students encouraged us to offer more face-to-face lectures to allow direct interaction with the teachers, and among themselves

### In 2024 we have responded to this feedback by:

- offering many more face-to-face activities compared to 2022
- reviewed all SG sessions, aligned the content and streamlined the activities to avoid content cramming
- added SG activities that allow students to test and practice lecture content
- coordinated the teaching of the 'dreaded tracts' across disciplines and lecturers
- reviewed and integrated the Physiology content across the different lectures, and aligned better with the Physiology practicals
- reviewed Anatomy tutorials and added an interdisciplinary tutorial (Anatomy, Pharmacology, Physiology) in Week 7 to review course content
- added Week 7 review sessions for Anatomy, Pharmacology, and Physiology to better prepare students for the exams
- reviewed content to help the formation of learning and social communities

**We will also:**

- remind all lecturers to start their sessions with the learning outcomes,
- to use clearly structured slides that are provided before the lecture
- make sure our external lecturers are aware of the overall course structure and the content of other lectures (to minimize overlap, although some repetition is useful)
- focus on conceptual understanding (quality over quantity)

We are also mindful that this is the last course in the year, and for the 2nd years precedes an intense period of end-of-phase examinations. We have taken this into consideration in designing the activities of the course, using the scenario group sessions to help you with your revision.

## Staff Involved in the Course

### Course Convenor and Co-Convenors

Dr Frederic von Wegner  
Department of Physiology  
School of Biomedical Sciences

Dr Christina Byun  
Department of Anatomy  
School of Biomedical Sciences

Dr Natasha Kumar  
Department of Pharmacology  
School of Biomedical Sciences

To contact course convenors by email, please use the course email address: [ageingends@unsw.edu.au](mailto:ageingends@unsw.edu.au)

### Ageing and Endings Design and Implementation Group

- |                       |                                      |
|-----------------------|--------------------------------------|
| • Frederic von Wegner | Physiology                           |
| • Christina Byun      | Anatomy                              |
| • Natasha Kumar       | Pharmacology                         |
| • Karim Burkhardt     | Pathology                            |
| • Louise Baird        | Aged Care                            |
| • Amy Waters          | Palliative Care                      |
| • Amir Ariff          | QMP                                  |
| • Shanzana Khan       | Wagga Wagga                          |
| • Linda Ferrington    | Port Macquarie                       |
| • Kerrie Arnhold      | Teaching Support, Learning Resources |

With special thanks to many individuals, including teachers, health professionals, patients and Learning Resources/Teaching Support staff, who have contributed much to the course in the past and present, who contribute to the delivery of this course. A special acknowledgment goes to Simone Van Es who authored the original versions of the SGS 'Space occupying lesions' and one of the Pathology tutorials. These learning activities have since received minor modifications and updates.

### Other Contacts

#### Ethics and Legal Aspects

Vicki Langendyk  
E: [v.langendyk@unsw.edu.au](mailto:v.langendyk@unsw.edu.au)

#### Campus and Hospital Clinical Skills

Dr Kalli Spencer  
E: [kalli.spencer@unsw.edu.au](mailto:kalli.spencer@unsw.edu.au)

#### Quality of Medical Practice

Dr Amir Ariff  
E: [amir.ariff@unsw.edu.au](mailto:amir.ariff@unsw.edu.au)

#### Student support

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

#### Student Services

<https://nucleus.unsw.edu.au/en/contact-us>

#### Teaching Support

[BMed.PM@unsw.edu.au](mailto:BMed.PM@unsw.edu.au)

<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)

Assignments

Learning Plans/miniCEXs

Exams – clinical and non-clinical

Exam adjustments

Special Consideration

Results (eMed/MyUNSW)

Special Study Plans

eMed questions

### **Teaching Support**

Elena Mankovskaia 02 9065 7110

Cara Elvidge 02 5524 1532

Rochelle McPherson 02 9065 4833

Learning Resources 02 9065 1177

Timetable Manager

[medtimetable@unsw.edu.au](mailto:medtimetable@unsw.edu.au)

Ph1 Admin/Student Support (Port Macquarie)

Ph1 Admin/Student Support (Wagga Wagga)

Room resources, eMed Map and Moodle Helpline

Email: [BMed.LR@unsw.edu.au](mailto:BMed.LR@unsw.edu.au)

## General Information

The MFAC1526 course represents 12 credit points.

## Course Themes

The four themes for the Ageing and Endings domain are:

- Menopause
- The ageing process
- Degenerative disease
- Death, dying and palliative care

The AE B course emphasises the last three of these themes.

## Aims of the Course

The three scenarios focus on a range of issues surrounding space occupying lesions (including cancer), stroke and neurodegenerative disease, as well as socio-economic issues related to older adults. They aim to help students to:

1. Describe the anatomical structure and function of the cells in the central nervous system (CNS) and explain the consequences of interrupting synaptic input.
2. Explain the anatomical and pathological features of raised intracranial pressure and mass lesions in the CNS.
3. Explain the molecular, cellular, and clinical features of neoplasia, with particular emphasis on brain tumours.
4. Describe the anatomical and functional organisation of the CNS and its blood supply, with the consequences of vascular lesions.
5. Describe the anatomical and functional effects of degenerative diseases of the CNS, with particular emphasis on Parkinson disease and dementia.
6. Evaluate the social and ethical issues associated with ageing, end of life, including the issues faced by health professionals, patients, family, and carers.

## Evaluation

Student feedback on both course and teaching is gathered periodically. The UNSW myExperience survey is used along with student focus groups, student forums, and at times additional evaluation and improvement instruments developed in consultation with the Faculty of Medicine & Health'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, and in presentations by course convenors. Evaluation activities across the Faculty of Medicine & Health are strongly linked to improvements and ensuring support for learning and teaching activities for both students and staff.

### Timetable

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

### Resources

Resources relevant to the course can be viewed on the Moodle site under the Ageing and Endings B Module.

### Clinical Sessions

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

In AEB campus CS sessions we will be working on course relevant material around ageing and the neurological system. With regard to the latter, Year 1s will be assessed doing neurological history taking (SOCAs) in CS3, whilst all students will work on the neurological examination and the Mini-Mental State Examination in CS1&2. **Year 2**

**students will have a mock OSCE in CS3 and must take note of emails about this activity and prepare accordingly (So revise all content covered across Year 1 and 2).** In AEB hospital sessions in your allocated hospitals you will put into practice what you have learned in campus sessions during the previous week.

To prepare for campus sessions please complete the Symptom and Signs Survey on the neurological system found at this link:

<https://moodle.telt.unsw.edu.au/mod/scorm/view.php?id=6883450>

To prepare for face-to-face hospital sessions please review your P1 CS Guide and the Symptom and Signs Survey, and get ready to meet your hospital tutor and your real patients! Session guidelines have been provided to Clinical Campuses. Please liaise with your allocated Clinical Campus admin contact (see Phase 1 CS Guide for email addresses) should you have any questions on these sessions. Be sure to inform them *ahead of time* if you are *unavoidably* absent.

Year 1 students will also perform another OSPIA appointment in this course, interacting with a Simulated Patient on a neuro scenario. This will result in a SOCA assessment which will go into eMed and will count toward your minimum of four SOCAs required in Phase 1. **Students must take note of their emails for information on accessing OSPIA and the timeline for use of the platform.**

## 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 & Health 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](mailto: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 hours 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.

## **Student Code of Conduct**

Students and staff are governed by the normal laws that regulate our daily lives, but in addition the University has its own code of rules and conduct expressed through its policies and procedures. Good conduct and academic honesty are fundamental to the mission of the University as an institution devoted to the pursuit of excellence in scholarship and research, and to the service of society. These principles apply to the whole University community, including students and staff and have been developed over many years. In addition medical students are expected by their colleagues and the public to demonstrate a high degree of professionalism and these expectations are outlined in our document Professionalism in Medicine: [A Student Code of Conduct](#). All students should familiarise themselves with this [code of conduct on the Medicine website](#), and other policies. Further information is available at <https://student.unsw.edu.au/policy>

As a Medical Student you have additional expectations that go beyond those of other UNSW students. These are set out in the Student Code of Conduct (<https://student.unsw.edu.au/conduct>). You must be familiar with these expectations.

## Material required for SG sessions

Many scenario group sessions rely on worksheets or information contained in this guide. You are responsible for having a printed or electronic copy of the relevant section of the guide available during your scenario group sessions. You should also ensure that you have completed any pre-reading or other preparation that has been set prior to attending the session.

## Scenario Group Session Preparation

Please note the following scenario group sessions have essential preparation/readings to be completed before the session. These sessions will be hard or impossible to follow and to partake in unless all students have completed the requested preparation or have attended the Plenaries. Preparation tasks are detailed in the Student guide, on Moodle and in the eMed Map.

Week	SGS Due	SGS Allocate	Activity
2	SGS 3	SGS 1	<p><b>A. Raised Intracranial pressure and herniation</b></p> <p><b>Group 1: Describe how the three scenarios below can result in increased intracranial pressure. (10 minutes for presentation and discussion). Your presentation should include:</b></p> <ol style="list-style-type: none"> <li>1. Generalised brain oedema,</li> <li>2. Increased cerebrospinal fluid (CSF) volume (hydrocephalus), and</li> <li>3. Focally expanding mass lesion</li> </ol> <p><b>Group 2: Describe what is meant by brain herniation. (10 minutes for presentation and discussion) Your presentation should include:</b></p> <ol style="list-style-type: none"> <li>1. Subfalcine (cingulate) herniation</li> <li>2. Transtentorial herniation</li> <li>3. Tonsillar herniation</li> </ol> <p><b>B. The Multidisciplinary Team Meeting - Presentation</b></p> <p>The main aim of this activity is to recognise common presentations of SOLs, and to appreciate how different specialists each work individually to provide a piece of the diagnostic puzzle and work as part of the team to help piece each part of the puzzle together. Your team be assigned to one of the following case histories. Guidance and resources are in the SGS 3 notes.</p> <p><b>Clinical Histories</b></p> <ol style="list-style-type: none"> <li>1. <b>Metastatic melanoma:</b> A 36-year-old man presented to the Emergency Department with seizures and confusion, having recently been diagnosed with a melanoma on his back.</li> <li>2. <b>Glioblastoma:</b> A 70-year-old woman presented with right sided hemiplegia. She also complained of having difficulties with her speech recently and headaches which were worse in the morning.</li> <li>3. <b>Arteriovenous Malformation:</b> A 24-year-old female athlete presented with seizures after a cross-country event. Her partner conveyed that she had been complaining of daily headaches over the past month.</li> <li>4. <b>Meningioma (psammomatous subtype):</b> An 18-year-old female patient presented with several months of hearing impairment in the right ear and recurrent attacks of vertigo.</li> </ol>

Week	SGS Due	SGS Allocate	Activity
	SGS 4	SGS 3	<b>Older Adults: How are they vulnerable to abuse?</b> As homework, students were asked to read the Executive Summary (pages 1-5) of the 2021 Australian Government National Elder Abuse Prevalence Report. Note, this report draws on a survey of 7000 older adults (65 years and older) living in the community and does not include people living in aged-care residences and facilities. Link to the report: <a href="https://aifs.gov.au/sites/default/files/publication-documents/2021_national_elder_abuse_prevalence_study_final_report_0.pdf">https://aifs.gov.au/sites/default/files/publication-documents/2021_national_elder_abuse_prevalence_study_final_report_0.pdf</a>
4	SGS 6	SGS 5	<b>SGS6: Stroke Units and Rehabilitation</b> In SGS6, we will discuss stroke units and rehabilitation. Please read these two articles as preparation. The questions in SGS 6, Activity 5 may be helpful to refer to as you read these.  Pre-reading stroke units: [1] Langhorne, P., Ramachandra, S., & Stroke Unit Trialists' Collaboration (2020). Organised inpatient (stroke unit) care for stroke: network meta-analysis. The Cochrane database of systematic reviews, 4(4), CD000197. <a href="https://doi.org/10.1002/14651858.CD000197.pub4">https://doi.org/10.1002/14651858.CD000197.pub4</a> Note: focus on the main results, you don't have to go through all analyses but you should appreciate how meta-analyses are structured.  Pre-reading rehabilitation: [2] Stinear, C. M., Langs, C. E., Zeiler, S., & Byblow, W. D. (2020). Advances and challenges in stroke rehabilitation. The Lancet. Neurology, 19(4), 348–360. <a href="https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814190100001731?auth=SAML">https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814190100001731?auth=SAML</a>
	SGS 7	SGS 6	<b>SGS 7: The Older Aboriginal Person</b> As prework for this session, please watch the following videos: Uncle Tunny's story – <a href="https://www.youtube.com/watch?v=jwm7-4uvzKQ&amp;feature=youtu.be">https://www.youtube.com/watch?v=jwm7-4uvzKQ&amp;feature=youtu.be</a> Kim's story – <a href="https://www.youtube.com/watch?v=VDPTOmSv-FE&amp;feature=youtu.be">https://www.youtube.com/watch?v=VDPTOmSv-FE&amp;feature=youtu.be</a>
5	SGS 8	SGS 7	<b>SGS 8: Cranial Nerve Cases</b> In SGS8 students will be required to work through some clinical cases on the brainstem and cranial nerves during the class. Please review your notes on cranial nerves prior to this session, and ensure you can access them during the session. <i>Ask students to review their lecture notes and textbook for this session.</i>
	SGS 11	SGS9	In SGS11, we will discuss atypical Parkinsonian syndromes and palliative care. Please read the article below as preparation: Quill, T. E., & Abernethy, A. P. (2013). Generalist plus specialist palliative care—creating a more sustainable model. <i>The New England Journal of Medicine</i> , 368(13), 1173–1175. <a href="https://doi.org/10.1056/NEJMp1215620">https://doi.org/10.1056/NEJMp1215620</a>
7	SGS 12	SGS11	In SGS12, we will discuss living with dementia for both the person with the disease and their family and carers. Please read the article below as preparation. “When Illness Makes a Spouse a Stranger” NY Times. May 5, 2012 <a href="http://www.nytimes.com/2012/05/06/health/a-rare-form-of-dementia-tests-a-vow-of-for-better-for-worse.html?pagewanted=all">http://www.nytimes.com/2012/05/06/health/a-rare-form-of-dementia-tests-a-vow-of-for-better-for-worse.html?pagewanted=all</a>

## Scenario 1: Space Occupying Lesions

### Schedule

Learning Activity	Principal Teacher
Scenario Plenary 1: Space Occupying Lesions Plenary	Panel- Karim Burkhardt, Erica Jacobson; Host Fred V Wegner
Lecture 1: Cranial cavity and brain	Kotsidis, Kosta
Lecture 2: Molecular Biology of cell growth & neoplasia	Byrne, Frances
Campus Clinical Skills Session 1: Neurological History and Examination	Spencer, Kalli
Scenario Group Session 1: This is your Brain	Byun, Christina
Lecture 3: Forebrain: Anatomical Organisation & Cortical Function	Kotsidis, Kosta
Lecture 4: Basic Cellular Physiology of Brain Function	Aplin, Felix
Lecture 5: Neuroimaging	Tay, Kevin
Lecture 6: Biology of normal ageing	Ferrington, Linda
Lecture 7: Neuron ultrastructure	Carrive, Pascal
Lecture 8: Physiological Mechanisms of Neuronal Potentials	Aplin, Felix
Scenario Group Session 2: The Brain and Self	Kumar, Natasha
Lecture 9: Synaptic Transmission – Mechanisms and Plasticity	Aplin, Felix
Lecture 10: Central somatosensory system	Devecioglu, Ismail
Lecture 11: Introduction to Neoplasia: Disorders of Cell Growth	Burkhardt, Karim
Science Practical 1: Membrane Potentials	Aplin, Felix
Science Practical 2: Cranial Cavity and Introduction to the Brain	Kotsidis, Kosta
Lecture 12: Forebrain: Internal Capsule and Subcortical Tracts	El-Haddad, Joyce
Lecture 13: Meningitis	Liu, Fang
Tutorial 1: Anatomy Tute 1: Harry has hydrocephalus: Meningeal spaces, CSF and Glymphatics	Byun, Christina
Scenario Group Session 3: Intracranial Space Occupying Lesions	Burkhardt, Karim
Science Practical 3: Behavioural Screening of CNS drugs	Kumar, Natasha
Hospital Clinical Skills Session 1: Examining the Neurological System: Upper and lower limbs	Spencer, Kalli
Lecture 14: Pharmacological manipulation of neurotransmitters	Kumar, Natasha
Lecture 15: Intracranial Space-Occupying Lesions - Pathology	Burkhardt, Karim
Lecture 16: Information Session on the Prac Exam	Gibson, Karen
Lecture 17: Motor System 1: Reflex Control of Movement	von Wegner, Frederic
Scenario Group Session 4: Caring for Older Adults	Ferrington, Linda
Lecture 18: Motor System 2: Spinal Pathways and Motor Cortex	von Wegner, Frederic
Lecture 19: Ethics: consent, how can it be informed	Langendyk, Vicki
Lecture 20: Brainstem Lecture	Carrive, Pascal
Science Practical 4: Forebrain: Functional Localisation & Subcortical Tracts	Kotsidis, Kosta
Science Practical 5: Analysis of Cell Ageing	Abeygunawardena, Dhanushi

Note: This schedule is subject to change. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

## Overview

### *Aims:*

1. Describe the structure and function of the cells of the central nervous system (CNS)
2. Describe the functional localisation in the CNS
3. Explain the effects of a raised intracranial pressure and a space occupying mass lesion on the CNS function
4. Explain the causes, consequences and likely outcomes of neoplasms in the brain
5. Describe the rationale underpinning investigations to differentiate mass lesions in the brain
6. Evaluate the social and ethical issues associated with ageing, including the issues faced by health professionals, patients, family and carers.

This scenario focuses on space occupying lesions like abscesses and brain tumours, the underlying mechanisms and structures, and the procedures to differentiate the lesion. Several cases are discussed by a panel of experts during the plenary lecture.

## SGS 1: This is your Brain

### Aims

- Identify key concepts in the 'space occupying lesions' scenario
- Review fundamental principles of the organisation of the nervous system
- Discuss the concept of consciousness
- Review assessment requirements

### Key concepts:

- Space occupying lesions
- Organisation of the nervous system
- Consciousness and the Glasgow Coma Scale

### Process:

Activity
1. Introducing yourself, icebreaker and setting ground rules
2. Introducing the course and exploring the scenario
3. The Nervous System: GAMIFIED
4. Introduction to 'Consciousness' and the Glasgow Coma Scale
5. Introduction to Neurological Terminology
6. Review the assignment and project options
7. Preparation for SGS 3

### Activity 1. Introducing yourself, icebreaker and setting the ground rules

### Activity 2. Introducing the course and exploring the scenario

You would have attended the Introduction to the Course and the Plenary on Space Occupying Lesions on Monday morning.

Reflecting on this, what

- is your first impression of the scenario?
- was interesting?
- was unexpected /surprising?
- are you looking forward to learning more about?

### Activity 3. The Nervous System: GAMIFIED

This exercise is designed to enable you to consider the function of the brain and nervous system and to gain some appreciation for its complexity. Please note, some questions are introducing you to terms you might not have come across yet.

### Activity 4. Introduction to 'Consciousness'? and Glasgow Coma Scale

The aim of this discussion is to examine what we each consider 'consciousness', and then to consider the definition through the lens of medical practice using the Glasgow Coma Scale.

What do you understand by the term consciousness?

- Is consciousness a real thing? How do you know?
- Is the consciousness of humans different from that of animals?

**Glasgow Coma Scale**

A universal structured assessment tool to quantify Levels of Consciousness (LOC) of people and produce a shared understanding of patients' conditions is useful. One widely accepted tool to assess LOC is the Glasgow Coma Scale. Together as a group, review the scale and note the behaviours observed:

<https://www.glasgowcomascale.org/>

**Activity 5. Introduction to Neurological Terminology**

This exercise is designed to introduce you to terminology that you will come across in the course. Review, add, and refer to the list as the course progress.

**Glossary of terms related to neurological presentation**

(extracted from: [\*Glossary of Neurological Terms | National Institute of Neurological Disorders and Stroke \(nih.gov\)\*](#))

**Agnosia**

Agnosia is the inability to recognize and identify objects or persons using one or more of the senses. It is caused by damage to the brain from strokes, brain injuries, dementia, or other neurological conditions. The inability to recognize something familiar does not necessarily mean that the person has problems with vision or thinking ability.

**Allodynia**

Allodynia is the term for when something that previously was not painful to a person (light touch, for example) now causes pain.

**Aphasia**

Aphasia is the loss of ability to speak or understand speech, usually caused by damage to the brain.

**Apraxia**

Apraxia is the loss of the ability to perform skilled movements and gestures. For example, a person may no longer be able to wink, lick their lips, or complete the steps required to bathe or dress themselves.

**Arteriovenous Malformation (AVM)**

This is a tangled mass of blood vessels. This malformation can occur anywhere in the body including the brain and can be a cause of haemorrhage.

**Biomarkers**

Biomarker is a term used to refer to biological signs of disease found in blood, body fluids, and tissues. Biomarkers can help indicate risk of a disease, aid in diagnosis, and track progression.

**Blood-brain barrier**

The blood-brain barrier is a layer of tightly packed cells that control the movement of substances between the blood and the fluid that surrounds the brain's neurons. It filters what goes in and out of the brain, allowing water, oxygen, and some medications to reach the brain. The blood-brain barrier also blocks harmful substances like bacteria, viruses, or other toxins before they reach the brain.

**Cephalocele**

Cephalocele is a condition that arises as the brain is developing in which part of the brain and central nervous system protrude outside of the skull.

**Cerebral Atrophy**

Cerebral atrophy includes neurons being injured and dying, connections between networks of neurons breaking down, and the gradual shrinking of brain regions.

**Cerebral Hypoxia**

Cerebral hypoxia is a condition in which the brain doesn't get enough oxygen to function normally, even though blood flow is normal.

**Cerebrospinal Fluid**

Cerebrospinal fluid is a fluid that surrounds and fills the brain and spinal cord. It protects the brain, provides nourishment for cells, and removes waste.

**Chorea**

Chorea is a movement disorder that causes sudden, unintended, and uncontrollable jerky movements of the muscles in the face, arms, or legs. It is a symptom of many conditions and diseases and is caused by overactivity of the chemical dopamine in the brain.

**Clonus**

Clonus is a reflex response that includes involuntary and rhythmic muscle contractions. It is seen in some neurological conditions.

**Contracture**

A contracture describes a shortening or tightening of the muscles or tendons around a person's joints. It usually results in a decreased range of motion in the joint.

**Coma**

A coma is a long, deep state of unconsciousness. People in a state of coma are alive but unable to move or respond to their surroundings.

**Dyskinesia**

Dyskinesia refers to involuntary movements, such as twisting and writhing. Tics, shaking, and tremor can also occur.

**Dysarthria**

A type of speech problem where speech becomes slurred or a person is unable to say things clearly. Dysarthria is caused by weakness in the muscles used for speaking and may occur after a stroke.

**Dysgraphia**

Dysgraphia is a term used to describe a variety of challenges and disabilities related to writing.

**Dyslexia**

Dyslexia is a learning disorder that includes difficulty reading, particularly caused by challenges relating speech sounds to letters and words.

**Dysphagia**

Dysphagia is the medical term for difficulty swallowing. Dysphagia can occur after a stroke because of weakness in the muscles needed for swallowing.

**Dyspraxia**

Difficulty doing a body movement because the brain has difficulty planning that movement.

**Dystonia**

Dystonia is a medical term for involuntary muscle contractions or flexing. It can cause slow repetitive movements or abnormal postures that can be painful.

**Embolic stroke:** A stroke caused by a blood thrombus or plaque atheroma that has come from somewhere else in the body (sing. embolus, pl. emboli).

**Emotional lability:** Uncontrollable outbursts of emotion (such as laughing to crying) without real cause. It may only last a few weeks or continue for a long period.

**Encephalitis**

Encephalitis is inflammation of the brain.

**Encephalopathy**

Encephalopathy is a decrease in blood flow or oxygen to the brain.

**Fasciculations**

Fasciculations is the medical term for twitching muscles.

**Haemorrhagic stroke**

Resulting from rupture of CNS vessels – approximately 15% of strokes.

**Hemianopia**

This means loss of vision to one part of the visual field. This can lead to trouble seeing on one side of your body.



**Hemiparesis**

This means weakness on one side of the body. Hemiparesis can affect the arm, the leg or both.

**Hemiplegia**

This means paralysis (no movement) on one side of the body. Hemiplegia can affect the arm, the leg or both.

**Hydromyelia**

Hydromyelia is an abnormal widening of the spinal cord's central canal in which cerebrospinal fluid can build up and damage nerve cells and their connections.

**Hypersomnia**

Hypersomnia is a medical term for excessive tiredness or sleepiness. It is different from feeling tired from lack of sleep at night and can result from an injury or problem in the brain.

**Hypertonia**

Hypertonia is a medical term for too much muscle tone. It can make arms or legs stiff and difficult to move and often happens when part of the brain or spinal cord is damaged.

**Hypotonia**

Hypotonia is a medical term for decreased muscle tone and can happen when the brain, spinal cord, nerves, or muscles are damaged.

**Intracerebral haemorrhage**

A type of haemorrhagic stroke caused by bleeding into the brain.

**Ischaemic stroke**

Cerebral infarction resulting from impairment of blood supply and oxygenation of the CNS (typically thrombotic or embolic occlusion of cerebral arteries) – 85% of strokes.

**Lesion**

A lesion is an area of abnormal or damaged tissue found inside or outside of the body. It can be caused by injury, infection, or disease.

**Multi-infarct Dementia**

Multi-infarct dementia is a common cause of memory loss in older people and is caused by multiple strokes which damage brain tissue.

**Myelitis**

Myelitis is an inflammation of the spinal cord. It can damage the myelin that covers the fibers of the nerve cell.

**Myotonia**

Myotonia is an impairment in a person's ability to relax a muscle or group of muscles.

**Neglect**

A problem caused by stroke where a person is unaware of, or ignores, things on one side of the body.

**Neuropathy**

Neuropathy is an umbrella term that refers to damage or disease in the nerves, which can numbness or weakness.

**Neurotoxicity**

Neurotoxicity happens when exposure to toxic substances affects the normal activity of the nervous system.

**Paralysis**

Paralysis is an inability to move parts of the body. It may be accompanied by a loss of sensation in that part of the body.

**Praesthesia**

Praesthesia refers to a burning, itching, tingling, or prickling sensation that is usually felt in the hands, arms, legs, or feet.

**Prosopagnosia**

Prosopagnosia (also known as face blindness or facial agnosia) is a neurological disorder characterized by the inability to recognize faces.

**Respite care/services**

The provision of short-term and temporary care for stroke survivors to allow carers time away from their caring responsibilities. This can be provided in your own home or in a dedicated facility.

**Rigidity**

Rigidity is the medical term for involuntary muscle stiffness. It's a form of hypertonia.

**Spasticity**

Spasticity is a medical term for an unexpected increase in muscle tone or stiffness which can interfere with movement and speech and cause discomfort or pain.

**Subarachnoid haemorrhage**

Also called a SAH. A type of haemorrhagic stroke where there is bleeding over the surface of the brain.

**Syncope**

Syncope is a medical term for fainting or "passing out," wherein a person becomes unconscious, goes limp, and quickly recovers.

**Stroke**

An abnormality of the brain of acute onset caused by a pathological process affecting blood vessels.

**Tardive Dyskinesia**

Tardive dyskinesia causes repetitive, involuntary movements, such as grimacing and eye blinking. It is often caused by long-term use of antipsychotic medications.

**TIA (transient ischaemic attack)**

A 'mini-stroke' where symptoms last for less than 24 hours.

**Thrombotic stroke**

A stroke caused by a blood thrombus that has formed in the brain.

**Tremor**

Tremor is a medical term for shaking in the hands, arms, legs, vocal cords, or other parts of the body.

**Activity 6. Review the assignment and project options**

Each student must do one individual assignment (which could be negotiated assignment), and one group project in the course.

Actual choices for the project should be made at or before the next scenario group session and registered according to the instructions in the student course guide. Note the date to register for assignments or projects.

**Activity 7. Preparation for SGS 3: Space Occupying Lesions****A. Raised Intracranial pressure and herniation - Presentations****Group 1: Describe how the three scenarios below can result in increased intracranial pressure.**

1. Generalised brain oedema,
2. Increased cerebrospinal fluid (CSF) volume (hydrocephalus), and
3. Focally expanding mass lesion

**Group 2: Describe what is meant by brain herniation.**

Your presentation should include:

1. Subfalcine (cingulate) herniation
2. Transtentorial herniation
3. Tonsillar herniation

**B. The Multidisciplinary Team Meeting - Presentation**

The main aim of this activity is to recognise common presentations of SOLs, and to appreciate how different specialists each work individually to provide a piece of the diagnostic puzzle and work as part of the team to help piece each part of the puzzle together.

**Clinical Histories**

**Clinical Team 1: Metastatic melanoma:** A 36-year-old man presented to the Emergency Department with seizures and confusion, having recently been diagnosed with a melanoma on his back.

**Clinical Team 2: Glioblastoma:** A 70-year-old woman presented with right sided hemiplegia. She also complained of having difficulties with her speech recently and headaches which were worse in the morning.

**Clinical Team 3: Arteriovenous Malformation:** A 24-year-old female athlete presented with seizures after a cross-country event. Her partner conveyed that she had been complaining of daily headaches over the past month.

**Clinical Team 4: Meningioma (psammomatous subtype):** An 18-year-old female patient presented with several months of hearing impairment in the right ear and recurrent attacks of vertigo.

## SGS 2: The Brain and Self

### Aims:

- Understand the various imaging and functional techniques used to assess the brain
- Explore the effect of neurological diseases on the "self" and the impact on the patient and carers
- Understand functional localisation of the brain

### Key concepts:

- Imaging techniques available to examine the brain
- Impact of brain injury and disease on self and carers
- Functional localisation of the brain

### Process:

Activity
1. Warm-up: What is wellbeing?
2. Research and present an overview of different techniques for non-invasive examination of the brain
3. Case Studies: The brain and the sense of self
4. Preparation for Future SG Session

### Activity 1. Warm-up

### Activity 2. Research and present an overview of different techniques for non-invasive examination of the brain

Work in groups of 3-4 students to research one of the following four techniques as assigned by your facilitator:

- A. CT scan
- B. PET
- C. Anatomical MRI (not fMRI)
- D. EEG

Here is a link to start you on your task:

<https://www.technologynetworks.com/neuroscience/articles/neuroimaging-techniques-and-what-a-brain-image-can-tell-us-363422>

Prepare and deliver a presentation of not more than 5 minutes long for your entire group that addresses the 4 questions below. The activity is only meant to introduce you and your colleagues to each technique. The techniques will be discussed in detail in the Neuroimaging lecture and in future SG sessions.

1. The principle of operation of the technique
2. The parameters of the nervous system that can be measured
3. The benefits and disadvantages compared with the other techniques
4. The approximate cost (to society and individual) and access to the technique

Students from other teams should ask questions after each presentation, so that everyone understands what each technique is capable of measuring/showing and how well people are able to access each of these technologies (e.g. rural versus metropolitan patients). We will use this knowledge to consider the specific suitability of the techniques in relation to the case studies that follow.

### Activity 3. Case Studies: The brain and the sense of self

In this exercise we want to understand the relationship between the idea of "self" and the brain. View each of the five case videos as a group and participate in the discussion guided by your facilitator.

The videos cover the follow cases:

1. Motor neuron disease - ultimately fatal loss of cortical, brainstem and spinal motor neurons with little compromise of other brain functions.
  2. Alzheimer disease - progressive neurodegeneration causing memory loss, cognitive decline, and impairments in language and reasoning.
  3. Aphasia - loss of ability to comprehend language
  4. Prosopagnosia - loss of ability to recognize faces
  5. Frontal lobe damage – change of personality
- 
- What in the patient history or physical examination would have alluded to the diagnosis?
  - What function has the subject lost/had modified?
  - Which imaging techniques that you have examined would be the best to diagnose this disease (if any)?
  - How else would you diagnose these conditions? Are there specific tests you would administer?
  - Is the condition likely to improve, stay stable, or continue to deteriorate?
  - What is the consequence of the condition for the person's sense of self? If you knew the subject, would you say they were still the same person that you knew before they had the condition?

**Activity 4. Preparation for Future SG Session -**

## SGS 3: Intracranial Space Occupying Lesions

### Aims:

- To explore the types and physical effects of intracranial space-occupying lesions (SOLs)
- To appreciate the common presenting signs and symptoms
- To recognise the common medical imaging appearances of SOLs and correlate these with the clinical presentation and the underlying pathological processes

### Key concepts:

- Communication between patient and health care workers, and between members of a multidisciplinary team
- Professional roles: roles of medical specialties in SOLs investigation and management
- SOLs and clinical signs known as “red flags” related to raised intracranial pressure

### Process:

Activities
1. “Raised intracranial pressure and herniation” Student Presentations (groups allocated in SGS1)
2. Multidisciplinary team meeting Student Presentations (groups allocated in SG1)
3. Preparation for SGS 4

### Activity 1. “Raised intracranial pressure and herniation” Student Presentations

In your allocated teams, deliver a short (10 minute) presentation on the allocated topic. Details provided in SGS 1 and available in Moodle.

#### Group 1: Describe how the three scenarios below can result in increased intracranial pressure.

1. Generalised brain oedema,
2. Increased cerebrospinal fluid (CSF) volume (hydrocephalus), and
3. Focally expanding mass lesion

#### Group 2: Describe what is meant by brain herniation. Your presentation should include:

1. Subfalcine (cingulate) herniation
2. Transtentorial herniation
3. Tonsillar herniation

### Activity 2. Multidisciplinary team meeting Student Presentations (groups allocated in SG 1)

The main aim of this activity is **not** to be able to report the histological or radiological features, but rather to recognise common presentations of SOLs, and to appreciate how different specialists each work individually to provide a piece of the diagnostic puzzle and work as part of the team to help piece each part of the puzzle together.

### Clinical Histories

**Clinical Team 1: Metastatic melanoma:** A 36-year-old man presented to the Emergency Department with seizures and confusion, having recently been diagnosed with a melanoma on his back.

**Clinical Team 2: Glioblastoma:** A 70-year-old woman presented with right sided hemiplegia. She also complained of having difficulties with her speech recently and headaches which were worse in the morning.

**Clinical Team 3: Arteriovenous malformation:** A 24-year-old female athlete presented with seizures after a cross-country event. Her partner conveyed that she had been complaining of daily headaches over the past month.

#### Clinical Team 4: Meningioma (psammomatous subtype):

An 18-year-old female patient presented with several months of hearing impairment in the right ear and recurrent attacks of vertigo.

## Resources for each Case

### Clinical Team 1: Metastatic melanoma

A 36-year-old man presented to the Emergency Department with seizures and confusion, having recently been diagnosed with a melanoma on his back.

#### References:

- Kumar, V., Abbas, A.K., & Aster, J.C. (2015). Chapter 25 Melanoma & Chapter 29 Metastatic Tumors in *Robbins and Cotran Pathologic Basis of Disease* (pp 1147-1150 & pp.1315-1316. 9th ed). Philadelphia, PA: Elsevier Saunders. <https://ebookcentral.proquest.com/lib/unsw/reader.action?docID=1746677>
- Khosla A. Brain Metastases: Imaging. eMedicine from Medscape / WebMD, <http://emedicine.medscape.com/article/338239-imaging>
- Additional melanoma resources from Melanoma Institute Australia and selected articles: <https://www.melanoma.org.au/understanding-melanoma/what-is-melanoma/>  
<https://www.melanoma.org.au/understanding-melanoma/how-is-it-diagnosed/>  
<https://www.melanoma.org.au/understanding-melanoma/stages-of-melanoma/>
- Janavicius, M., Lachej, N., Anglickiene, G., Vincerzevskiene, I., Brasiuniene, B. (2020). Outcomes of Treatment for Melanoma Brain Metastases. *Journal of Skin Cancer*. 2020:7520924. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814126370001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814126370001731?auth=SAML)
- Gutzmer, R., Vordermark, D., Hassel, J.C., Krex, D., Wendl, C., Schadendorf, D., ... Meier, F. et al (2020) Melanoma brain metastases - Interdisciplinary management recommendations 2020. *Cancer Treatment Reviews*. 89:102083. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814127180001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814127180001731?auth=SAML)

### Case 1 Pathology Slides

(The second link leads to an annotated layer on the slide to assist you) **Log in to view annotated VSlides**

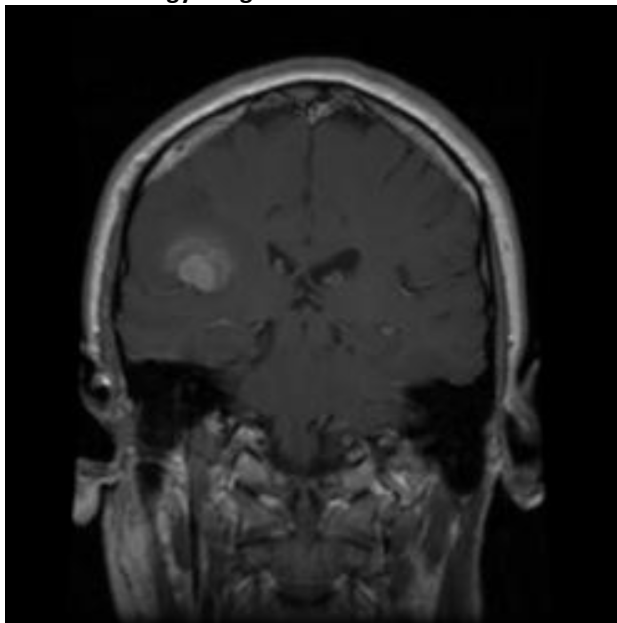
[Primary cutaneous melanoma VSlides](#)

[Primary cutaneous melanoma VSlides \(annotated\)](#)

Please note that Clark, Breslow and margins only apply to the primary skin melanoma and are not relevant to the metastatic tumour biopsy in the brain.

- [Melanoma metastases to brain VSlides](#)
- [Melanoma metastases to brain VSlides \(annotated\)](#)

### Case 1 Radiology Images



Metastatic melanoma (Coronal T1- weighted MRI Head post contrast)

Case courtesy of Assoc Prof Frank Gaillard, Radiopaedia.org, rID: 29116

### Clinical Team 2 Glioblastoma

A 70-year-old woman presented with right sided hemiplegia. She also complained of having difficulties with her speech recently and headaches which were worse in the morning.

#### Glioblastoma References:

- Kumar, V. (2022). *Robbins & Kumar Basic Pathology* (11th ed.). Elsevier - OHCE. Chapter 21, pp.757-759. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/52581554370001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/52581554370001731?auth=SAML)
- RCPA  
<https://www.rcpa.edu.au/getattachment/f28f0cb1-db4f-4d21-9b87-fffd31d564f5/Guide-CNS-tumours.aspx>
- Imaging Pathways  
[https://radiologyacrossborders.org/diagnostic\\_imaging\\_pathways/imaging-pathways/neurological/headache#images](https://radiologyacrossborders.org/diagnostic_imaging_pathways/imaging-pathways/neurological/headache#images)

#### Case 2 Pathology Slides

(The second link leads to an annotated layer on the slide to assist you) **Log in to view annotated VSlides**

- [GBM VSlides](#)
- [GBM VSlides \(annotated\)](#)

#### Case 2 Radiology Images

**Glioblastoma** (Post contrast head CT)



Case courtesy of Assoc Prof Frank Gaillard, Radiopaedia.org, rID: 63888.

The CT in this case shows a typical glioblastoma appearance involving left basal ganglia, with abundant surrounding oedema and midline shift to the right.

Typical features include

- irregular ring-enhancement ("white outline" at the periphery of tumour),
- central necrosis (seen as a 'black area' within the white tumour mass) in the tumour which has an enhancing component (the intense "white" areas in the mass),
- oedema (rim of mildly reduced density seen as 'pale grey' areas surrounding the tumour mass)

Please note, radiologists refer to "grey" to "black" areas on a CT as hypodense and to "white" areas as hyperdense.



**Clinical Team 3 Arteriovenous malformation (AVM)**

A 24-year-old female athlete presented with seizures after a cross-country event. Her partner conveyed that she had been complaining of daily headaches over the past month.

**References**

- Kumar, V., Abbas, A.K., & Aster, J.C. (2015). Chapter 28 Vascular malformations in *Robbins and Cotran Pathologic Basis of Disease* (pp.1271. 9th ed). Philadelphia, PA: Elsevier Saunders.  
<https://ebookcentral.proquest.com/lib/unsw/reader.action?docID=1746677>
- American Association of Neurological Surgeons: Arteriovenous Malformations:  
<https://www.aans.org/en/Patients/Neurosurgical-Conditions-and-Treatments/Arteriovenous-Malformations>
- Radiopaedia:  
<https://radiopaedia.org/articles/brain-arteriovenous-malformation>

**Case 3 Pathology Slides**

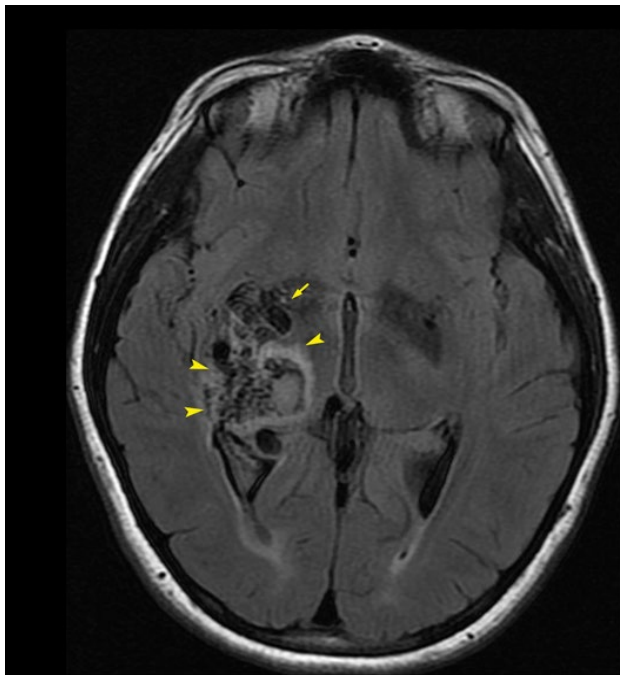
(The second link leads to an annotated layer on the slide to assist you) **Log in to view annotated VSlides**

- [AVM brain VSlides](#)
- [AVM brain VSlides \(annotated\)](#)

**Case 3 Radiology Images**

AVM (T1-weighted MRI Brain)

- <https://www.best.edu.au/s/9h5gksmg?data=8%400!9%40472.5!10%40-568&version=1&u=MjcwMjk3NQ%3D%3D>
- <https://www.best.edu.au/s/9z5yh3e6?data=8%400!9%40472.5!10%40-563&version=1&u=MjcwMjk3NQ%3D%3D>



**Clinical Team 4 Meningioma (psammomatous subtype)**

An 18-year-old female patient presented with several months of hearing impairment in the right ear and recurrent attacks of vertigo.

**References:**

- Kumar, V. (2022). *Robbins & Kumar Basic Pathology* (11th ed.). Elsevier - OHCE. Chapter 21, p.762. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/52581554370001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/52581554370001731?auth=SAML)
- American Association of Neurological Surgeons: Meningiomas: <https://www.aans.org/en/Patients/Neurosurgical-Conditions-and-Treatments/Meningiomas>
- Kim S-H. (2022) Posterior Cranial Fossa Meningioma Presenting With Hearing Impairment and Recurrent Vertigo. *Ear, Nose & Throat Journal*. 99(6):353-355. <https://journals.sagepub.com/doi/10.1177/0145561319825712?icid=int.sj-full-text.similar-articles.8>
- Louis D.N., Perry A., Wesseling P., Brat D.J., Cree I.A., Figarella-Branger D., et al. (2021) The 2021 WHO Classification of Tumors of the Central Nervous System: a summary. *Neuro Oncol*. 23(8):1231-1251. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8328013/>

**Case 4 Pathology Slides**

(The second link leads to an annotated layer on the slide to assist you) **Log in to view annotated VSlides**

[Psammomatous meningioma VSlides](#)

[Psammomatous meningioma VSlides \(annotated\)](#)

**Case 4 Radiology**

**Meningioma (T1-weighted MRI Head)**

<https://radiopaedia.org/cases/cerebellopontine-angle-meningioma-5>



Case courtesy of Assoc Prof Frank Gaillard, Radiopaedia.org, rID: 2597.

**Activity 3. Preparation for SGS 4**

**SGS 4: Older Adults: How are they vulnerable to abuse?**

## SGS 4: Caring for Older Adults

### Aims:

- Understand the health issues related to the older adult life stage
- Explore the prevalence and nature of elder abuse in Australia
- Review key concepts of the Space Occupying Lesions scenario

### Key concepts:

- Health and wellbeing issues related to the older adult life stage
- Elder abuse in Australia
- Review scenario key concepts

### Process:

Activity
1. Warm-up – R U OK?
2. Introduction to the older person
3. Introduction to Elder Abuse
4. Understanding the context of Elder Abuse in Australia
5. International Day of the Older person Video
6. Space Occupying Lesions: Scenario Quiz

#### Activity 1. Warm-up – R U OK?

#### Activity 2. Introduction to the older person

- What age would you consider to be the definition of an 'older person'?
- Reflect on your most recent conversation with an older person. Who was the person and what were the main themes of conversation? What were some of their challenges with health and lifestyle? Share this with your peers.

- Read through the components of the health assessment for older adults. Make notes on why each of the specific components of the health assessment for older people is necessary. Consider how your history taking might differ with an older person compared with a younger adult?

### Activity 3. Introduction to Elder Abuse

As homework, students were asked to read the Executive Summary (pages 1-5) of the 2021 Australian Government National Elder Abuse Prevalence Report. Note, this report draws on a survey of 7000 older adults (65 years and older) living in the community and does not include people living in aged-care residences and facilities.

#### What is Elder Abuse?

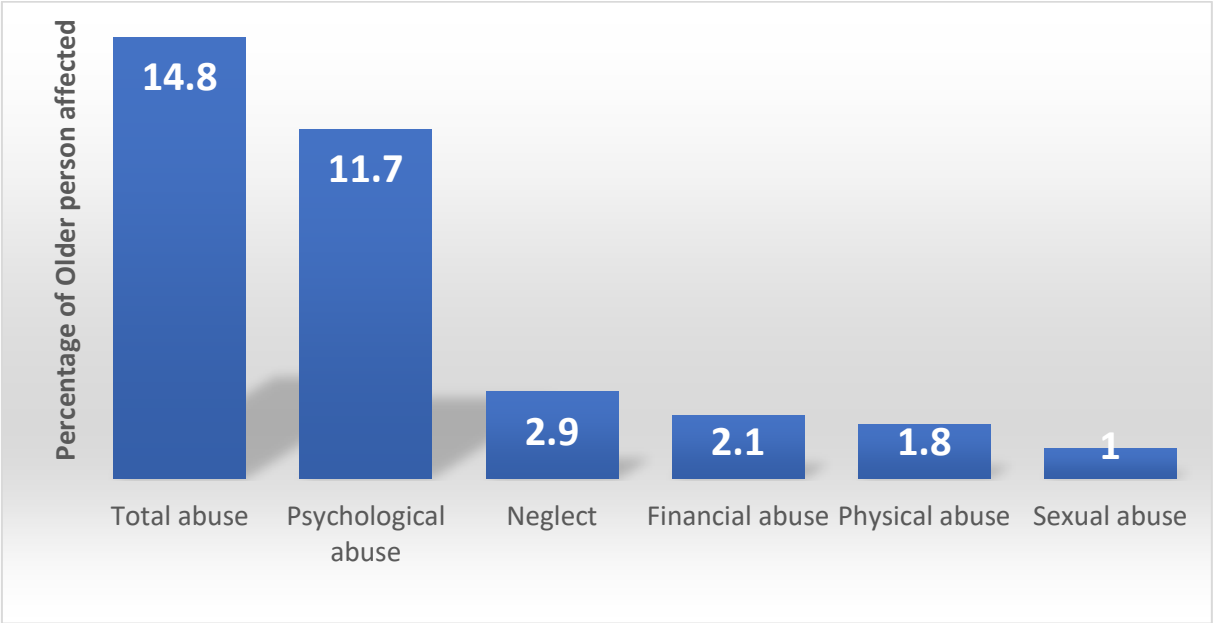
- What types of elder abuse are commonly seen?

Complete the following table and discuss

Types of abuse and definition	Examples

**Source:** [Pond, D. Phillips, J. Day, J. McNeil, K. 2019. Elder Abuse – People with Dementia. NHMRC Partnership Centre for Dealing with Cognitive and Related Functional Decline in Older People](#)

b. How prevalent are different types of elder abuse in Australia?



Source: [National Elder Abuse Prevalence Study: Final Report](#), Table 5.1 (page 33)

c. What are some of the possible signs and symptoms of elder abuse?

Complete the following table:

Possible signs and symptoms of elder abuse	

Adapted from Yaffe and Tazkaji

Source: [Pond, D. Phillips, J. Day, J. McNeil, K. 2019. Elder Abuse – People with Dementia. NHMRC Partnership Centre for Dealing with Cognitive and Related Functional Decline in Older People](#)

#### Activity 4: Understanding the context of Elder Abuse in Australia

1. Who experiences elder abuse? Look at the key findings on page 54, then review the graphs and tables on 56-69.
2. Who commits elder abuse? Look at the key findings on page 70, then review the tables on page 73-81
3. How is health status and social connection related to prevalence of elder abuse?
4. What supports are available to older adults to seek help? Look at the key findings on page 82, then review the tables on page 83-91
5. What are some legal and financial arrangements that help older adults? Look at the key findings on page 98, then review the tables on page 99-110
6. What are Australian societies views on elder abuse? Look at the key findings on page 130, then review the tables on page 131-140

**Reflect on the discussion of elder abuse.**

How has the discussion on elder abuse and the interview helped you develop your concept of a 'patient-centered' model of care?

**Activity 5. International Day of Older Persons - Video****Activity 6. Space Occupying Lesions: Scenario Quiz**

## Scenario 2: Stroke

### Schedule

Learning Activity	Principal Teacher
Scenario Plenary 2: Stroke	Butcher, Ken, and Velan, Gary
Lecture 21: Cerebral Blood Supply	Kotsidis, Kosta
Tutorial 2: Consent: Ethics and Law	Langendyk, Vicki
Campus Clinical Skills Session 2: Common Problems in the Elderly and the CNS Examination	Spencer, Kalli
Scenario Group Session 5: Stroke: No Postcode Untouched	von Wegner, Frederic
Lecture 22: Cerebrovascular Disease 1: Infarction	Velan, Gary
Lecture 23: Cerebrovascular Disease 2: Haemorrhage	Velan, Gary
Tutorial 3: Pathology SOL Tutorial	Weber, Martin
Lecture 24: Vision 1: Eye and optics	Jusof, Felicita
Lecture 25: Cranial Nerves 1	Byun, Christina
Scenario Group Session 6: Mechanisms of Stroke	von Wegner, Frederic
Lecture 26: Vision 2: Central pathways/cortex	Jusof, Felicita
Lecture 27: Pharmacological Approaches to Stroke	Kumar, Natasha
Lecture 28: Clinical Skills Review in AEB	Spencer, Kalli
Science Practical 6: Brain and Blood Supply Prac	Kotsidis, Kosta
Science Practical 7: Myotatic reflexes and the H-reflex	von Wegner, Frederic
Lecture 29: Cranial Nerves 2	Byun, Christina
Lecture 30: The Older Aboriginal Person – Introduction	Pitt, Sophie
Tutorial 4: Recovery and Rehabilitation after Brain Injury	Bowring, Greg
Scenario Group Session 7: The Older Aboriginal Person	Pitt, Sophie
Science Practical 8: CNS: Normal and Abnormal	Weber, Martin, Shirazi, Reza
Hospital Clinical Skills Session 2: Examining the neurological system: cranial nerves	Spencer, Kalli
Lecture 31: Cranial Nerves 3	Byun, Christina
Lecture 32: Higher cortical functions 1: Memory	Power, John
Tutorial 5: Pathology: Stroke Tutorial	Burkhardt, Karim
Lecture 33: Stroke outcomes and rehabilitation	Faux, Steven
Lecture 34: QMP: Weighing the Evidence - ODDS, RISK, and Ratios	Ariff, Amir
Tutorial 6: Anatomy Tute 2: Blood Supply	Kotsidis, Kosta
Scenario Group Session 8: Cranial Nerve Lesions	Byun, Christina
Lecture 35: Functional Anatomy of the Basal Ganglia (nuclei)	Furlong, Teri
Lecture 36: Limbic system and emotions	Carrive, Pascal
Science Practical 10: QMP: Weighing the Evidence	Ariff, Amir
Science Practical 9: Cranial Nerves Prac	Byun, Christina
Lecture 37: Higher Cortical Functions 2: Sleep	Aplin, Felix
Lecture 38: Cerebellum	Carrive, Pascal
Lecture 39: Advance Directives	Brennan, Frank
Campus Clinical Skills Session 3: Neuro Simulated Patient SOCA and MOCK OSCE Practice Session	Spencer, Kalli

Note: This schedule is subject to change. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.



## Overview

### ***Aims:***

1. Describe the blood supply to the brain and explain the effects of occlusion of each of the major arteries.
2. Explain the causes, consequences and likely outcomes of cerebrovascular diseases.
3. Describe the functions of individual cranial nerves and explain the consequences of cranial nerve dysfunction.
4. Evaluate scientific and ethical issues surrounding brain death and withdrawal of life support.
5. Evaluate the social and ethical issues associated with ageing, end of life, including the issues faced by health professionals, patients, family and carers.

This scenario focuses on stroke, the underlying mechanisms and structures, and the consequences for individuals. Several cases are presented at a stroke unit meeting working on a stroke ward. The cases are discussed by the multidisciplinary team that makes up the Stroke Unit. This expands on the introduction to multidisciplinary teams in the first scenario.

## SGS 5: Stroke: No Postcode Untouched

### Aims:

- Understand stroke presentation and risk factors
- Understand the prevalence of stroke, and disparity in risk, across Australia, including regional and rural communities
- Neurogenesis
- Sleep hygiene

### Key concepts:

- Stroke risk factors and disparity in risk.
- Neurogenesis
- Sleep hygiene

### Process:

Activity
1. Introduction to stroke
2. The case of Frank
3. Stroke Insights: No Postcode Untouched
4. Can you grow new brain cells?
5. Preparation for SGS 6

### Activity 1. Introduction to stroke

The aim here is to think about what you already know about stroke and its consequences, and what you learnt at the plenary.

**a. What is a stroke?**

**b. What issues were raised in the plenary?**

Identify issues raised by the scenario and group these according to graduate capability. Ask a student to scribe these issues in a tabular form to be shared with the whole group.

Key Issues noted from the plenary

c. What are the risk factors for stroke?

After the group discussion, review the stroke self-assessment matrix found at:

<https://brainfoundation.org.au/disorders/stroke/>

### Activity 2. The case of Frank

The following case and questions are a prompt for a discussion on stroke. It is only intended to introduce issues that will be addressed in subsequent SG sessions.

Frank, a 68-year-old retired shop assistant, considered himself healthy with no medical concerns. He did not routinely monitor his blood pressure or blood glucose levels in the past. An annual medical check-up was an expense that would stretch his financial resources.

One day, Frank collapsed while mowing his lawn at home. His son, Alfred, arrived for a visit approximately 10 minutes later and found his father lying on the ground, awake, but apparently confused. Alfred phoned the ambulance, which arrived in 10 minutes. The paramedics suspected that Frank might have a stroke and alerted the nearest stroke centre. Upon arriving at the Emergency Department, Frank was triaged immediately. Frank's medical history was taken from his son, Alfred, as Frank was confused. According to Alfred, his father has been taking diabetes and hypertension drugs for the past five years, although he occasionally forgets to take them. Frank quit smoking and alcohol four years ago and his body mass index is 28 kg/m<sup>2</sup>. Alfred recalled that two days ago, his father complained of weakness on his right side, and had difficulty reading and slurred speech. On physical exam, Frank was found to have severe expressive aphasia, right hemiplegia, and right hemi-sensory loss. His blood pressure was 170/100 mmHg, and his glucose level was 8 mmol/L. A CT scan of his brain revealed a thrombus in a branch of the right internal carotid artery and signs of atherosclerosis. His ECG was normal, the laboratory results showed high levels of total cholesterol, triglycerides, low density lipoprotein and reduced high density lipoproteins, but no acute disturbances.



Discuss Frank's story. What are some issues raised in Frank's story?

**What are the types of stroke?**

**What is a TIA? Is it different from stroke? Explain.**

**Who gets strokes? Can stroke be prevented?**

**What are the symptoms of stroke?**

**What is FAST and what do the letters of the acronym stand for?**

**What are the long-term consequences of stroke for the individual, their family and society?**

### Activity 3. Stroke Insights: No postcode untouched

Using the Stroke Foundation Report, *No Postcode Untouched: Stroke in Australia* (November 2020), discuss key insights on stroke using the infographic below from the report as a prompt.

<https://strokefoundation.org.au/media/juuba3qm/no-postcode-untouched-30-october-final-report.pdf>

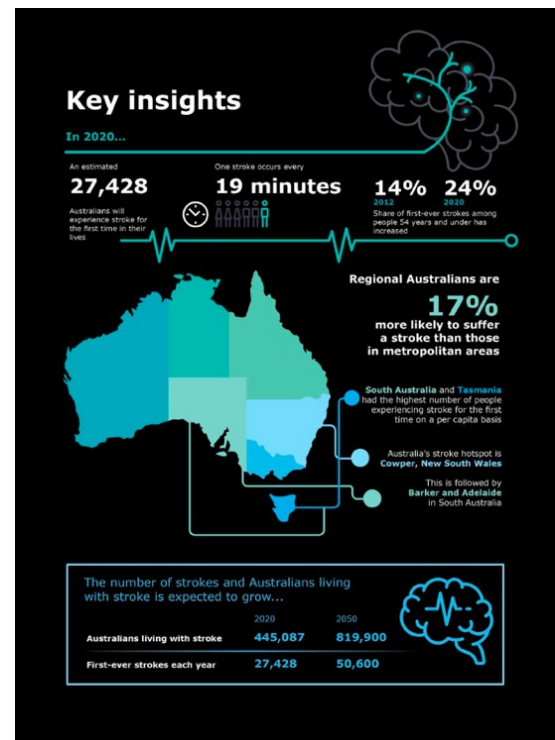
- Stroke among Australians in regional and rural areas compared to metropolitan areas
- Stroke among Australians of working age and young people
- Lifestyle factors that increase risk to stroke

For the discussion, refer to the information on:

Over-representation of stroke (page 8-10)

National Stroke Forecast (page 12-17)

Stroke Risk Factors by state (19-25)



### Activity 4. Can you grow new brain cells?

Professor Sandrine Thuret is a neuroscientist, studies adult neurogenesis and mental health at Kings College London.

In this activity, you will hear about some of her work and then consider the questions below.

- What is adult neurogenesis?**
- Which part of the brain did Professor Thuret mention as a region of interest in neurogenesis? What is this part of the brain responsible for?**
- What lifestyle factors promote and hinder neurogenesis?**

Factors that support adult neurogenesis	Factors that hinder adult neurogenesis

- Sleep is also related to our wellbeing. How much sleep do you get currently?**

Research the recommended average sleep duration from the Sleep health Foundation: -

<https://www.sleepfoundation.org/how-sleep-works/how-much-sleep-do-we-really-need#:~:text=Most%20healthy%20adults%20need%20at,happy%2C%20healthy%2C%20and%20sharp>

## References

- Campbell, B.C., De Silva, D.A., Macleod, M.R., Coutts, S.B., Schwamm, L.H., Davis SM, Donnan GA. (2019) Ischaemic stroke. Nature Reviews Disease Primers. 2019 Oct 10;5(1):1-22  
[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814170830001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814170830001731?auth=SAML)
- Lo, E., Dalkara, T. & Moskowitz, M. Mechanisms, challenges and opportunities in stroke. Nat Rev Neurosci 4, 399–414 (2003).  
<https://doi.org/10.1038/nrn1106>  
[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814171250001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814171250001731?auth=SAML)

## Activity 5. Preparation for SGS 6

### SGS6: Stroke Units and Rehabilitation

In SGS6, we will discuss stroke units and rehabilitation. Please read these two articles as preparation. The question in SGS 6, Activity 5 may be helpful to refer to as you read these.

#### Pre-reading stroke units:

[1] Langhorne, P., Ramachandra, S., & Stroke Unit Trialists' Collaboration (2020). Organised inpatient (stroke unit) care for stroke: network meta-analysis. The Cochrane database of systematic reviews, 4(4), CD000197.  
<https://doi.org/10.1002/14651858.CD000197.pub4>

**Note:** focus on the main results, you don't have to go through all analyses, but you should appreciate how meta-analyses are structured.

#### Pre-reading rehabilitation:

[2] Stinear, C. M., Langs, C. E., Zeiler, S., & Byblow, W. D. (2020). Advances and challenges in stroke rehabilitation. The Lancet. Neurology, 19(4), 348–360.  
[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814190100001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814190100001731?auth=SAML)

## SGS 6: Mechanisms of Stroke

### Aims:

- Describe the sequence of events that occur during ischemic stroke at the molecular and cellular level.
- Correlate stroke symptoms with clinical imaging presentation.
- Recognise the role of specialized stroke units and rehabilitation in patient care.

### Key concepts:

- Molecular and cellular level events during an ischemic stroke
- Stroke etiologies.
- Stroke symptoms and related clinical imaging.
- Role of stroke units and rehabilitation centres.

### Process:

Activity
1. SES Survey
2. Progress reports for projects and assignments
3. Sequence of events in ischemic stroke
4. Two cases of stroke: James and Xiao
5. Stroke units and rehabilitation
6. Preparation for SGS 7

### Activity 1. SES Survey

Students are to complete the Student Experience Survey

- Tell us about your experience of study at UNSW
- Help shape the future of higher education in Australia
- Be in with a chance to win.

Details are available in Moodle

### Activity 2. Progress reports for projects and assignments

Ask students to report on progress with their assignments and projects and any problems being encountered. Each student and group are required to give a report so that they can raise any issues. Please remind students that they can raise any questions in Moodle Discussion Boards if they need assistance with their assignment/projects.

### Activity 3. Sequence of events in ischemic stroke

- Use the schematic diagram presented during the SGS to review the pathophysiology of ischemic stroke. Discuss the most frequent trigger or cause of an ischemic stroke (with few exceptions), then start at the top of the diagram and follow the arrows in any order.
- Name exceptions to the initial stroke event identified in the schematic diagram.
- Consider an acute occlusion of the proximal middle cerebral artery (MCA). Which brain regions are likely to receive collateral flow and form part of the penumbra, which regions are more likely to lie in the core?



**Activity 4. Two cases of stroke: James and Xiao**

Now, use your knowledge about pathophysiological mechanisms at the cellular level and apply it to the two clinical cases.

**Case 1 – James:**

**Case history:** James, a 75-year-old man, presents to the ED after a sudden fall. There was no loss of consciousness, but he was unable to get up again because he could not control his left arm and leg. His wife noticed a facial droop and a slurred speech. One year before, James had a myocardial infarction. A high blood pressure has been known for many years.

**Examination:** Conjugate eye deviation to the right, head version to the right, hemineglect for the left side, central facial palsy on the left, follows simple commands, left-sided hemiparesis, biceps and patellar tendon reflexes enhanced on the left.

**Tests:** ECG (see below), sonography\*: carotid arteries bilaterally open, head CT

\*sonography: the usual algorithm puts brain imaging first, in real life however, when the radiology department signals that they need a few minutes preparation time, for example because another patient is occupying the CT, an ECG and a quick sonography can be done in the ED first.

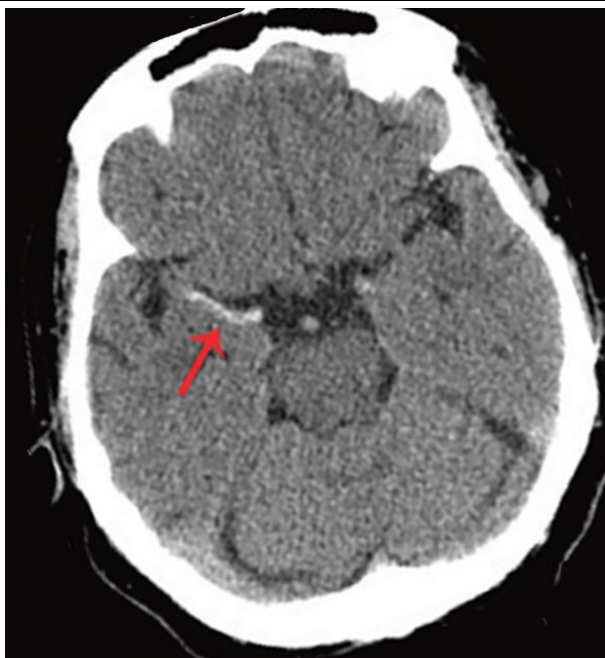
**Discussion Questions**

Discuss the clinical signs (s. examination) and deduce which parts of the brain are most likely affected.

Interpret the patient's single-channel ECG recording:



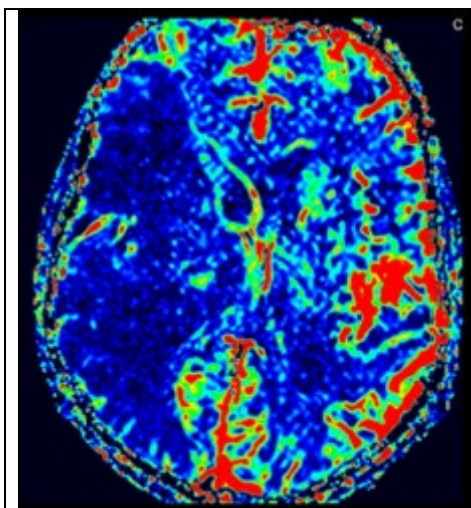
The initial brain imaging modality chosen for this patient was CT (computed tomography).



What is indicated by the red arrow? Why does it appear denser than surrounding tissue?

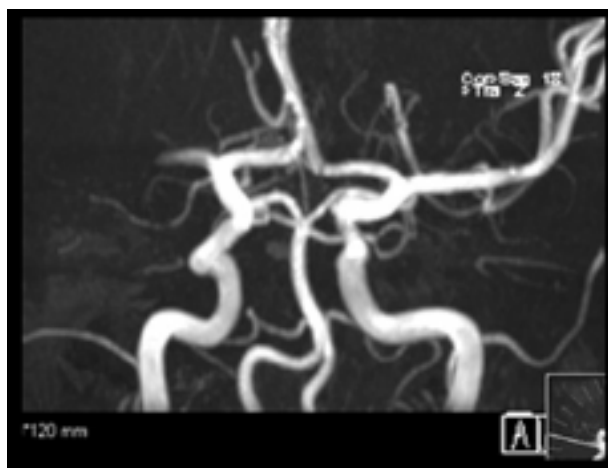
More specific imaging modalities are used to investigate the patient's condition further.

**First, a magnetic resonance imaging (MRI) is requested.** The scan from the dataset shows the regional cerebral blood volume (CBV) after injection of a contrast agent. Here, warmer colors (red) indicate a higher CBV. Describe the scan as best as you can. Compare the difference between the right and left hemispheres. Recall your lecture on blood supply of the hemispheres.



Which vascular territory is affected in this patient?

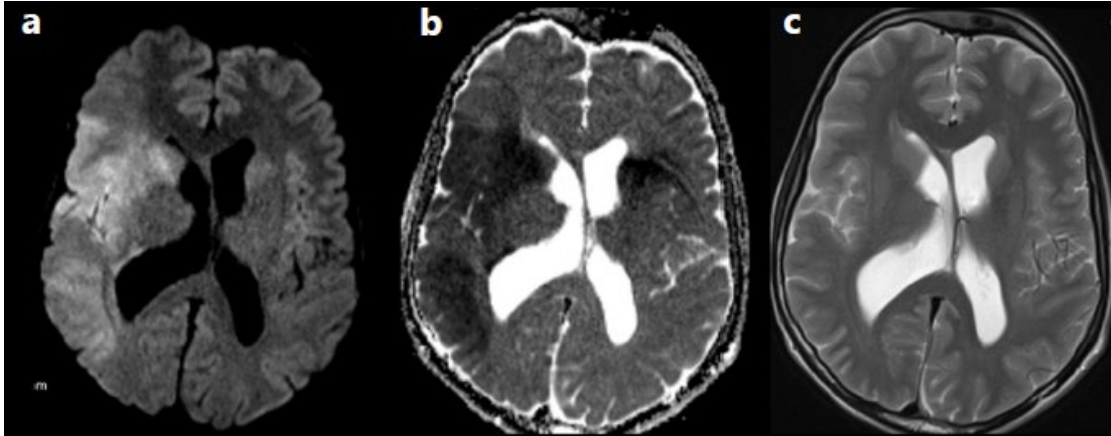
The next scan visualizes the intracranial arteries (MR-angiography).



Name the main arteries visible in this MRA?

Is there any vessel of concern in this MRA?

The next set of MRI scans quantify extracellular water diffusivity (a,b), and give an overall view of the gray and white matter integrity (c: T2 scan).



Name some anatomical structures and describe where the signal appears altered. Which vascular territory is affected?

A

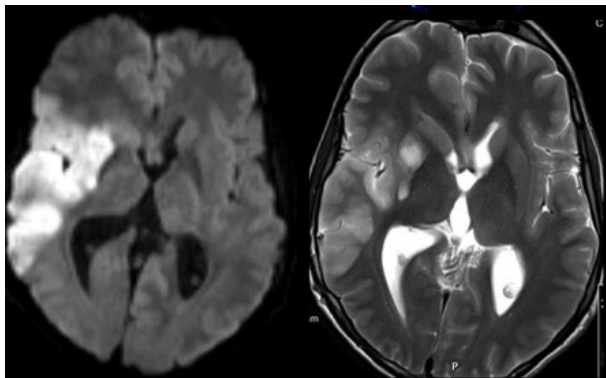
B.

C.

**We will not discuss details of therapeutic management in this class.** The therapeutic options involve intravenous thrombolysis (plasminogen activator, rt-PA) and/or mechanical thrombectomy (catheter intervention) but the details depend on the time window and other parameters. After this session, it may be good to review this content in the course. Let us now consider what happens to the brain if an acute revascularization is not possible or not successful.

**One day follow-up.**

**Describe the MR scans shown below. Describe what you are noticing as best as you can.**



**Left:**

**Right:**

**Description:**

**Which symptoms are likely to persist in this patient?**

**Case 2: Xiao's Stroke**

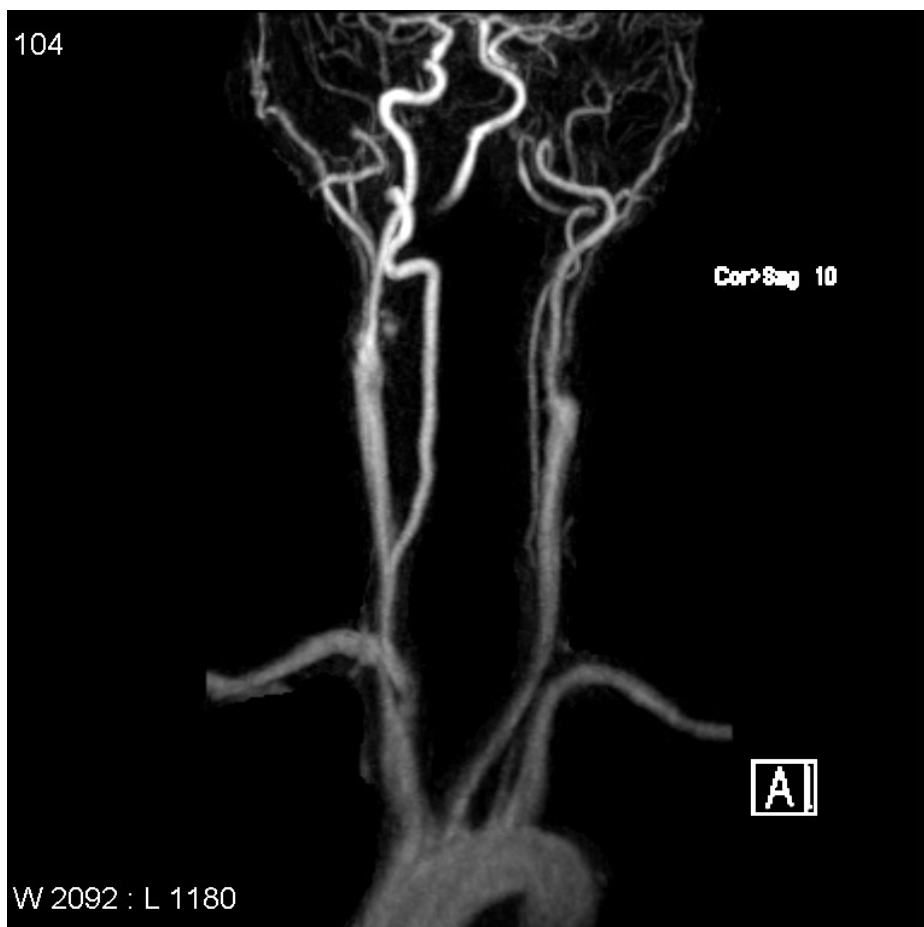
**Case history:** Xiao, a 38-year-old, previously healthy woman presents to the ED with neurological deficits. She was practicing a difficult yoga handstand, lost balance, and fell on her shoulder but also twisted her neck during the fall. Within minutes, she lost the ability to speak, and her right arm and leg became numb and weak. No vascular risk factors.

**Examination:** Aphasia with impaired word comprehension and object naming, right-sided hemiparesis and hemihypesthesia, positive Babinski sign on the right (=plantar reflex extensor).

**Tests:** ECG: sinus rhythm, sonography: subtotal occlusion of the left internal carotid artery (see power point slides), MRI: see power point slides.

**Discuss the clinical signs and form a hypothesis - which parts of the brain might be affected?**

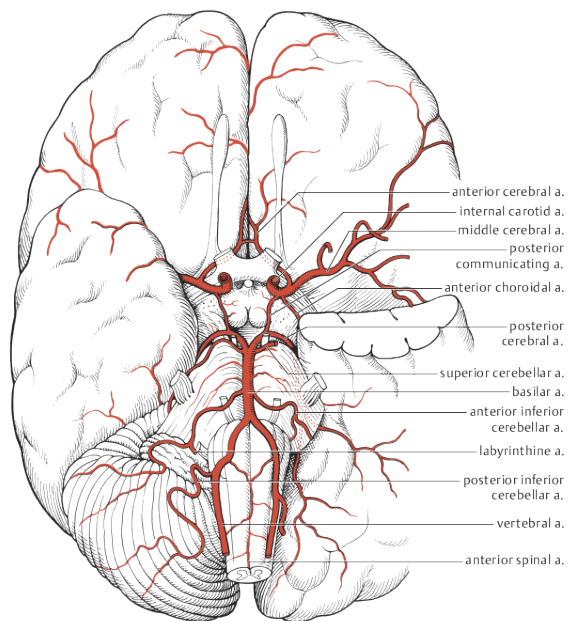
MR-angiography is used to visualize the arteries perfusing the brain.



Identify the vessels in this image, starting at the bottom.

Which vessel is missing?

How is the left MCA usually filled?

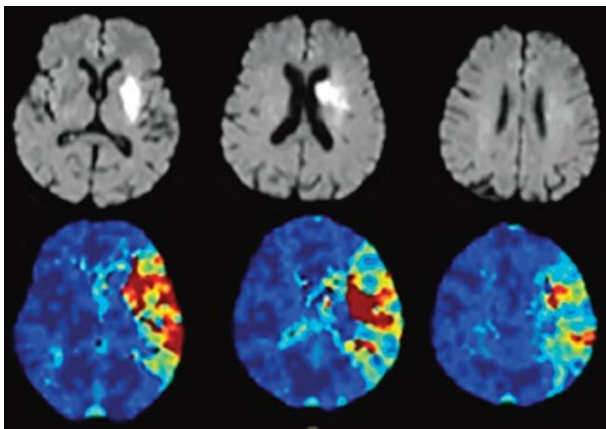


How do you distinguish the external and internal carotid arteries?

How is this image related to the clinical syndrome?

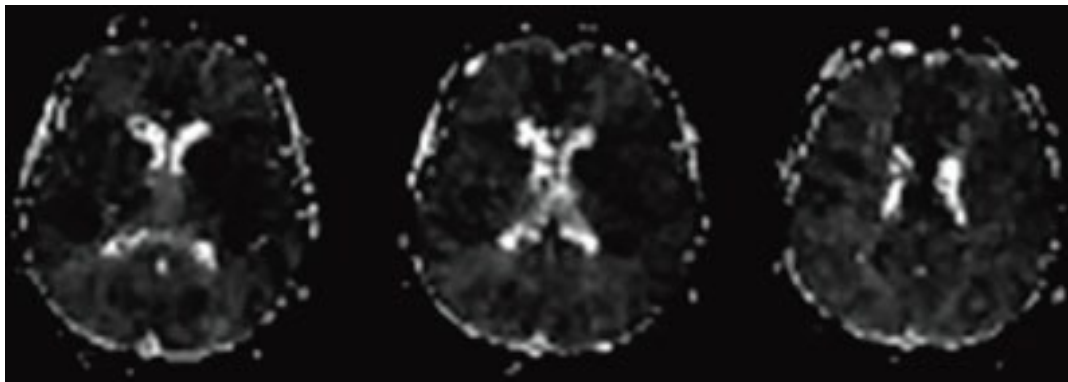
**Imaging of ischemia: a set of MR scans is acquired to estimate how much brain tissue is at risk.**

Describe the MR scans and interpret the diffusion-weighted and perfusion-weighted imaging results. Interpret the radiological images referring to stroke pathophysiology and the core/penumbra concept.



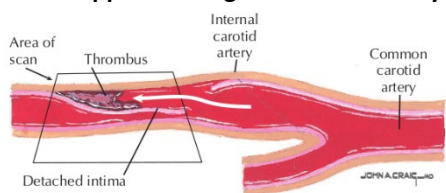


The patient received a quick intervention and most of her symptoms resolved quickly. 24 hours after the event, another perfusion weighted scan was performed. Interpret the scan.

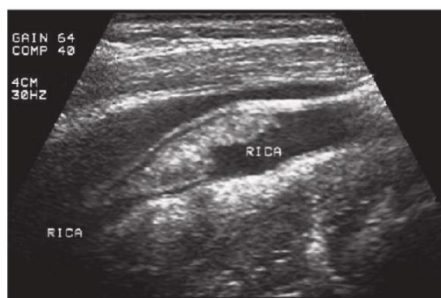


How was the patient eventually treated?

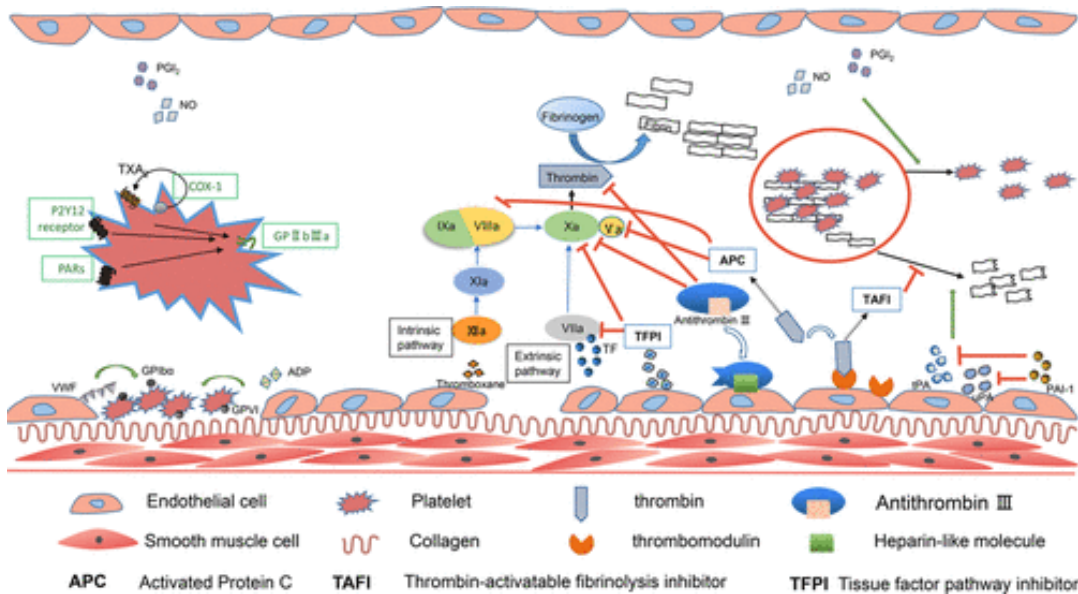
What happens during a dissection? Why does a blood clot form?



Intimal tear allows blood flow to dissect beneath intimal layer, detaching it from arterial wall. Large dissection may occlude vessel lumen



**Carotid dissection:** Ultrasound of the carotid artery with clot formed between layers of the artery (near the upper RICA label).



### Activity 5. Stroke units and rehabilitation

Discuss the following questions based on the two pre-readings.

**Pre-reading stroke units:**

[1] Langhorne, P., Ramachandra, S., & Stroke Unit Trialists' Collaboration (2020). Organised inpatient (stroke unit) care for stroke: network meta-analysis. The Cochrane database of systematic reviews, 4(4), CD000197. <https://doi.org/10.1002/14651858.CD000197.pub4>

Note: focus on the main results, you don't have to go through all analyses but you should appreciate how meta-analyses are structured.

**Pre-reading rehabilitation:**

[2] Stinear, C. M., Langs, C. E., Zeiler, S., & Byblow, W. D. (2020). Advances and challenges in stroke rehabilitation. *The Lancet. Neurology*, 19(4), 348–360.  
[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/50814190100001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/50814190100001731?auth=SAML)

## Stroke Units

**What are the advantages of treating a patient on a stroke unit?**

Which teams work together in stroke units?

What are the major risks to stroke patients in the first two weeks?

### Rehabilitation

Which stroke patients should receive rehabilitation treatment? When should this treatment be initiated?

Which deficits can be addressed during stroke rehabilitation? How do they affect the patient if they persist?

Evaluate the evidence on which this practice is based, referring to the article Stinear et al. 2020

### Activity 6. Preparation for SGS 7

As prework for this session, please watch the following videos:

Uncle Tunny's story – <https://www.youtube.com/watch?v=jwm7-4uvzKQ&feature=youtu.be>

Kim's story – <https://www.youtube.com/watch?v=VDPTOmSv-FE&feature=youtu.be>

## SGS 7: The Older Aboriginal Person

### Aims:

- Explore the role of the carer in relation to older Aboriginal and Torres Strait Islander Australian people
- Explore foundational dementia care in relation to older Aboriginal and Torres Strait Islander people
- Explore palliative care in the context of Aboriginal and Torres Strait Islander peoples' health and wellness, with a focus on the older person.

### Key concepts:

- Family roles in Aboriginal and Torres Strait Islander communities
- Healthcare needs and support for Aboriginal and Torres Strait Islander peoples
- Skills in communication and engagement

### Process:

Activity
1. Reflections on Uncle Tunny and Kim's stories
2. Dementia Care
Case study 1: Roy's Story
Case study 2: Mary and John's Story
Case study 3: End of life care
3. Preparation for SGS 8

### Activity 1. Reflections on Uncle Tunny and Kim's stories

As prework for this session, you were asked to watch the following videos:

Uncle Tunny's story – <https://www.youtube.com/watch?v=jwm7-4uvzKQ&feature=youtu.be>

Kim's story – <https://www.youtube.com/watch?v=VDPTOmSv-FE&feature=youtu.be>

### Activity 2. Dementia care

Carers provide unpaid care and support to family and friends who have a disability, mental illness, chronic condition, terminal illness, an alcohol or other drug issue or who are frail aged. (Carers Australia, 2024). Carers play an integral role in complex disease management, which can include physical and personal care (showering, feeding, dressing, lifting, toileting, providing transport etc.), medication management, and emotional and social support (Carers Australia, 2024).

Students will examine dementia and carer issues in Aboriginal and Torres Strait Islander communities through three case studies.

### Case Study 1: Roy's Story

Roy is a 65-year-old man from the Eora nation. Roy and his wife, Mabel, have been married for over 30 years. They have five children and fifteen grandchildren. Roy and Mabel have been active support people for their children and grandchildren. Lately, Roy has noticed a decline in Mabel's health. She seems unable to focus on tasks, often failing to remember daily routines and generally appears not interested in aspects of their life in which where normally important to her. Mabel is now unable to remember the names of her grandchildren which is upsetting for the family. Roy also keeps finding the ice-cream in the kitchen cupboard. Roy is concerned so books an individual appointment at the Aboriginal Health Service where you work as a medical practitioner. Roy seems distressed in the appointment and indicates he needs some support.

1. What are your initial responses to this situation?

2. How will you approach support with Roy?

3. How will you consider the wider family in your discussion with Roy?

**Roy's story continues with a focus on interprofessional practice**

Roy has been referred by the GP at the Aboriginal Health Service in which you consult one day per week. Roy's wife Mabel has recently been diagnosed with the early stages' dementia. As an allied health professional, you have been asked to offer Roy and his wife Mabel support strategies for their home. Your initial consultation is at the Aboriginal Health Service where you hope to develop rapport and start a professional relationship with both Roy and Mabel. You come from a non-Indigenous background and have heard that Roy is a local Elder.

4. What are your initial responses to this situation?

5. How will you culturally prepare for this consult?

6. How will you approach support with both Roy and Mabel?

7. How will you consider the wider family in your discussion with Roy?

**Case Study 2: Mary and John's Story**

**In this case, students explore palliative care in the context of Aboriginal and Torres Strait Islander peoples' health and wellness, with a focus on the older person.**

Mary is a 55 year-old Aboriginal woman who is married to John who is 60 years of age. Mary and John are legal guardians of their three grandchildren aged (Tony, 10yrs, Isabella, 12yrs and Lily, 14yrs). Over the last few years John's health has slowly deteriorated to the stage where he is requiring more health and well-being support. This extra support is placing a large amount of pressure on Mary as she is trying to care and support John as well as their three grandchildren. Mary has noticed that her health is starting to decline. Mary has presented to her local Aboriginal Medical Service (AMS) for her annual check-up. You are part of the healthcare team undertaking the annual health assessment. During the assessment Mary has told you that she is finding it very difficult to get John to all his medical appointments, juggle the grandchildren's needs and look after all the home requirements. Mary also mentioned that she is feeling extremely fatigued, has lost some weight over the last 6 months and is feeling really overwhelmed. Mary makes the comment that "something has to give because it is getting too much, I am unsure what I can do about this situation".

1. What are your initial responses to the concerns Mary has raised?
2. What does Mary require at this stage? How would you find this out?
3. What support services may be available for Mary and her family?

**Mary and John's Story continued**

After seeing you as the medical practitioner at her annual health assessment at her local AHS. You have reviewed Mary's history and have noted that Mary is extremely unsure about what services she may be able to access to make caring for John and their three grandchildren a bit easier. You decide to refer Mary to the local allied health clinic

4. Why did you refer Mary to the allied health clinic?
5. What would an allied health professional do in this situation?
6. What services do you think the allied health clinic can offer Mary? And why?

**Case Study 3: End of Life care****Mary and John's Story continued**

After a period of significant illness John has been diagnosed with end stage lung cancer with metastatic liver cancer. Mary, John, Tony, Isabella and Lily are devastated by this diagnosis. After much consideration, John has decided to prepare for his end-of-life care. You are the medical practitioner who is undertaking a consult to commence conversations on John's advanced care plan.

7. What are the health care considerations relating to John's situation?

8. How will you implement a family-centred care approach?

9. What support services may be available for John, Mary, Tony, Isabella and Lily?

**Further readings/Additional Resources**

- Australian Government. (2020). 4 key links for Aboriginal and Torres Strait Islander carers. Retrieved from: <https://www.carergateway.gov.au/first-nations>
- Dementia Australia. (2020). Resources for Aboriginal and Torres Strait Islander communities. Retrieved from: <https://www.dementia.org.au/resources/for-aboriginal-and-torres-strait-islander-communities>
- Neuroscience Research Australia. (2019). Caring for Spirit. Aboriginal and Torres Strait Islander Online Dementia Education. Retrieved from: <https://caringforspirit.neura.edu.au/>
- Palliative Care Australia (2018). National Palliative Care Standards 5th Edition. Canberra: Palliative Care Australia.

**Activity 3. Preparation for SGS 8 – 1 minute**

Please review your notes on cranial nerves prior to this session and ensure you can access them during SGS8.

*In SGS8 students will be required to work through some clinical cases on the brainstem and cranial nerves during the class. Ask students to review their lecture notes and textbook for this session*

**References:**

- Australian Institute of Health and Welfare. (2024). *Dementia in Australia*. Retrieved from <https://www.aihw.gov.au/reports/dementia/dementia-in-aus>
- Wolff, J. L., & Boyd, C. M. (2015). A Look at Person- and Family-Centered Care Among Older Adults: Results from a National Survey [corrected]. *Journal of general internal medicine*, 30(10), 1497–1504. <https://doi.org/10.1007/s11606-015-3359-6>
- Johnson, A., & Chang, E. (2014). *Caring for older people in Australia: Principles for nursing practice*. John Wiley & Sons Australia, Ltd.
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## SGS 8: Cranial Nerve Lesions

### Aims:

This session aims to help students to relate clinical features of brainstem and cranial nerve lesions to relevant anatomy, physiology, and clinical examination.

### Key concepts:

- Correlating symptoms and cranial nerve lesions
- Cranial nerves anatomy and distribution
- Neurological Examination

### Process:

Activity
1. Travel icebreaker
2. Case presentations
3. Time allocated for students completing the teamwork project

### Activity 1. Warm Up

### Activity 2. Case presentations

Each group will then present their answers/explanations to the whole class. If students who prepared the case cannot answer some of the questions, some other students in the class may be able to help.

Any unresolved questions should be posted on the Moodle discussion forum. Students who are not in the presenting group should be encouraged to comment on the accuracy of the information being presented.

### Case 1

Helen, a 63-year-old woman, while working about the house, suddenly fell to the floor and was unable to get up. She had difficulty speaking and her left arm and leg were paralysed. An examination made two months after the onset of the symptoms showed paralysis of the left upper and lower limbs. The tone of the muscles in these limbs was increased and the tendon reflexes were exaggerated. When the tongue was protruded it deviated to the right. The right half of the tongue was wrinkled due to atrophy.

(i) ***Explain why the tongue deviates to one side when it is protruded?***

***Which side of the tongue is paralysed if it deviates to the right?***

(ii) **Why is there atrophy of the tongue muscles?**

**Which nerve is affected?**

**Briefly explain the course and distribution of this nerve**

(iii) **Which motor tract must have been affected to cause the paralysis in the limbs?**

(iv) **Explain (in very simple terms only) why muscle tone is increased and tendon reflexes are exaggerated in the left limbs**

(v) **Where would you locate an ischaemic lesion causing paralysis of the limbs on one side combined with paralysis of the tongue on the other side?**

(vi) ***Explain why the paralysis of the limbs occurs on the opposite side to that of the tongue***

(vii) ***Is this patient likely to recover full function?***

**Case 2**

Shamini, a 58-year-old woman, suddenly fell to the floor, and when she tried to get up realised she couldn't move her right arm or leg. Weeks later, neurological examination revealed that she was unable to open her left eye fully because of drooping of the upper eyelid (ptosis) and the left eyeball was turned outward and slightly downward. The left pupil was dilated and did not react to light, although the consensual light reflex in the other eye was present. When protruded, the tongue turned somewhat to the right, showing a weakness of the musculature of that side, but there was no atrophy. Also, on the right side, there was a paralysis of the muscles of the lower part of the face, causing drooping of the right side of the mouth, but the muscles around her eye and forehead were not affected. The paralysis of the right limbs was accompanied by increased muscle tone and exaggerated reflexes.

(i) ***Considering the actions of the extraocular muscles, can you explain why the eye is turned outward?***

(ii) ***Which cranial nerve is probably involved?***

***Give a brief description of its course and function.***

(iii) ***Why is she experiencing double vision?***

(iv) ***Why was there a drooping of the eyelid (ptosis)?***

***What is the other possible cause of this sign?***

(v) ***Briefly explain the pupillary light reflex.***

***What cranial nerves are involved?***

(vi) ***Which descending tract controls voluntary activity of the facial muscles?***

***What are the typical signs of paralysis of this tract?***

(vii) ***How do you know that the signs and symptoms seen in this case are probably not caused by a lesion to the facial nerve itself?***

**Case 3**

Joel, a 34-year-old man was referred to an otolaryngologist due to complaints of progressive hoarseness, dysphagia, and weakness of the left sternocleidomastoid muscle and tongue.

**History of present illness:**

Four months prior to presentation, the patient developed a persistent cough and a respiratory infection that did not resolve. Soon afterwards, he noticed difficulty swallowing thick foods, and his voice gradually became hoarse. Three weeks prior to presentation, he began to have decreased hearing in the left ear, some alteration in taste, and mild left-sided headache. He has lost 18kgs over the 4 months since developing these symptoms.

**Medications:** none

**Allergies:** none

**General physical examination:**

The patient is well-appearing. Temperature is 36.7, blood pressure is 118/86, and pulse is 84. There is no tenderness or palpable masses over the scalp or neck and no bruits over the eyes or at the neck. There is no proptosis, lid swelling, conjunctival injection, or chemosis. Cardiac exam shows a regular rate and no murmur. There is no tenderness over the abdomen and the extremities are normal.

**Neurological exam:**

- Mental status – The patient is alert, attentive, and oriented. Speech is clear and fluent with good repetition, comprehension, and naming. He recalls 3/3 objects at 5 minutes.
- Cranial nerves – Pupils 4 mm, constricting to 2 mm bilaterally. Visual fields full. Normal optic discs. Extraocular movements intact. Facial sensation intact to light touch and pinprick. Intact corneal reflexes. Mildly decreased left nasolabial fold. Decreased hearing to finger rub on the left. Gag intact. Uvula deviated to the right with palate elevation. Voice hoarse and breathy in quality. Left trapezius and sternocleidomastoid muscles and fasciculations and strength 4/5. Tongue had marked asymmetrical atrophy and fasciculations of the left side, with tongue deviating to the left on protrusion. On laryngoscopic examination, the left vocal cord was paralysed.
- Motor – No pronator drift
- Reflexes – Within normal range, Babinski sign absent
- Coordination – Normal on finger-to-nose and heel-to-shin testing
- Gait – Normal
- Sensory – Intact light touch, pinprick and joint position sense

(i) ***Explain the following findings. Include which cranial nerve is involved (and from which side of the body). For motor involvement indicate if this is indicative of an upper (UMNL) or lower motor neuron lesion (LMNL).***

(ii)	<b><i>Compare the differences between the tongue and uvula deviations.</i></b>
(iii)	<b><i>The patient reports an alteration in taste. Which cranial nerves are responsible for taste and which areas do each of them innervate?</i></b>
(iv)	<b><i>Where are each of the affected cranial nerves exiting/entering the brainstem?</i></b>
(v)	<b><i>Abducens nerve also exits the brainstem at the pontomedullary junction, which examination finding indicated it is not affected?</i></b>
(vi)	<b><i>What symptom from the patient history would indicate glossopharyngeal nerve may also be affected?</i></b>
(vii)	<b><i>Could one pathology be causing all signs and symptoms?</i></b>
(viii)	<b><i>What type of pathology do you suspect is causing the symptoms? E.g. SOL/ischaemic infarct/demyelination/degenerative etc.</i></b>

**Case 4**

Loki, a man, aged 65, was working in his garden when he suddenly became dizzy and nauseous and started vomiting. His wife had to help him walk back to the house because he had become unsteady on his feet. His wife noticed that his voice had changed. Neurological examination revealed that the strength and tone of the muscles and the deep reflexes were normal and equal on the two sides, but there was a paralysis of the left vocal cord and of the left side of the soft palate. The finer movements of the left upper and lower limbs were not well coordinated. When walking or when standing with his eyes closed he would tend to fall to the left. There was a complete loss of pain and temperature sensation over the left side of the face and the right side of the body below the head. Tactile sensation was normal over the entire body. It was also noted that his left pupil was constricted and his left eyelid was drooping slightly.

(i) **Which specific system is likely to be involved if the patient is experiencing dizziness and problems with balance?**

**What major parts of the brain are involved in this system?**

(ii) **What brain structure is responsible for the coordination of fine movements?**

(iii) **Explain how it is possible to lose pain and temperature but not other tactile sensations such as touch in the one lesion? (Hint: consider the pathways taken by these sensory modalities)**

(iv) **Which cranial nerve carries pain and temperature sensations from the head to the brain?**

**Try to explain how pain and temperature could be lost on the right side of the body and the left side of the face at the same time.**



(v) **Which cranial nerve supplies the laryngeal muscles?**

**Assuming fibres in this nerve has been affected in this lesion, would you also expect to see effects on other organs, such as his heart? Briefly explain your answer. (Hint: remember HMA Lecture/Practical)**

(vi) **Where in the brain is the lesion likely to have occurred?**

(v) **Referring to diagrams in your notes on blood supply of the brain, work out, on the basis of the structures affected, which artery (or arteries) is/are most likely to have been occluded in this case.**

**Activity 4. Time allocated for students completing the teamwork project**

## Scenario 3: Barbara: Parkinson's Disease

### Schedule

Learning Activity	Principal Teacher
Scenario Plenary 3: Barbara Y: Parkinson's Disease	von Wegner, Frederic
Lecture 40: Treatments for Parkinson's Disease	Colebatch, James
Tutorial 7: Anatomy Tute 3 - Cranial Nerve Lesions	Byun, Christina
Scenario Group Session 9: Treatment Strategies for Parkinson's Disease	Kumar, Natasha
Lecture 41: Pharmacology of Alzheimer Disease	Kumar, Natasha
Lecture 42: Ethics: Whose decision is it?	Sheahan, Linda
Lecture 43: Neuro-degenerative diseases	Kim, Scott
Science Practical 11: Brainstem Prac	Carrive, Pascal
Science Practical 12: Visual Physiology	Jusof, Felicita
Lecture 44: Introduction to dementia	Ni Chroinin, Danielle
Lecture 45: Brain Recovery	Chander, Russell
Tutorial 8: Ethics: Whose decision is it?	Langendyk, Vicki
Scenario Group Session 10: Project presentations	von Wegner, Frederic
Hospital Clinical Skills Session 3: The neurological system: putting it all together	Spencer, Kalli
Lecture 46: Aged Care and Health care systems	Gonski, Peter
Lecture 47: Aboriginal Ageing and Dementia	Lavrencic, Louise
Lecture 48: Exercise rehabilitation for neurodegenerative diseases	Silva Pelicioni, Paulo
Lecture 49: Healthy ageing: psycho-social aspects	Peisah, Carmelle
Tutorial 9: Anatomy Tute 4: Cerebellum	Carrive, Pascal
Scenario Group Session 11: Atypical PD and Palliative Care	von Wegner, Frederic
Lecture 50: Psychiatric Aspects of Neurodegeneration	Brodsky, Henry
Lecture 51: Traumatic Brain Injury	Tedla, Nicodemus
Tutorial 10: Anatomy Tute 5: Mollies Movement	Furlong, Teri
Science Practical 13: Basal Nuclei (ganglia)	Furlong, Teri
Lecture 52: Sectional Neuroanatomy & Imaging	El-Haddad, Joyce
Lecture 53: Caring for patients with dementia	Tran, Fiona
Scenario Group Session 12: Living with dementia	Baird, Louise
Lecture 54: Physiology in AEB Review	Jusof, Felicita
Tutorial 11: Anatomy Tute 6 - Integrating Concepts	Byun, Christina
Lecture 55: Neuroanatomy in AEB Review	Byun, Christina
Scenario Group Session 13: Review, Wrap up, Practice	von Wegner, Frederic
Lecture 56: Pharmacology in AEB Review	Kumar, Natasha
Lecture 57: Formative Feedback Lecture	von Wegner, Frederic
Science Practical 14: Human aspects of living with neuro-degenerative disease	Numbers, Katya
Science Practical 15: Coronal Slices of the Forebrain	El-Haddad, Joyce

Note: This schedule is subject to change. Refer to the eMed Timetable system and email updates sent to your UNSW email account for accurate times and locations.

## Overview

### **Aims:**

1. Describe synaptic transmission including the synthesis, storage, release, binding and re-uptake of neurotransmitters
2. Explain the role of the basal ganglia and cerebellum in the control of movement.
3. Describe the structures, functions and relationships in the central nervous system that underlie cognitive function.
4. Explain the causes of neurodegenerative diseases and the consequences of these diseases for the individual, their family and the community.
5. Evaluate the social and ethical issues associated with the end of life, including the issues faced by patients, family and carers.

Barbara suffers from Parkinson's disease and this scenario explores the underlying science while raising some of the issues involved for her and her family.

## SGS 9: Treatment Strategies for Parkinson's Disease

### Aims:

- Develop insight into the complexity of managing a chronic disease such as Parkinson Disease, and the levels of treatment options from molecular to systemic interventions.

#### Key concepts:

- Basal ganglia function and its relation to management strategies for Parkinson Disease patients.
- Symptom management and disease progression in untreatable disease.

### Process:

Activity
1. Explore the scenario plenary and video and identify key issues
2. Treatment of Parkinson disease
3. Preparation for Project Presentations
4. Preparation for SGS 11

### Activity 1. Explore the scenario plenary and video and identify key issues

Students should have attended the scenario plenary before this session.

Ask the students to share:

- their first impressions of the scenario
- what was interesting
- what was unexpected

Identify issues raised by the scenario and group these according to graduate capability. Ask a student to scribe these issues in a tabular form to be shared with the whole group.

Key Issues noted from the plenary	Graduate capability

### Activity 2. Treatment of Parkinson's disease

Divide the students into four groups to research one of the following four topics listed below. Discuss with your group how you/they would like to format the presentations – do you require a PowerPoint type presentation, or would the group prefer concise notes and figures (MS OneNote) which the group will use to form their presentation.

Each group has 30 minutes in class to read through and discuss within their group the relevant resource provided. After that, each group will present a brief review (10-15 minutes each) of the basic science underlying the action of their therapy.

**Group 1: Drug Therapy**

This group will review the current and emerging drug therapies for Parkinson disease including the pharmacological rationale and predictable adverse effects.

**Group 2: Gene therapy**

The gene therapy group will review advances in therapeutic strategy of gene therapy for the potential treatment of Parkinson disease.

**Group 3: Surgery (ablation, implantation of stimulators)**

The surgery group will review the anatomy and functional connections of the basal ganglia and its role in initiating movement and apply this understanding to surgical procedures for Parkinson disease.

**Group 4: Stem-cell based therapies**

The cell transplantation group will review advances in stem-cell based therapies in Parkinson disease.

**Resources:****All groups: Overview of pathophysiology and diagnosis of Parkinson disease (pages 1-8)**

Poewe, W., Seppi, K., Tanner, C. M., Halliday, G. M., Brundin, P., Volkmann, J., ... & Lang, A. E. (2017). Parkinson disease. *Nature Reviews Disease Primers*, 3(1), 1-21. DOI: 10.1001/jama.2014.3654

[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/63620945080001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/63620945080001731?auth=SAML)

**Drug Therapy for PD:**

- Medications used in the treatment of Parkinson disease – Parkinson's Australia  
<https://www.parkinsons.org.au/wp-content/uploads/2024/02/Brochure-Medications-LOWRES.pdf>
- Connolly, B. S., & Lang, A. E. (2014). Pharmacological treatment of Parkinson disease: a review. *JAMA*, 311(16), 1670-1683. DOI:10.1001/jama.2014.3654  
[https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/63620946850001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/63620946850001731?auth=SAML)

**Gene therapy for PD:**

- Bartus, R. T., Weinberg, M. S., & Samulski, R. J. (2014). Parkinson's disease gene therapy: success by design meets failure by efficacy. *Molecular Therapy*, 22(3), 487-497. <https://doi.org/10.1038/mt.2013.281>
- Grote, J., Patel, N., Bates, C., & Parmar, M. S. (2024). From lab bench to hope: a review of gene therapies in clinical trials for Parkinson's disease and challenges. *Neurological sciences: official journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology*, 10.1007/s10072-024-07599-1. <https://doi.org/10.1007/s10072-024-07599-1>

**Surgical Treatment for PD:**

- Hartmann, C. J., Fliegen, S., Groiss, S. J., Wojtecki, L., & Schnitzler, A. (2019). An update on best practice of deep brain stimulation in Parkinson's disease. *Therapeutic Advances in Neurological Disorders*, 12, 1756286419838096. <https://doi.org/10.1177/1756286419838096>
- Mählke, P., Foltynie, T., Limousin, P., & Poewe, W. (2022). How Does Deep Brain Stimulation Change the Course of Parkinson's Disease? *Movement disorders: official journal of the Movement Disorder Society*, 37(8), 1581–1592. <https://doi.org/10.1002/mds.29052>

**Novel cell-based therapies for PD:**

- Yasuhara, T., Kameda, M., Sasaki, T., Tajiri, N., & Date, I. (2017). Cell therapy for Parkinson's disease. *Cell Transplantation*, Sage Journals 26(9), 1551-1559. <https://doi.org/10.1177/0963689717735411>
- Skidmore, S., & Barker, R. A. (2023). Challenges in the clinical advancement of cell therapies for Parkinson's disease. *Nature biomedical engineering*, 7(4), 370–386. <https://doi.org/10.1038/s41551-022-00987-y>

**All groups will report back to the class, summarising the following about their treatment strategy:**

- How is the treatment strategy likely to work in improving symptoms of PD?
- Would there be benefit in combining this treatment strategy with current drug therapies?
- Is it likely to treat the symptoms or modify the course of PD progression?
- What are the advantages and disadvantages of each treatment strategy?
- Would this be appropriate for treating other neurodegenerative conditions?

After all the group presentations, students should nominate the therapy they would opt for (in addition to drug therapy) in the event that they developed early onset Parkinson disease, or their parents/grandparents developed Parkinson disease.

### Activity 3. Preparation for Project Presentations

SGS 10 is for presentation of projects.

**Recommended timing for presentations:** 15 minutes presentation; 5 minutes questions/feedback

*If you plan to have designated groups give feedback, then establish which groups will be responsible for giving feedback on each project now.*

### Activity 4: Preparation for SGS 11

The pre-read material for SGS 11 is a short paper on palliative care ('Generalist plus Specialist Palliative Care — Creating a More Sustainable Model'). Please make yourself familiar with the general ideas expressed in the article and reflect on their role in the care of patients with neurodegenerative disease.

Quill, T. E., & Abernethy, A. P. (2013). Generalist plus specialist palliative care--creating a more sustainable model. *The New England journal of medicine*, 368(13), 1173–1175. <https://doi.org/10.1056/NEJMp1215620>

## SGS 10: Project Presentations

### **Aims:**

In this session project groups will present an overview of the project, with the aim of sharing what they have learnt through their projects. Students will:

- Develop their presentation and communication skills, and in responding to questions
- Develop skills in active listening, and giving and receiving feedback, in self- and peer- assessments.

### **Key concepts:**

- Presentation skills
- Self and peer assessment

### **Process:**

Activity
1. Establish an order and time limit for presentations
2. Presentations and discussion
3. Reminder about peer feedback on teamwork
4. Preparation for SGS 12

### **Activity 1. Establish an order and a time limit for presentations**

### **Activity 2. Presentations and discussion**

Student project groups should be prepared to present their projects for this course. To do this, they must prepare a PowerPoint presentation or video (or similar) to explain core concepts.

### **Generic criteria for giving feedback on oral presentations:**

- **Explanation of project** - Project aim, methods and findings were clearly explained; findings are based on the evidence available; methodology is appropriate and adequate for the task.
- **Presentation** - Oral presentation was clear, well-structured and easily understood; Timing was controlled so that most aspects were covered; Audio-visual aids or documents provided were clear, well-structured and easy to read.
- **Understanding** – The project team appeared to have a good understanding of the topic, and was able to answer audience questions.
- **Stimulating learning** - Presentation was interesting; significant issues and unanswered questions were highlighted; the audience should be able to learn a lot from this presentation and be stimulated to find out more about the topic. What was the level of audience participation?

### **Activity 3. Reminder about peer feedback on Teamwork**

Enter your comments on peers' contributions to the teamwork of their project teams into the eMed Teamwork system. It can be accessed via the eMed homepage.

### **Activity 4. Preparation for SGS 12**

Students are to prepare for SGS 12 by pre-reading the article and discuss: "When Illness Makes a Spouse a Stranger" NY Times. May 5, 2012

<http://www.nytimes.com/2012/05/06/health/a-rare-form-of-dementia-tests-a-vow-of-for-better-for-worse.html?pagewanted=all>

## SGS 11: Atypical Parkinsonism and Palliative Care

### Aims:

- Develop an understanding of clinical syndromes that, initially, have similarities with idiopathic Parkinson's disease.
- Understand the palliative care considerations in atypical Parkinsonism

### Key concepts:

- Parkinsonism in non-Parkinson's disease neurodegenerative diseases
- Correlate symptoms ('Parkinson plus') to brain degenerative processes and location
- Palliative care in atypical Parkinsonism

### Process:

Activity
1. Group work: prepare the discussion of cases 1-3
2. Case 1: Dementia with Lewy Bodies (DLB)
3. Case 2: Progressive Supranuclear Palsy (PSP)
4. Case 3: Multiple System Atrophy (MSA)
5. Palliative Care concepts
6. Summary and preparation for SGS 12

### Atypical Parkinson's Disease

This SGS is designed to deepen your understanding of degenerative brain disease and how degenerative processes can affect more than one motor control system, but also non-motor functions. We will study syndromes that clinically resemble Parkinson's disease but show a different (minimal) response to pharmacological therapies and have a more severe natural course. A common feature is Parkinsonism: hypo-/bradykinesia, and at least one of: muscular rigidity, postural instability (not explained otherwise), 4-6 Hz rest tremor. These diseases often require advanced end-of-life care which can be complicated by symptoms explained by the affected brain regions (i.e. psychiatric, dysphagia, rigidity etc).

**Note:** The aim of this SGS is **not** to memorize all the different symptom patterns that allow differential diagnosis of the presented syndromes, you will study them in detail in more advanced neurology courses. Here, we use them as practical examples to discuss **brain function** and to make **functional neuroanatomy** easier to understand and remember.



**Activity 1. Group work – prepare the discussion of cases 1-3****Activity 2. Case 1 - Dementia with Lewy Bodies (DLB)****Case history:**

John, a 50-year-old man, presents with a cognitive decline and unstable gait over the last 6 months. He experiences difficulties of speech and is unable to complete complex tasks, for example to prepare a meal for several persons. His memory is almost unaffected. Surprisingly, his cognition is much better on some days, but the good days have become increasingly rare. He takes small, shuffling steps and recently had a fall on flat ground. The patient's wife reports unusual behaviour at night – every few weeks, her husband gets up in the middle of the night, walks around the room, talks to imaginary people, and once even tried to take her by the hand and walk out of the house. He has also had daytime hallucinations. Due to the hallucinations the GP recommended a very low dose of an antipsychotic drug (risperidone 0,5 mg at night). After the first dose, the motor symptoms worsened considerably, the patient was unresponsive and had to be taken to the emergency department. A few weeks later, a neurologist treats the patient with L-DOPA but does not observe marked improvements.

**Clinical examination:** Dressing apraxia, reduced word fluency and naming difficulties, short-term memory (3 items) intact, hypokinesia, axial rigidity, rigidity in all four limbs, myotatic reflexes normal.

**Questions and tasks:**

**Discuss which parts of the brain might be affected in this patient.**

**Find a (quick) test to assess possible cognitive deficits**

**Are these symptoms compatible with Parkinson's Disease? Are there symptoms that do not match?**

Compare the symptoms with the characteristics of Lewy Body Dementia given here:  
<https://www.dementia.org.au/about-dementia/types-of-dementia/lewy-body-disease>

Find one symptom in this case history that could also be a sign of Alzheimer's disease (AD), and one sign that speaks against AD?

Consider the brain specimens shown on the SGS slides, two of them are taken from a DLB patient, the other two from an AD patient.

The next set of brain scans (MRI) show a DLB case and an AD case – can you identify them?

What is wrong in a brain suffering from Lewy Body Dementia?

Summarize common and distinguishing features of Parkinson's disease (PD), Dementia with Lewy Bodies (DLB) and Alzheimer's disease (AD).

	Substantia nigra degeneration	Hippocampus degeneration	Neocortex	Motor symptoms	Memory loss	Cognitive deficits
Parkinson's disease (early)						
Lewy Body Dementia						
Alzheimer disease						

Do a web search to find out the approximate life expectancy of DLB patients (e.g. <https://www.dementia.org.au/about-dementia/types-of-dementia/lewy-body-disease>)

### Activity 3. Case 2 - Progressive Supranuclear Palsy (PSP)

#### Case history:

Jane, a 62-year-old female presents with unstable gait, a history of frequent falls (especially backward) and a slow, slurred speech. Her family reports cognitive problems and reduced facial expressions except for constantly raised eyebrows which give the patient an expression of surprise. Over the last 8 months, the symptoms have become worse. Parkinson's disease was suspected and a treatment with L-DOPA was initiated, however, this did not improve the symptoms.

**Clinical examination:** Impaired executive planning, apraxia, reduced score on the Parkinson's Disease-Cognitive Rating Scale (PD-CRS), 'surprised look' (=contraction of the procerus muscle), voluntary vertical eye movements impossible, vertical oculo-cephalic reflex intact, hypokinesia, bradykinesia, rigidity in all four limbs, deep tendon reflexes of lower extremities (patella, ankle) enhanced, Babinski sign bilaterally positive (=plantar reflexes extensor).

**Questions and tasks:**

**Discuss which parts of the brain might be affected in this patient.  
Could this be Parkinson's Disease?**

**The following two brain scans (MRI) show two typical radiological signs of PSP, the so-called Mickey Mouse sign and the hummingbird sign. Degeneration of which brain region makes the MRI look more like Mickey mouse?**

**What makes this brain look more like a hummingbird?**

**How is this atrophy pattern related to the clinical symptoms?**

**Pathomechanism:**

**Do a web search to find out the approximate life expectancy of PSP patients and compare your results.**

**Compare your data with the average life expectancy of lung cancer.**

**Activity 4. Case 3 - Multiple System Atrophy (MSA)****Case history:**

Mark, a 65-year-old male, presents with unstable gait and several falls in the last few months. Several falls are documented as syncope due to low blood pressure by the local hospital's emergency department. The GP has already discontinued the antihypertensive medication the patient had been taking for almost 20 years, but his systolic blood pressure continues to be around 100 mmHg.

**Clinical examination:** No cognitive deficits, normal eye movements, bradykinesia and rigidity in lower limbs, bilateral foot clonus and Babinski sign. Abnormal posture, axial deviation to the right.

**Questions and tasks:**

**Discuss which parts of the brain might be affected in this patient.**

**Could this be Parkinson's Disease?**

**MSA Patients can show the Pisa syndrome, a disorder which clearly shows the dysfunction of postural control systems (shown on session slides). Which other problems might this generate?**

**In the next set of brain scans (MRI), brain regions with abnormal signal are indicated by arrows. Name these brain regions. How are they related to the symptoms?**

**Pathophysiology**

**Do a web search to find out the average life expectancy of MSA.**

**Summary: red flags in Parkinson's disease diagnosis**

a) Recollect the characteristics of early idiopathic Parkinson's disease.

b) Check the cases above and identify 'red flags' (symptoms and signs that indicate this is not a typical Parkinsonian syndromes).

**Activity 5. Palliative Care concepts**

As a group, watch the video:

- Norma Oppenlander (progressive supranuclear palsy) (5.47mins)  
[https://www.youtube.com/watch?v=6w-aL9\\_iQbl](https://www.youtube.com/watch?v=6w-aL9_iQbl)
- Hanna and her mother's reflection on her father's (David) disease (4.42 mins)  
<https://www.youtube.com/watch?v=CIWF2zlj6AU>

1. How did the videos make you feel?

2. Explain how palliative care is relevant to Norma and David. Refer to the Palliative Care Australia factsheet 'What is palliative care' (<https://palliativecare.org.au/resource/what-is-palliative-care>) and the pre-read <https://doi.org/10.1056/NEJMp1215620>

3. Which doctors might be involved in providing palliative care for Norma and David? Besides doctors, what other health professionals might help in caring for Norma and David and what does each member of the team contribute?

4. David develops pneumonia, an infection of the lung. What are the treatment options? How do we decide what to do?

#### Activity 6. Summary and preparation for SGS 12

Students are to prepare for SGS 12 by pre-reading the article and discuss: "When Illness Makes a Spouse a Stranger" NY Times. May 5, 2012.

<http://www.nytimes.com/2012/05/06/health/a-rare-form-of-dementia-tests-a-vow-of-for-better-forworse.html?pagewanted=all>

## SGS 12: Living with Dementia

### Aims:

To understand the consequences of a diagnosis of dementia for patients and their carers, the types of support that are necessary, and what services may be available to provide that support.

### Key concepts:

- Alzheimer's disease
- Vascular dementia
- Frontotemporal dementia
- Psychosocial impacts
- Carer support

### Process:

Activity
1. General discussion on the concept of dementia
2. How much do you know about dementia? Quiz
3. Watch video of excerpts from 'The Long Goodbye' and discuss
4. The impact of dementia on carers and how they can be supported

### Activity 1. General discussion on the concept of dementia

This session will consider different types of dementia and the impacts on both people living with dementia and their family carers. Today's discussion will also consider aspects of mental and physical function that are of greatest importance in maintaining an independent lifestyle and a high quality of life.

### Activity 2. How much do you know about dementia? Quiz

### Activity 3. Watch video of 'The Long Goodbye' and discuss

Students will watch a video, "The Long Goodbye", from the ABC and make notes of the impacts of dementia as well as supports available to the person with dementia and to the families and carers.

Students will fill in the worksheet below as they watch the video. Students will then discuss the answers they have compiled in their worksheet.

### Michael and Jane

1. The type of dementia. Early or later stage? What makes you think that?

2. Symptoms reported or observed (take note of intact skills as well as difficulties faced) and psychosocial impacts on the person with dementia



**3. Psychosocial and practical impacts on the carers and family members**

**4. Supports needed and/or used. Were there any supports they did not want to use – why?**

**5. Contact with any health professionals and assessments observed.**

**Myrle and Ken**

**1. The type of dementia. Early or later stage? What makes you think that?**

**2. Symptoms reported or observed (take note of intact skills as well as difficulties faced) and psychosocial impacts on the person with dementia**

**3. Psychosocial and practical impacts on the carers and family members**

**4. Supports needed and/or used. Were there any supports they did not want to use – why?**

**5. Contact with any health professionals and assessments observed.**

**Tom and Brenda**

<b>1. The type of dementia. Early or later stage? What makes you think that?</b>
<b>2. Symptoms reported or observed (take note of intact skills as well as difficulties faced) and psychosocial impacts on the person with dementia</b>
<b>3. Psychosocial and practical impacts on the carers and family members</b>
<b>4. Supports needed and/or used. Were there any supports they did not want to use – why?</b>
<b>5. Contact with any health professionals and assessments observed.</b>

**Activity 4. The impact of dementia on carers and how they can be supported**

Students should now put themselves into the position of carers and family members for people with dementia and discuss possible problems faced and ways in which they could be supported.

Students will discuss the case described in the pre-reading for this week's SGS.

*"When Illness Makes a Spouse a Stranger"* NY Times. May 5, 2012

<http://www.nytimes.com/2012/05/06/health/a-rare-form-of-dementia-tests-a-vow-of-for-better-for-worse.html?pagewanted=all>

**Students are to briefly consider their role as a practitioner**

How would they encourage carers to report these kinds of issues?

What support might they offer carers in order to minimise these problems and the associated psychological trauma?

What types of support and assistance do students believe would be most effective in alleviating and/or preventing these issues?

What was different about this patient with frontotemporal dementia?

Why do you think diagnosis is often delayed in frontotemporal dementia?

What was the impact on the carer in this case?

How could you help this carer as a health professional?

## SGS 13: Review, Wrap up, Practice

### Aims:

To review the key concepts learnt in this course

To identify areas that are knowledge gaps and devise a plan to address this

### Key concepts:

- Integrating discipline knowledge to understand diseases of the nervous system

### Process:

Activity
1. Providing feedback in myExperience survey
2. Wrap up of scenario
3. The Final Game: AEB concepts and practical concepts from HMA and AEB
4. Wrap up of the course. Any last questions?

#### Activity 1. Providing feedback in myExperience survey

Students are requested to provide feedback on the course and facilitators and lecturers for AEB.

All students are to complete the myExperience surveys via the link in Moodle or

<https://myexperience.unsw.edu.au/>

**Thank you for your time to provide feedback, as it will be used to help plan the course for the next iteration.**

#### Activity 2. Wrap up of scenario

#### Activity 3. AEB concepts and practical concepts from HMA & AEB

The quiz aims to provide students with feedback on their understanding of the AEB scenarios and practical concepts from the course. The quiz is also designed to aid students in their preparation for the progressive practical examinations in November.

**IMPORTANT NOTE:** Content in the practical quiz includes questions based on the practical classes for both HM-A and AE-B (much like the second year P3 practical examination in November). First year students should note that their practical examination will also cover practical classes from the last half of first session, i.e., Beginnings, Growth and Development A.

#### Activity 4. Wrap up of the course. Any last questions?

#### Enter Peer Feedback into eMed

Students are reminded to enter comments in eMed feedback on their teamwork for the project.

**We hope that you have enjoyed the different activities in Ageing & Endings B 2024! Best wishes for the exam.**



## 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 One.

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.

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

You can only attend classes to which you are allocated. You may not attend practicals or other classes at different times to your timetable. Tutors may ask you to leave if you are not in your allocated class.

You are expected to be punctual in attendance at all classes.

### 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: <http://www.student.unsw.edu.au/plagiarism>

## Two Step Process for submitting your assignment and group project

### Checking your Assignment/Group Projects in Turnitin

You can receive a Turnitin report for your assignment/group project prior to submission. Under the Assessment Activities and Information tab, you will find the Turnitin Check link:

#### Assignment Check

Note: This is **not** where you submit your assignment

[Course Title Assignment Check](#)

You are able to submit your assignment here for unintentional plagiarism. Please note that each work can only be checked once.

or

#### Group Project Check

Note: This is **not** where you submit your Group Project

[Course Title Group Project Check](#)

You are able to submit your group project here in order to check for unintentional plagiarism. Please note that each work can only be checked once.

Clicking on the Assignment/Group Project Check link will allow you to check your assignment/group project. Please note, this is not where you submit your assignment/group project, and the report produced is only for your information. You can only receive a Turnitin report once. If you wish, based on this report you can change your assignment/group project prior to your final submission. Please ensure you leave enough time to make any changes required.

### Submission of Assignment/Group Projects

It is essential that the identical file (Word or PDF) is submitted in both steps.

The submission process for Assignment/Group Projects is a two -step process. These steps will be the same in every Phase 1 Course.

#### Step 1: eMed

Submit to eMed before 9am on your due date.

Submit your file under the Portfolio tab in eMed:



#### Step 2: Turnitin

Submit the same file to Turnitin before 10am on your due date.

Navigate to the Moodle page and click on the submission link:

#### Assignment Submission

After submitting your assignment in eMed, submit your assignment here before 10am on your due date.

[Course Title Assignment Submission](#)

After submitting your final Assignment in eMed before 9am on your due date, you must **submit the identical document to Turnitin** here before 10am on your same due date.

Or

#### Group Project Submission

After submitting your Group Project in eMed, submit your Group Project here before 10am on your due date.

[Course Title Group Project Submission](#)

After submitting your final Group Project in eMed before 9am on your due date, you must **submit the identical document to Turnitin** here before 10am on your same due date.

Submit your file:

Turnitin Paper ID	Submitted	Grade
--	--	-- <a href="#">Submit Paper</a>

## 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.

Please remember to include your **AI declaration** on the cover page of your assignment. Instructions for this declaration can be found in the student guide. This is a requirement for submission. If you do not provide this declaration your assignment will be marked until it is provided, which will result in you having a late penalty.

## Assignments and Projects offered in AE B 2024

### Assignments

Title	Capabilities
Exempt Assignment	Only 2 <sup>nd</sup> year students can register
A1: Informing about Delirium	<ul style="list-style-type: none"> <li>Patient Assessment and Management</li> <li>Effective Communication</li> </ul>
A2: Varying Patterns of Circle of Willis and its role in Cerebral Aneurysms	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Patient Management and Assessment</li> </ul>
A3: Neuroprotective Drugs for Traumatic Brain Injury (TBI)	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Patient assessment and management</li> </ul>
A4: Informed Consent in Patients Who Have Dementia	<ul style="list-style-type: none"> <li>Ethics and Legal Responsibilities</li> <li>Development as a Reflective Practitioner</li> </ul>
A5: Can Video Gaming Slow the Progression of Alzheimer Disease?	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Self-Directed Learning and Critical Evaluation</li> </ul>
A6: Educating the Public: Brain Tumours and Other Intracranial Space-Occupying Lesions	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Effective Communication</li> </ul>
A7: The Role of Inflammation in Ischaemic Stroke: Pathways, Biomarkers, and Targeted Interventions	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Social and Cultural Aspects of Health and Disease</li> </ul>

### Projects

Title	Capabilities
P1: Integrating learning through developing a learning resource	<ul style="list-style-type: none"> <li>Self-Directed Learning and Critical Evaluation</li> <li>Teamwork</li> </ul>
P2: Perspectives on voluntary assisted dying (VAD) among individuals impacted by dementia, and the doctors who care for them	<ul style="list-style-type: none"> <li>Ethics and Legal Responsibilities</li> <li>Social and Cultural Aspects of Health and Disease</li> </ul>
P3: Transformations in Neuroimaging with Artificial Intelligence (AI)	<ul style="list-style-type: none"> <li>Patient Assessment and Management</li> <li>Effective Communication</li> </ul>
P4: Central nervous system sequelae of COVID-19	<ul style="list-style-type: none"> <li>Using Basic and Clinical Sciences</li> <li>Self-Directed Learning and Critical Evaluation</li> </ul>
P5: Interview with Health Professionals Working in Aged Care ( <i>Quota</i> for each campus)	<ul style="list-style-type: none"> <li>Teamwork</li> <li>Development as Reflective Practitioner</li> </ul>

### Submission to eMed

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 convenor **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 and projects are due on Monday at 9 am, 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. In most cases a medical certificate or a similar level of documentation will be required.

### 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). – In Moodle under the Assessment Activities and Information:

[https://moodle.telt.unsw.edu.au/pluginfile.php/3636289/mod\\_resource/content/2/apa.html](https://moodle.telt.unsw.edu.au/pluginfile.php/3636289/mod_resource/content/2/apa.html)

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

<http://medprogram.med.unsw.edu.au/assignments-and-projects-phase-1#tab-303400342>



### Capabilities

The criteria for assessment of the focus capabilities are described in each assignment and project.

The criteria for assessment of the generic capabilities are provided below (and are also available in the Program Guide and on the Medicine Program website: <https://medprogram.med.unsw.edu.au/grading>.)

Capability	Criteria
<b>Effective communication:</b> (applicable to both assignments and projects)	<ul style="list-style-type: none"> <li>• Clarity (clear, simple, grammatical language, terms explained)</li> <li>• Logical structure.</li> <li>• Appropriate language, length, style and format for the intended audience</li> <li>• Appropriate use of media (visuals, graphs, video, etc)</li> </ul>
<b>Self-directed learning and critical evaluation:</b> (applicable to both assignments and projects)	<ul style="list-style-type: none"> <li>• Sources (range, citation standards, quality, relevance, search strategy, people consulted)</li> <li>• Scope (addresses all requirements of the assignment or project)</li> <li>• Critical thinking (evidence of awareness of bias in sources, others' viewpoints, own views, logical argument)</li> </ul> <p><i>Negotiated assignments will be marked on the following additional criteria:</i></p> <ul style="list-style-type: none"> <li>• Quality of the learning plan, including the assessment criteria.</li> <li>• Time management, including reporting, drafts, deadlines</li> <li>• Search strategy</li> </ul>
<b>Development as a reflective practitioner:</b> (applicable to assignments)	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Identifies strengths and weaknesses of the research process used and articulates credible plans to improve research skills</li> <li>• Reflects on the assignment topic, the research process and draws implications for wider learning and future practice.</li> </ul>
<b>Teamwork:</b> (applicable to projects)	<ul style="list-style-type: none"> <li>• Provides evidence of team meetings by appending to the project report documents such as: agendas, minutes, summaries of discussions, or lists of decisions made.</li> <li>• 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).</li> <li>• 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.</li> </ul>

Please note that project groups will present their report in SGS 11, and that all members of the group will be expected to answer questions from the group and the facilitator on the presentation.

## Registration of Interest

### Assignments and Projects

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

### Due dates for registering your choice of assignments and projects

Registration for <b>Expression of Interest for Negotiated assignments</b>	9am Wednesday 11 September 2024
Registration for <b>Project with a quota</b>	4pm Friday 13 September 2024
Submission of proposals for <b>negotiated assignments</b>	9am Monday 16 September 2024
Registration for <b>all other assignments and group projects</b>	4pm Friday 20 September 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.

### Due dates for submission of project reports and assignments

Submission of <b>Assignments</b> other than Negotiated Assignments	9am Tuesday 8 October 2024
Submission of Negotiated Assignments	9am Monday 14 October 2024
Submission of <b>Project</b> reports and any supporting material	9am Monday 21 October 2024

You may submit earlier if this suits your study schedule.

## SOCA Assessments

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

## Negotiated assignments

There is a quota of 100 submissions for the negotiated assignments. **You must register an Expression of interest (EOI) by 9am Wednesday 11 September 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 16 September 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 Ageing & Endings B Moodle site under the ‘Assessment Activities & Information’ section.

## Exempted Assignment

Registration must occur by **4 pm, Friday 20 September 2024 (Friday week 2)**.

**Students in their second year** of the program may apply for an assignment exemption in AE only. **Students in first year are not eligible** for assignment exemptions.

**Please note that to qualify to sit the portfolio examination at the end of second year students must have passed at least 11 formal projects and assignments, of which at least 5 must be assignments. The evidence must include a negotiated assignment.**

The portfolio examination result may be down-graded if there are identified weaknesses in the work in one or more capabilities and the student has declined the opportunity to focus on relevant capabilities by taking an exemption. **When considering if you will apply for an exempt assignment, you should keep this in mind.**

To apply for an assignment exemption:

- Log on to eMed
- Go to eMed: Registrations and click on 'Register Preference' in the left-hand panel
- Select Phase 1, the Course and the Cycle: if you are eligible for an assignment exemption, text to this effect will appear in RED
- Select the 'Exempted Assignment' submission type
- Click on the 'Submit' button.

You will receive an emailed acknowledgement of your application. A token entry will be placed in your portfolio indicating that you were granted an assignment exemption for that course.

## Assignment 1: Informing about Delirium

### *Graduate capabilities assessed in this assignment:*

- Patient Assessment and Management
- Effective Communication

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).

### **Background**

Delirium is a frequent and often serious condition in hospitalised patients and has an even higher prevalence in the older population. Delirium is considered an underdiagnosed condition, due to a wide range of risk factors, diverse clinical presentations, and an insufficient level of training across different groups of healthcare professionals who care for the relevant patient populations. The heterogeneity of delirium cases is also reflected in a variety of clinical tests and assessment tools for early diagnosis. To diagnose delirium cases effectively and efficiently, doctors rely on information from the patient's family, carers, and other healthcare workers in their multidisciplinary team. Doctors who work in a hospital will frequently be confronted with cases of delirium and will have to make complex therapeutic decisions to manage this acute but often long-lasting condition.

### **Aims**

In this assignment, you will:

- a) Review the biomedical foundations of delirium, with a focus on patient assessment and management.
- b) Create a two-page information sheet (pamphlet) that conveys information about delirium to junior resident doctors.

### **Course themes and related activities**

This assignment relates to the course learning activities on dementia and the course themes: The ageing process and Degenerative disease.

### **Task description**

The tasks for this assignment can be structured into two blocks:

#### **Task 1 (Report): Research delirium**

This will be the main report with a maximum of 1500 words.

1. Give a brief definition of delirium and describe the clinical signs. The description should incorporate the clinical diversity of delirium. Provide a brief overview of the prognosis and possible clinical outcomes.
2. Describe common risk factors related to delirium in hospitalised patients. Distinguish between predisposing (premorbid) factors and precipitating (or post-admission/triggering) factors. Your report should list at least three of each class (i.e. three predisposing factors and three triggers).
3. Describe two bedside diagnostic tools that have been evaluated for clinical diagnosis. Assess their ease of use for junior doctors, including the time and training needed to perform these tests.
4. Explain two common strategies of delirium management and their rationale. This should include one pharmacological and one non-pharmacological approach. The pharmacological approach could describe either the use or the discontinuation of a therapeutic drug class.

#### **Task 2 (Pamphlet): Inform about delirium**

In this part of your assignment, you will create a two-page information sheet to be used in a hospital. The intended audience should be junior resident doctors (i.e. with a solid background in medical terminology and a basic knowledge of pharmacological drug classes). The information sheet must be two pages and contain both text and visual information. The product should help the reader to recognise delirium and to identify the first steps required for management.

**Time allocation guide**

- Weeks 1 + 2: Research delirium including its definition, clinical signs, risk factors, and prognosis.
- Week 3: Research bedside diagnostic tools and clinical strategies to manage delirium. Decide on the content and general layout of your pamphlet.
- Week 4: Draft your report and pamphlet.
- Week 5: Finalise the report and submit to eMed and Turnitin in Moodle with no track changes by the due date. Submit your finalised pamphlet as an appendix.

**Report requirements**

The report should be a maximum of **1500 words**, including a reflective component. **Submit the pamphlet as an appendix to the main report.**

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: Patient Assessment and Management**

- Describes the clinical presentation of delirium (definition, signs, predisposing and precipitating risk factors, prognosis). Reviews two bedside diagnostic tools. **(1.3.2 Relates symptoms and signs to relevant underlying basic and clinical sciences.)**
- Describes one pharmacological and one non-pharmacological strategy for delirium management. **(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.)**

**Focus Capability 2: Effective Communication**

- Communicates information about bedside diagnosis and management strategies for delirium to a peer audience (junior doctors). **(1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups.)**
- Creates an informative pamphlet that contains written and visual information that is logically structured and appropriate for the target audience (junior doctors). **(1.4.6 Writes clearly and logically, using appropriate language, media and style for the intended audience.)**

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 for assignments available in the Program guide, in this course guide and on the Medicine Program website.

**References**

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

- Copeland, C., & Barron, D. T. (2020). "Delirium: An essential component in undergraduate training?". *Nurse Education Today*, 85, 104211. <https://doi.org/10.1016/j.nedt.2019.104211>
- Inouye, S. K., Westendorp, R. G., & Saczynski, J. S. (2014). Delirium in elderly people. *Lancet*, 383(9920), 911–922. [https://doi.org/10.1016/S0140-6736\(13\)60688-1](https://doi.org/10.1016/S0140-6736(13)60688-1)
- Mattison M. L. P. (2020). Delirium. *Annals of Internal Medicine*, 173(7), ITC49–ITC64. <https://doi.org/10.7326/AITC202010060>
- NSW Government and Agency for Clinical Innovation. CHOPs Key Principles. Retrieved 2 August 2024 from <https://aci.health.nsw.gov.au/chops/chops-key-principles>
- Wilson, J. E., Mart, M. F., Cunningham, C., Shehabi, Y., Girard, T. D., MacLulich, A. M. J., Slooter, A. J. C., & Ely, E. W. (2020). Delirium. *Nature Reviews. Disease Primers*, 6(1), 90. <https://doi.org/10.1038/s41572-020-00223-4>

**Contact**

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.

## Assignment 2: Varying Patterns of Circle of Willis and its Role in Cerebral Aneurysms

### *Graduate Capabilities assessed in this assignment:*

- Using Basic and Clinical Sciences
- Patient Assessment and Management

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).

### *Background*

The Circle of Willis is an important vascular network that is located at the base of the brain. This network exhibits many anatomical variations, including asymmetries and an incomplete Circle of Willis (e.g., absence of communicating arteries). Changes in the normal morphology of the Circle of Willis may have clinical implications, the most commonly associated disease being cerebral (or intracranial) aneurysms. Early identification of the anatomical variants of the Circle of Willis, through non-invasive imaging techniques such as computed tomography angiography (CTA) and magnetic resonance angiography (MRA), provides an opportunity to intervene and may help to reduce the risk of aneurysm formation, enlargement, and rupture in the older adult population.

### *Aim*

In this assignment, you will evaluate the variations of the Circle of Willis, their prevalence, and their association with cerebral aneurysms in older adult patients.

### *Course themes and related learning activities*

This assignment relates to the course theme: The ageing process.

### *Task description*

#### **Task 1**

Describe the normal structure and function of the Circle of Willis. Compare and contrast this normal structure and function with THREE variations.

#### **Task 2**

Evaluate the prevalence of the THREE variations (from Task 1) and evidence of their association with cerebral aneurysms in the older adult population.

#### **Task 3**

Evaluate the implications of aneurysm formation, enlargement, and rupture, and how this is managed and/or treated in older adult patients. You can discuss the relevant symptoms, signs, and complications of rupture as part of the implications. Management and/or treatment of cerebral aneurysms should include at least TWO interventions (i.e., pharmacological or surgical) for both unruptured and ruptured aneurysms.

### *Time allocation guide*

Week 1: Research the literature on the normal structure and function of the Circle of Willis.  
Week 2: Summarise and compare three variations of the Circle of Willis with the normal structure.  
Research the literature on the impact of these variations on the risk of cerebral aneurysms.  
Weeks 3 + 4: Research and summarise patient assessment and management. Finalise report.  
Week 5: Proofread and submit the final report into eMed and Turnitin in Moodle with no track changes by the due date.

### *Report requirements*

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 7<sup>th</sup> 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**

- Describes the normal vs abnormal structure and function of the Circle of Willis. **(1.1.2 Recognises health problems and relates normal structure and function to abnormalities.)**
- Compares and contrasts three variations of the Circle of Willis, and their impact on the risk of cerebral aneurysms. **(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.)**

### Focus Capability 2: Patient Assessment and Management

- Identifies the symptoms, signs, and complications involved in the formation, enlargement, and rupture of cerebral aneurysms. **(1.3.2. Relates symptoms and signs to relevant underlying basic and clinical sciences.)**
- Evaluates the management and/or treatment of unruptured and ruptured cerebral aneurysms in older adult patients. **(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.)**

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, in this Course Guide and on the Medicine program website.

### References

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

- Caffes, N., Wenger, N., Cannarsa, G., Oliver, J., Onwukwe, C., Gandhi, D., & Simard, J. M. (2021). Unruptured cerebral aneurysms in elderly patients: key challenges and management. *Annals of Medicine*, 53(1), 1839–1849. <https://doi.org/10.1080/07853890.2021.1990393>
- Feng, L., Mao, H. J., Zhang, D. D., Zhu, Y. C., & Han, F. (2023). Anatomical variations in the Circle of Willis and the formation and rupture of intracranial aneurysms: A systematic review and meta-analysis. *Frontiers in Neurology*, 13, 1098950. <https://doi.org/10.3389/fneur.2022.1098950>
- Hindenes, L. B., Håberg, A. K., Johnsen, L. H., Mathiesen, E. B., Robben, D., & Vangberg, T. R. (2020). Variations in the Circle of Willis in a large population sample using 3D TOF angiography: The Tromsø Study. *PloS one*, 15(11), e0241373. <https://doi.org/10.1371/journal.pone.0241373>
- Hindenes, L. B., Ingebrigtsen, T., Isaksen, J. G., Håberg, A. K., Johnsen, L. H., Herder, M., Mathiesen, E. B., & Vangberg, T. R. (2023). Anatomical variations in the circle of Willis are associated with increased odds of intracranial aneurysms: The Tromsø study. *Journal of the Neurological Sciences*, 452, 120740–120740. <https://doi.org/10.1016/j.jns.2023.120740>
- Jones, J. D., Castanho, P., Bazira, P., & Sanders, K. (2021). Anatomical variations of the circle of Willis and their prevalence, with a focus on the posterior communicating artery: A literature review and meta-analysis. *Clinical Anatomy*, 34(7), 978–990. <https://doi.org/10.1002/ca.23662>
- Stojanović, N. N., Kostić, A., Mitić, R., Berilažić, L., & Radisavljević, M. (2019). Association between Circle of Willis Configuration and Rupture of Cerebral Aneurysms. *Medicina (Kaunas, Lithuania)*, 55(7), 338. <https://doi.org/10.3390/medicina55070338>
- Zimelewicz Oberman, D., Perez Akly, M. S., Rabelo, N. N., Elizondo, C., Amorim Correa, J. L., Ajler, P., & Baccanelli, M. M. (2021). Morphologic Variations in the Circle of Willis as a Risk Factor for Aneurysm Rupture in the Anterior and Posterior Communicating Arteries. *World Neurosurgery*, 154, e155–e162. <https://doi.org/10.1016/j.wneu.2021.06.151>

### Contact

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.



## Assignment 3: Neuroprotective drugs for traumatic brain injury (TBI)

### *Graduate Capabilities assessed in this assignment:*

- Patient Assessment and Management
- Using Basic and Clinical Sciences

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).

### *Background*

Traumatic brain injury (TBI) increases the risk of developing neurodegenerative diseases, with 27 million new TBI cases reported worldwide annually. The most common and persistent clinical manifestation linked to TBI is memory-related cognitive impairment. Neuroprotection plays a vital role in minimising brain damage and promoting regeneration by modulating biological pathways to reduce neuronal injury and aid recovery. Recent pharmacological advancements show promise in targeting neuroinflammation, oxidative stress, and apoptotic mechanisms, with neuroprotective drugs offering potential to improve recovery and functional outcomes in patients with TBI.

### *Aim*

In this assignment you will evaluate the molecular mechanisms underlying brain damage in TBI, focusing on neuroinflammation, oxidative stress, and apoptosis. You will also describe the methods for assessing and monitoring moderate to severe TBI. Finally, you will critically appraise the neuroprotective effects of emerging pharmacological treatments for TBI and assess their translation from preclinical research to clinical practice.

### *Course themes and related learning activities*

This assignment relates to the course theme: Degenerative disease

### *Task description*

#### **Task 1**

Provide an overview of the molecular mechanisms underlying tissue damage in TBI, following the primary insult. Include neuroinflammation, oxidative stress, and apoptotic mechanisms. (approx. 400 words)

#### **Task 2**

Describe how patients with moderate to severe TBI are assessed and monitored. Include key methods of initial assessment, imaging and monitoring for TBI. (approx. 500 words)

#### **Task 3**

Discuss the neuroprotective mechanism(s) of **THREE** emerging pharmacological treatments for TBI. Choose ONE anti-inflammatory, ONE antioxidant and ONE neuronal survival strategy for discussion. Include the ideal timing of these therapies for effective clinical management of TBI. Assess the evidence for improved functional outcomes, and whether translation of the neuroprotective treatment from preclinical research to clinical injury has been achieved. (approx. 800 words)

### *Time allocation guide*

Week 1:	Research the literature on TBI classification, molecular mechanisms underlying brain injury, and how it is assessed and monitored.
Weeks 2 + 3:	Summarise and compare the neuroprotective mechanism(s) of THREE emerging pharmacological treatments for TBI.
Weeks 3 + 4:	Write the report.
Week 5:	Proof-read and finalise your assignment and submit 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 7<sup>th</sup> 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: Patient Assessment and Management

- Describes how patients with moderate to severe TBI are initially assessed. **(1.3.5 Relates examination skills (both how and why they are performed) to relevant underlying basic and clinical sciences).**
- Describes the imaging and monitoring of patients with TBI. **(1.3.8 Applies clinical reasoning to relevant health scenarios, including the identification of key features and clinical patterns.)**

#### Focus Capability 2: Using Basic and Clinical Sciences

- Provides an overview of the molecular mechanisms underlying brain injury in TBI. **(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.)**
- Discusses the neuroprotective mechanism of THREE different pharmacological treatments for TBI. **(1.1.1 Explains mechanisms that maintain a state of health.)**

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, in this Course Guide and on the Medicine program website.

### References

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

- Blennow, K., Hardy, J., & Zetterberg, H. (2012). The neuropathology and neurobiology of traumatic brain injury. *Neuron*, 76(5), 886-899. <https://doi.org/10.1016/j.neuron.2012.11.021>
- Buccilli, B., Alan, A., Baha, A., Shahzad, A., Almealawy, Y. F., Chisvo, N. S., Ennabe, M., & Weinand, M. (2024). Neuroprotection strategies in traumatic brain injury: Studying the effectiveness of different clinical approaches. *Surg Neurol Int*, 15, 29. [https://doi.org/10.25259/sni\\_773\\_2023](https://doi.org/10.25259/sni_773_2023)
- James, S. L., Theadom, A., Ellenbogen, R. G., Bannick, M. S., Montjoy-Venning, W., Lucchesi, L. R., & Abbasi, N. (2019). Global, regional, and national burden of traumatic brain injury and spinal cord injury, 1990-2016: A systematic analysis for the Global Burden of Disease study 2016. *The Lancet Neurology*, 18(1), 56–87. [https://doi.org/10.1016/S1474-4422\(18\)30415-0](https://doi.org/10.1016/S1474-4422(18)30415-0)
- Ladak, A. A., Enam, S. A., & Ibrahim, M. T. (2019). A Review of the Molecular Mechanisms of Traumatic Brain Injury. *World Neurosurg*, 131, 126-132. <https://doi.org/10.1016/j.wneu.2019.07.039>
- Lynch, D. G., Narayan, R. K., & Li, C. (2023). Multi-Mechanistic Approaches to the Treatment of Traumatic Brain Injury: A Review. *J Clin Med*, 12(6). <https://doi.org/10.3390/jcm12062179>
- Mansour, N., Elnaem, M., Abdelaziz, D., Barakat, M., Dehele, I., Elrggal, M., & Abdallah, M. (2023). Effects of early adjunctive pharmacotherapy on serum levels of brain injury biomarkers in patients with traumatic brain injury: a systematic review of randomized controlled studies. *Frontiers in Pharmacology*, 14: 118527. <https://doi.org/10.3389/fphar.2023.1185277>
- Pearn, M. L., Niesman, I. R., Egawa, J., Sawada, A., Almenar-Queralt, A., Shah, S. B., Duckworth, J. L., & Head, B. P. (2017). Pathophysiology Associated with Traumatic Brain Injury: Current Treatments and Potential Novel Therapeutics. *Cell Mol Neurobiol*, 37(4), 571-585. <https://doi.org/10.1007/s10571-016-0400-1>

- Silvestro, S., Raffaele, I., Quartarone, A., & Mazzon, E. (2024). Innovative Insights into Traumatic Brain Injuries: Biomarkers and New Pharmacological Targets. *International Journal of Molecular Sciences*, 25(4), 2372. <https://www.mdpi.com/1422-0067/25/4/2372>
- Yan, A., Torpey, A., Morrisroe, E., Andraous, W., Costa, A., & Bergese, S. (2024). Clinical Management in Traumatic Brain Injury. *Biomedicines*, 12(4), 781. <https://www.mdpi.com/2227-9059/12/4/781>

**Contact**

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.

## Assignment 4: Informed Consent in Patients Who Have Dementia

### *Graduate capabilities assessed in this assignment*

- Ethics and Legal Responsibilities
- 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).

### *Background*

Informed consent is a critical ethical and legal obligation of practitioners to ensure that patients fully understand medical treatment, including any risks, and have the ability to consent or decline voluntarily. When obtaining informed consent from patients with dementia, establishing that the individual has understood the therapy being offered can present a significant challenge. It cannot be assumed that patients with dementia are incapable of giving consent as patients with mild to moderate dementia have significant capacity for autonomous decision making with regards to therapy. It is important that a clinician is aware of, and is able to apply, the legal and ethical considerations surrounding informed consent in patients with dementia.

### *Aims*

1. To develop an understanding of the ethics and law of informed consent in patients with impaired decision-making capacity and apply that to a particular case scenario.
2. To consider multiple perspectives in a complex legal and ethical issue and be able to synthesise and justify your own opinion.
3. To reflect on your own beliefs and values relevant to this issue and consider whether they are supported by ethical theories and principles and current laws in NSW.

### *Course themes and related learning activities*

This assignment relates to the course theme: Degenerative disease.

### *Task Description*

1. Review relevant current laws related to establishing informed consent in patients with dementia. In this section, outline the steps you would take to ensure a patient with dementia has the capacity for informed consent.
2. Review ethical perspectives from at least two ethical theories (such as principle-based ethics and human rights, or principle-based and feminist care ethical frameworks) underpinning the importance of establishing informed consent in dementia.
3. Outline the principles and key points of a conversation you would have with the family in the scenario provided below to manage this situation.  
**SCENARIO:** An elderly woman with dementia has been diagnosed with cataracts. It is recommended that she undergo surgery to improve her vision, resulting in enhanced quality of life and safety in the home. Despite assurances that the elective surgery is relatively low risk, she has refused the procedure. Her family asks you to help convince her to have the surgery.
4. Reflect on how what you have learned in this assignment has challenged your prior conceptions or aligns with your own existing beliefs on informed consent in dementia and/or other health conditions in which decision-making is impaired. How will this impact your future practice as a doctor?

### *Time allocation guide*

Weeks 1 + 2:	Research laws and ethical principles regarding informed consent from patients with dementia.
Week 3:	Consider how you would apply the laws and ethical perspectives you have researched to the scenario provided (in the task description) and reflect on your own beliefs and prior conceptions on informed consent from patients with dementia and/or other health conditions in which decision making may be impaired.
Week 4:	Draft your report
Week 5:	Proofread the final report. Submit the final report into eMed and Turnitin in Moodle with no track changes by the due date.

### Report requirements

The report should be a maximum of **2000 words**, including the generic 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 7<sup>th</sup> 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: Ethics and Legal Responsibilities

- Reviews laws and ethical principles that relate to attaining informed consent from patients with dementia (**1.7.7 Understands the legal responsibilities of health professionals in relation to duty of care; 1.7.5 Understands the need for patient autonomy, informed consent, confidentiality and privacy.**)
- Considers a medicolegal issue from multiple perspectives and in the context of the case scenario provided (in the task description). (**1.7.6 Understands and can discuss a number of different ethical perspectives and apply at least three of these to clinical situations.**)

#### Focus Capability 2: Reflective Practitioner

- Identifies ways to ensure future practice will adhere to laws and respect patient autonomy regarding informed consent in patients with dementia (**1.8.5 Analyses experiences and feedback in terms of strengths and weaknesses, identifies barriers to improvement in all capability areas and addresses these barriers, or articulates realistic and coherent plans to do so.**)
- Offers a meaningful personal reflection on how their own beliefs have been challenged or augmented by having knowledge of these laws. (**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; 1.8.6 Identifies limits of own understanding and skill, and identifies issues for further learning.**)

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

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

- Australian Commission on Safety and Quality in Health Care. (2020). *Informed Consent In Healthcare*. [Fact sheet]. <https://www.safetyandquality.gov.au/our-work/partnering-consumers/informed-consent>
- Department of Health. (2023, September 6). *Informed Consent and Presumption of Capacity*. <https://www.health.vic.gov.au/mental-health-and-wellbeing-act-handbook/supported-decision-making/informed-consent-and-presumption>
- Dyer, S. M., Laver, K., Pond, C. D., Cumming, R. G., Whitehead, C., & Crotty, M. (2016). Clinical practice guidelines and principles of care for people with dementia in Australia. *Australian Family Physician*, 45(12), 884-889. <https://www.ncbi.nlm.nih.gov/pubmed/27903038>
- McSherry, B., & Waddington, L. (2017). Treat with care: the right to informed consent for medical treatment of persons with mental impairments in Australia. *Australian Journal of Human Rights*, 23(1), 109-129.
- NHMRC Partnership Centre for Dealing with Cognitive and Related Functional Decline in Older People. (2016). *Clinical practice guidelines and principles of care for people with dementia*. Sydney, Australia: Guideline Adaptation Committee. [https://cdpc.sydney.edu.au/wp-content/uploads/2019/06/CDPC-Dementia-Guidelines\\_WEB.pdf](https://cdpc.sydney.edu.au/wp-content/uploads/2019/06/CDPC-Dementia-Guidelines_WEB.pdf)
- NSW Department of Communities and Justice. (n.d.). *Guardianship Division*. NSW Civil and Administrative Tribunal. <https://ncat.nsw.gov.au/how-ncat-works/ncat-divisions-and-appeal-panel/guardianship-division.html>

- Parmar, D. (2021). Ethical Aspects of Informed Consent in Dementia, Ethical Viewpoint Paper, *Global Ethics Enquiry*, 9(1), 42-45. <https://globalbioethicsenquiry.com/wp-content/uploads/2021/06/VP1-DHRUV.pdf>
- Peisah, C., Macnab, J., & O'Neill, N. (2013). *Decision-making capacity & dementia: A guide for Health Care Professionals in NSW. Mini-legal kit series 1.7* [Fact sheet]. <http://capacityaustralia.org.au/wp-content/uploads/2013/10/NSW-Legal-kit-8pp-sept-2013-version-.pdf>
- Physiopedia.(2024). *Informed Consent In People Who Have Dementia*. [https://www.physio-pedia.com/Informed\\_Consent\\_With\\_People\\_Who\\_Have\\_Dementia](https://www.physio-pedia.com/Informed_Consent_With_People_Who_Have_Dementia)

**Contact**

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.

## Assignment 5: Can video gaming slow the progression of Alzheimer disease?

### *Graduate capabilities assessed in this assignment:*

- Using Basic and Clinical Sciences
- 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, and Development as a Reflective Practitioner).

### **Background**

Video gaming has changed from a niche form of recreational activity to a popular pastime, accessible to everyone and engaged by users across all ages (Yee, 2006). However, sociocultural views on video gaming are mixed. As with any tool, it is not the activity itself that is good or bad but how the tool is used (Oliveira et al., 2020; Rudolf et al., 2020). Indeed, there is preliminary evidence for clinical use of video games when treating chronic neurological disorders (Kletzel et al, 2021).

### **Aim**

This QMP assignment requires you to use critical appraisal skills to interrogate the recent and relevant literature regarding the following:

- (1) Is there evidence that video gaming should be recommended to prevent progression of Alzheimer disease?
- (2) If so, for whom would it be beneficial?
- (3) How should it be prescribed?

Students are expected to critique the **quality of evidence** available, as not every published source is clinically reliable. Much of the literature will involve interrogating case-control and cohort studies, although there are stronger sources of evidence in randomised controlled trials and meta-analyses which students should endeavour to use. Your submitted report should present the information in an unbiased manner.

### **Task description**

#### **Task 1:**

Review the relevant literature to complete the following sections:

- Describe the pathophysiology of Alzheimer disease.
- Define video gaming and propose how it may slow progression of Alzheimer disease.
- Critically assess potentially conflicting sources of literature.

#### **Task 2:**

Using the Evidence-Based Medicine (EBM) approach, find evidence on which to base a recommendation for or against video gaming to reduce the burden of Alzheimer disease burden of on both an individual level and a population level.

Base your argument on **ONE robust article** (preferably a meta-analysis or systematic review, but a strong primary article can also be used), on which you should conduct a **FULL CRITICAL APPRAISAL** (other supporting and cited articles in the essay need not be subjected to a full appraisal).

#### **EBM STEP 1 - ASK:**

- Form a specific PICO style research question(s) to help you research this topic.
- Put this at the top of your search table.

#### **EBM STEP 2 - ACQUIRE:**

- Use key words from this PICO question to carry out a structured literature search to find the best evidence available to answer this question. Record your full research question, full search strategy and key results.

- Write this up as a summary table. The summary search table should show enough information for the search to be repeatable.
- Start the literature search in the PubMed database, or an equivalent literature search tool. Then use these terms in other relevant databases. Use Boolean operators as necessary.
- Append this literature search summary as Appendix 1 to your assignment report.

**EBM STEP 2-3 – ACQUIRE-APPRAISE:**

- Choose the best evidence available according to an established rubric for evaluation of reliability and relevance of each source (for example, using a CRAAP analysis).
- The final columns of the search strategy table should show the number of hits for each complete search set, the useful articles found, and why they were chosen.

**EBM STEP 3 - APPRAISE:**

- Read and interpret all the useful evidence from your focused search.
- Adapt and use the UNSW Critical Appraisal Multi-use worksheet (or other EBM appraisal tool) to appraise the key article that you have chosen to help answer the research question (i.e. you need to change it to make it relevant for a systematic review/meta-analysis/cohort study, as appropriate).
- Append the full critical appraisal worksheet as Appendix 2 to your assignment.

**EBM STEP 4 – APPLY:**

Using all your appraised articles, critically discuss the evidence with respect to the research question. Conclude by making considered recommendations for if, when, and how this treatment should be prescribed for Alzheimer disease.

**EBM STEP 5 - ASSESS:**

Reflect on the EBM process that you have undertaken and on your learning about the pathophysiology of Alzheimer disease and potential impact of video gaming on the progress of the disease. This reflective section will be assessed using the generic capability criteria for Development as a Reflective Practitioner.

***Time allocation guide***

Weeks 1-2:	Literature search and commence the EBM steps 1 and 2. Write up the descriptive science background to Alzheimer's disease.
Week 3:	Carry out EBM Step 3.
Week 4:	Write the appraisal section (discussion section) of the assignment. Use these findings to write the recommendations as a conclusion to your report (EBM Step 4). Complete the report including final edit. Have you answered the assessment criteria?
Week 5:	Proofread the final report. Submit the final report into eMed and Turnitin in 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**

- Describes the pathophysiology of Alzheimer disease. **(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.)**



- Defines video gaming, and explains how it may alter the progression of Alzheimer disease. **(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: Self-Directed Learning and Critical Evaluation

- Conducts a thorough literature search to find the best evidence to answer the research question. This search is fully documented and appended in a simple table that includes a basic evaluation of all the key evidence. **(1.6.4 Demonstrates the following skills in Phase 1: formulating and applying appropriate information searching strategies; using databases such as Medline and other information sources appropriately.)**
- Critically appraises the best primary research study using the critical appraisal worksheet. **(1.6.4 Demonstrates the following skills in Phase 1: Appraising the quality and relevance of the information found.)**
- Using EBM principles, discusses the findings and quality of all the useful evidence regarding this therapeutic intervention and makes evidence-based recommendations regarding the usefulness of video gaming in treating Alzheimer disease. **(1.6.4 Demonstrates the following skills in Phase 1; 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.)**

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 on the Medicine program website.

#### References

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

- Brill, E., Krebs, C., Falkner, M. et al. Can a serious game-based cognitive training attenuate cognitive decline related to Alzheimer’s disease? Protocol for a randomized controlled trial. *BMC Psychiatry* 22, 552 (2022).
- Kletzel, S. L., Sood, P., Negm, A., Heyn, P. C., Krishnan, S., Machtinger, J., Hu, X., & Devos, H. (2021). Effectiveness of Brain Gaming in Older Adults With Cognitive Impairments: A Systematic Review and Meta-Analysis. *Journal of the American Medical Directors Association*, 22(11), 2281-2288.e5. <https://doi.org/10.1016/j.jamda.2021.05.022>
- Oliveira, C. B., Pinto, R. Z., Saraiva, B. T. C., Tebar, W. R., Delfino, L. D., Franco, M. R., Silva, C. C. M., & Christofaro, D. G. D. (2020, 2020/01/01). Effects of active video games on children and adolescents: A systematic review with meta-analysis. *Scandinavian Journal of Medicine & Science in Sports*, 30(1), 4-12. <https://doi.org/10.1111/sms.13539>
- Rudolf, K., Bickmann, P., Froböse, I., Tholl, C., Wechsler, K., & Grieben, C. (2020). Demographics and Health Behavior of Video Game and eSports Players in Germany: The eSports Study 2019. *International Journal of Environmental Research and Public Health*, 17(6).
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- Zuo, X., Tang, Y., Chen, Y., & Zhou, Z. (2024). Effects of Electronic Serious Games on Older Adults With Alzheimer’s Disease and Mild Cognitive Impairment: Systematic Review With Meta-Analysis of Randomized Controlled Trials. *JMIR Serious Games*, 12, e55785-. <https://doi.org/10.2196/55785>

#### Contact

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.



## Assignment 6: Educating the Public: Brain Tumours and Other Intracranial Space-Occupying Lesions

Note this assignment has a quota of 25 students. Acceptance into the quota also confers permission to photograph the relevant Museum specimens, but you must identify yourself to the Museum staff and explain the purpose of your photography. You are not permitted to photograph specimens that are not part of your assignment. Virtual images from the Museum website at <https://iod.med.unsw.edu.au/> may be used for students who are unable to visit the Museum in person (for example, those enrolled at rural campuses).

### *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 (Effective Communication, Self-Directed Learning and Critical Evaluation, and Development as a Reflective Practitioner).

### *Aims*

To develop an audio-visual guide that can be made available to lay visitors to the Museum of Human Disease, using specimens in the Museum to illustrate the natural history of brain tumours and comparing and contrasting these with other types of intracranial space-occupying lesions.

### *Course themes and related learning activities*

This assignment relates to the course learning activities of: Intracranial space-occupying lesions; Cerebrovascular disease; Neoplasia.

### *Task description*

1. First understand the requirements of the end product. You will produce an audio-visual guide in a media format suitable for uploading to Moodle (mp4 recommended). The guide will allow visitors to undertake a self-paced tour of specimens within the Museum that will be of approx. 20 mins duration. During the tour the visitor will be directed to, and learn about, the various selected specimens. They will learn about their appearance, and about the effects that the disease had on the patient (you may use some discretion here in describing a typical clinical story). The presentation should be centred around a relevant, informative, interesting and accessible introduction to the topic of central nervous system (CNS) tumours, with an emphasis on the differences between extraaxial and intraaxial lesions. Risk factors, distinctive clinical features, diagnosis (including the principles of CNS tumour grading), natural history and complications should be included. Major traumatic, cerebrovascular and infectious differential diagnoses should also be mentioned. Ideally, the visitor will see the tour as a coherent whole and will leave with an improved understanding of the nature of these diseases and their effects.  
For the purpose of this project, the target audience of "lay visitors" means adults (over 18 years of age) with secondary school level of English comprehension skills, but little specific knowledge of medical or biomedical concepts or terminology.
2. Consider the various specimens available within the Museum of Human Disease that illustrate the categories of intracranial space-occupying lesions, and that are also of interest to the public.
3. Through your background research, identify the key features of each specimen and the disorders they represent. Consider which elements of this information are important to convey to the lay audience.
4. Develop an audio-visual file that can be used as the basis of the tour. The file should convey all relevant information to the lay visitor and should be self-contained so that the visitor can complete the tour without having to ask questions or seek instruction from Museum staff.
5. The audio-visual file should be in mp4 format for uploading to Moodle. Recording quality audio and video is a difficult process, and you will not be judged on this aspect of the work. Moodle file upload has a size limitation of 200 MB. Make sure your file is <200 MB to avoid problems close to the submission deadline. Submissions via email or external file repositories will not be accepted.
6. Prepare a separate 1000-word report that justifies your selection of the information and specimens that you have included in your media file. The report should also indicate, where appropriate, how you believe the resource could be further improved. In addition to responding to the task requirements, you should reflect in your report on any particular issues that have arisen for you in doing this assignment.

**Time allocation guide**

- Weeks 1 to 3: Review specimens and read generally on the topic of CNS tumours and other types of intracranial space-occupying lesions. Identify relevant specimens from the Museum of Human Disease. You may choose to create a short scenario for each specimen or use the clinical information already available for those cases on the Museum website. The audio-visual file should be created during weeks 2-3.
- Week 4: Edit your audio-visual file. Include colleagues and lay individuals in an initial evaluation. Refine the file and write the report.
- Week 5: Proof-read and submit the report to eMed and Turnitin in Moodle with no track changes by the due date AND submit the audio-visual file to Moodle as indicated below.

**Report requirements**

A **1000-word** report, plus media file. The report should present:

- Justification for the information and specimens you included in the media file.
- An indication of how the resource could be further improved.
- Reflections on what you learned by doing this project and on the issues encountered.
- The media file should be uploaded to Moodle (<https://moodle.telt.unsw.edu.au/mod/assign/view.php?id=7098449>) prior to the assignment deadline and should be identified with your student number and an eMed submission number. Prepare the media file (of approx. 20 minutes) in a suitable format (preferably .mp4) and label it as follows: MuseumTour\_yourZID\_eMedSubmissionNumber\_2024.mediafile.

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 7<sup>th</sup> 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 and supporting file should meet the following criteria:

**Focus Capability 1: Using Basic and Clinical Sciences**

- Chooses specimens that allow an informative discussion of the natural history and complications of CNS tumours, highlighting their distinctive features with respect to other types of intracranial space-occupying lesions (**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**).
- Through materials presented in the audio-visual file and written report, demonstrates an understanding of the relationship between the chosen specimens and the causes, natural history and complications of the disease processes they represent (**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**).
- Relates the macroscopic appearance of different types of intracranial space-occupying lesions to the underlying disease process, and to the clinical manifestations of these lesions (**1.1.2 Recognises health problems and relates normal structure and function to abnormalities**).

**Focus Capability 2: Effective Communication**

- Produces a media file that would allow a typical lay Museum visitor to understand materials shown within the Museum of Human Disease without the need to consult staff. [**1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups**].
- Through use of text, voice and image, provides a description of relevant disease processes that would be clear and accessible to the lay Museum visitor. (**1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups**).
- Uses sequencing of specimens and/or other methods to effectively convey the relationships between different stages of the disease process (**1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups**).

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

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

- Cancer Australia. Brain Cancer. Updated 23 January 2024. Retrieved 2 August 2024 from <https://www.canceraustralia.gov.au/cancer-types/brain-cancer/statistics>
- Images of Disease online, UNSW – <http://iod.med.unsw.edu.au/>
- Kumar, V. (2022). *Robbins & Kumar Basic Pathology* (11<sup>th</sup> ed.). Elsevier – OHCE. Chapter 21, pp. 729; 731-738; 742; 757-763. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/52581554370001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/52581554370001731?auth=SAML)
- Smirniotopoulos, J. G., & Jäger, H. R. (2020). Differential Diagnosis of Intracranial Masses. In J. Hodler (Eds.) et. al., *Diseases of the Brain, Head and Neck, Spine 2020–2023: Diagnostic Imaging*. (pp. 93–104). Springer.

### Contact

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.

## Assignment 7: The Role of Inflammation in Ischaemic Stroke: Pathways, Biomarkers, and Targeted Interventions

### *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)

### *Background*

Affecting a substantial number of individuals and exerting pressure on health resources, stroke contributes to a significant health burden worldwide and has emerged as a formidable challenge. Morbidities include loss of vision and/or speech, paralysis and confusion, and stroke is associated with premature death. According to the World Health Organization, stroke afflicts up to 15 million people worldwide, resulting in 5 million deaths and leaving another 5 million permanently disabled (World Health Organization, 2024). Evolving evidence suggests that inflammation has a key role in the pathogenesis of stroke and other forms of ischaemic brain injury. Understanding the role of inflammation in stroke offers potential to uncover novel targets, which subsequently might stimulate generation of effective therapies.

### *Aims*

- To understand the epidemiology of ischaemic stroke in Australia
- To explore inflammation in stroke, and the pathways, biomarkers and therapies involved
- To identify current primary prevention strategies for ischaemic stroke

### *Course themes and related learning activities*

This assignment relates to the course theme: The ageing process.

### *Task description*

1. Provide an overview of the epidemiology of ischaemic stroke in Australia, focussing on its prevalence, risk factors and economic burden.
2. Discuss the signalling cascades of acute and chronic inflammation after ischaemic stroke.
3. Explain what a biomarker is and discuss how ONE of the following inflammatory biomarkers – C-reactive protein (CRP), tumour necrosis factor alpha (TNF- $\alpha$ ), lipoprotein-associated phospholipase A2, and interleukin IL-6 – are relevant for predicting and diagnosing ischaemic stroke. In your discussion, highlight how targeting these inflammatory markers can result in effective therapies for ischaemic stroke.
4. Outline primary prevention strategies for ischaemic stroke.

### *Time allocation guide*

Weeks 1-2:	Conduct a literature search and review relevant articles.
Week 3:	Using your findings to address the assignment tasks, prepare your report.
Week 4:	Finalise your report.
Week 5:	Proofread the final report. Submit the final report into eMed and Turnitin in 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

- Describes inflammatory signalling pathways in ischaemic stroke. **(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 inflammatory biomarkers of stroke and therapeutic interventions. **(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)**

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

- Discusses the prevalence, risk factors and economic burden of ischaemic stroke in Australia. **(1.2.4 Describes and interprets patterns of illness including use of basic statistical and epidemiological concepts.)**
- Describes existing strategies aimed at primary prevention of ischaemic stroke. **(1.2.8 Describes primary, secondary and tertiary approaches to disease prevention and health improvement.)**

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, in this Course Guide and on the Medicine program website.

### References

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

- Campbell, B. C., De Silva, D. A., Macleod, M. R., Coutts, S. B., Schwamm, L. H., Davis, S. M., & Donnan, G. A. (2019). Ischaemic stroke. *Nature reviews Disease primers*, 5(1), 70.
- Esenwa, C. C., & Elkind, M. S. (2016). Inflammatory risk factors, biomarkers and associated therapy in ischaemic stroke. *Nature Reviews Neurology*, 12(10), 594-604.
- Kelly, P. J., Lemmens, R., & Tsigoulis, G. (2021). Inflammation and stroke risk: a new target for prevention. *Stroke*, 52(8), 2697-2706.
- Qin, C., Yang, S., Chu, Y. H., Zhang, H., Pang, X. W., Chen, L., ... & Wang, W. (2022). Signaling pathways involved in ischemic stroke: molecular mechanisms and therapeutic interventions. *Signal transduction and targeted therapy*, 7(1), 215.
- Tirandi, A., Sgura, C., Carbone, F., Montecucco, F., & Liberale, L. (2023). Inflammatory biomarkers of ischemic stroke. *Internal and emergency medicine*, 18(3), 723-732.
- Tobin, M. K., Bonds, J. A., Minshall, R. D., Pelligrino, D. A., Testai, F. D., & Lazarov, O. (2014). Neurogenesis and inflammation after ischemic stroke: what is known and where we go from here. *Journal of Cerebral Blood Flow & Metabolism*, 34(10), 1573-1584.
- World Health Organization Eastern Mediterranean Region. (2024). *Stroke, Cerebrovascular accident*. <https://www.emro.who.int/health-topics/stroke-cerebrovascular-accident/index.html#:~:text=Annually%2C%2015%20million%20people%20worldwide,cause%20is%20high%20blood%20pressure>.
- Zietz, A., Gorey, S., Kelly, P. J., Katan, M., & McCabe, J. J. (2024). Targeting inflammation to reduce recurrent stroke. *International Journal of Stroke*, 19(4), 379-387.

### Contact

A discussion regarding this assignment is available through the AEB course Moodle discussion forum.

## Project 1: Integrating Learning through Developing a Learning Resource

**Note:** Students who have completed the project with the same title in Ageing & Endings A 2023 or “Integrating Learning through Developing a Tutorial Storyboard” in HMA 2024 cannot select this project in AEB 2024. Similarly, students completing A6 “Educating the Public: Brain Tumours and Other Intracranial Space-Occupying Lesions” in this course should not complete this project.

### **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, and Teamwork).

### **Aims**

The aims of this project are:

- To develop a deep understanding of the learning issues that arise from the **Space-occupying lesions scenario** by using appropriate learning strategies.
- To develop skills in integrating knowledge from various disciplines, derived from various sources.
- To develop an appropriate learning resource for your peers, to aid their understanding of the learning issues you identified.
- To develop skills in self-directed learning and collaborative learning (teamwork).

### **Course theme and related activities**

This project relates to the course learning activity of: Space-occupying lesions.

### **Task description**

**Task 1:** Identify 4-6 key learning issues that arise from the space-occupying lesions scenario.

**Task 2:** Develop a deep understanding of these issues through scheduled and self-directed learning activities and group discussions.

**Task 3:** Brainstorm, design, and develop a storyboard for the learning resource (this may be a combination of video, quiz, webpage, presentation, Kahoot!, or similar) that integrates concepts across at least two disciplines and aims to increase understanding of relevant learning issues. Plan what formative feedback will be provided to users of your resource. Information to assist you with this task is found on Moodle on Moodle in the Group Project Discussion board section and includes:

- Tutorials and videos used in this course
- A PowerPoint storyboard template
- A word storyboard template
- An online forum where you can receive feedback on your storyboard design

**Task 4:** Test the questions and feedback that you develop through peer-teaching in your scenario group.

### **Time allocation guide**

Weeks 1 & 2: Discuss potential topics, conduct background research, and decide what kind of resource you want to develop. Identify issues relevant to project management.

Weeks 3 & 4: Review, extract and filter the content that will go into the storyboard. Work on the elements linking the key concepts across the two disciplines you selected. Conduct peer-teaching in SGS 8 that allocates time for this. Refine your learning activity and formative feedback, based on the peer teaching.

Week 5: Complete a first draft of the report.

Week 6: Present your project to the SG group.

Week 7: Proof-read and submit the final report to eMed and Turnitin with no track changes 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 resource.
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 resource and achieved the aims of the project. This should include a discussion of the peer feedback used by your group and the extent to which these strategies were effective.
  - b. Discuss how your project group collected feedback. 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.
  - c. 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 **2,000 words plus the storyboard** for your resource. Include a component on Teamwork as described above.

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 7<sup>th</sup> 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>).

**Note:** Your storyboard file should be submitted to eMed as a supporting file. We recommend a PowerPoint file format (.ppt, .pptx). If you plan to submit a different file format, please get approval before Week 7 (Moodle forum, course convenors).

**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. **(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 using an appropriate level of content detail drawn from a range of sources. **(1.6.1 Identifies questions and learning issues arising from scenario sessions and other teaching activities. 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. 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)**

**Teamwork requirements**

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical evaluation; and Teamwork) will be assessed using the generic criteria for group projects listed in the Program guide, 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**

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

- Brown, S., & Race, P. (2014). *500 Tips on Group Learning*. Taylor and Francis.
- Burgess, A., van Diggele, C., Roberts, C., & Mellis C., (2020). Introduction to the Peer Teacher Training in health professional education supplement series. *BMC Medical Education*, 20(Suppl 2), 454. [https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW\\_INST/citation/55450872740001731?auth=SAML](https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/citation/55450872740001731?auth=SAML)
- Noroozi, O., & De Wever, B. (2023). *The Power of Peer Learning: Fostering Students' Learning Processes and Outcomes* (1st ed.). Springer Nature. <https://doi.org/10.1007/978-3-031-29411-2>
- World Health Organization (2010). Topic 4: Being an effective team player. WHO Patient Safety Curriculum Guide. <https://www.who.int/publications/m/item/course-04-being-an-effective-team-player>

**Contact**

A discussion regarding this project is available through the AEB course Moodle discussion forum.



## Project 2: Perspectives on voluntary assisted dying (VAD) of individuals impacted by dementia and the doctors who care for them

Note – students completing A4 “Informed consent in patients who have dementia” should not complete this project.

### *Graduate Capabilities assessed in this project*

- Ethics and Legal Responsibilities
- 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 Teamwork).

### *Background*

Euthanasia in the form of voluntary assisted dying (VAD) is now legal in all Australian states. In 2024, around 421,000 Australians live with dementia and around 1.6 million people are involved in their care (Dementia Australia 2024). VAD is not available for a person living with dementia. This is because dementia advanced enough to allow a person to qualify for VAD is likely to hinder their ability to make decisions.

### *Aims*

The aims of the project are to:

- Develop a comprehensive understanding of the eligibility criteria for VAD and consider whether individuals with dementia are likely to meet them.
- From the literature, gain insights into the perspectives (attitudes, beliefs, experiences) of clinicians who treat individuals with dementia and those living with dementia (patients and their carers).
- Examine the legal responsibilities of clinicians in light of policies, practices and support services that emphasise autonomy, dignity and quality of life, for individuals with dementia near the end of life.

### *Course themes and related learning activities:*

This project relates to the course themes: Degenerative disease and Death, dying and palliative care.

### *Task description*

**Task 1:** Explain why individuals with dementia are not eligible for VAD in Australia.

- Referring to the existing legislation in Australia (Voluntary Assisted Dying Act 2022), explain the THREE key conditions for VAD eligibility that people with dementia are unable to satisfy.
- Describe the assessments performed by doctors to determine if a person seeking VAD is mentally competent. How is decision-making capacity evaluated?

**Task 2:** Some countries have VAD laws that allow access for people living with dementia. Compare the legal status and regulations regarding VAD for people with dementia in Australia and the Netherlands.

- Focus on how these laws impact individuals with dementia. For each country, review:
  - 1) eligibility criteria for people with terminal disease
  - 2) eligibility criteria for people with dementia
  - 3) timeframes that might exclude people with dementia from qualifying.
- Discuss the mechanisms used in the Netherlands that allow VAD for people with dementia. Should mechanisms used by the Netherlands be considered in Australia?

**Task 3:** Consider the concerns and reservations raised by clinicians, people with dementia and their carers, regarding VAD and end-of-life options for individuals with dementia. Discuss the cultural, religious and personal factors that influence these attitudes.

- How do individuals with dementia perceive their autonomy in making end-of-life decisions? How can clinicians support informed decision-making and advocate for the preferences of individuals with dementia concerning end-of-life care?
- What challenges do clinicians face when supporting and guiding individuals with dementia who express interest in VAD?
- Do cultural, religious, or personal factors influence attitudes towards VAD of 1) individuals with dementia and their carers 2) doctors who treat them?

**Time allocation guide**

- Weeks 1 + 2: Research the literature related to each task and compile a plan for your written report.
- Weeks 3 + 4: Begin writing the report, being careful to address each subtask.
- Week 5: Complete the first draft of the report.
- Week 6: Present your project in the SG session. Integrate feedback from your peers and facilitator and revise the report.
- Week 7: Proofread and submit the final report into eMed and Turnitin with no track changes by the due date.

**Report requirements**

Your report should address the subtasks associated with each main task. The length of your written report is a maximum of **2500 words**.

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 7<sup>th</sup> 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: Ethics and Legal Responsibilities**

- Describes the VAD laws in Australia, explains how mental capacity is evaluated by clinicians and why people with dementia might not be eligible. **(1.7.7 Understands the legal responsibilities of health professionals in relation to duty of care.)**
- Provides analysis and comparison of the laws concerning VAD for individuals with dementia in Australia and the Netherlands. Evaluates the impact of these country-specific laws on people with dementia by addressing eligibility criteria and qualifying timeframes. **(1.7.4 Identifies and discusses the ethical aspects of scenarios and other experiences).**

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

- Evaluate perspectives on autonomy in end-of-life decision-making for individuals with dementia, and the challenges clinicians encounter in supporting patients with dementia to exercise autonomy in end-of-life care. **(1.2.3 Identifies health care needs of different groups in society).**
- Identifies cultural, religious and personal factors influencing concerns and reservations expressed by clinicians, people with dementia and/or their carers regarding VAD **(1.2.1 Identifies environmental, psychological, social and cultural issues which contribute to health problems in a scenario).**

**Teamwork requirements**

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical evaluation; and Teamwork) will be assessed using the generic criteria for group projects listed in the Program guide, 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

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

- Dementia Australia (2024) Key Facts and Statistics — Accessed 17 July 2024 at <https://www.dementia.org.au/about-dementia/dementia-facts-and-figures>
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- VOLUNTARY ASSISTED DYING ACT, 2022, NSW. Act 17 of 2022. Accessed 17th July 2024 at [https://www8.austlii.edu.au/cgi-bin/download.cgi/au/legis/nsw/consol\\_act/vada2022302](https://www8.austlii.edu.au/cgi-bin/download.cgi/au/legis/nsw/consol_act/vada2022302)
- White, B., Haining, C., Willmott, L., & Feeney, R. (2024, May 21). "People with dementia aren't currently eligible for voluntary assisted dying. Should they be?" — Article in *The Conversation*, accessed 17 July 2024 at <https://theconversation.com/people-with-dementia-arent-currently-eligible-for-voluntary-assisted-dying-should-they-be-224075>

## Contact

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

## Project 3: Transformations in Neuroimaging with AI

### *Graduate Capabilities assessed in this project:*

- Patient Assessment and Management
- 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).

### *Background*

Neuroimaging has long been at the forefront of technology for the assessment and management of various lesions and diseases of the brain. The advancement of non-invasive neuroimaging technology has also contributed to the comprehensive understanding of the structure and function of the human brain. Today, artificial intelligence (AI) has brought transformations to healthcare, including neuroradiology. AI can power image processing, reconstruction and analysis for clinicians, and decrease scanning time and radiation exposure for patients. However, AI cannot replace patient communication and decision-making related to assessment and management.

### *Aims*

In this project, you will evaluate the uses, benefits, and risks of AI in neuroimaging in the assessment and management of various lesions and diseases of the brain. You will also develop an educational poster to effectively communicate this information to your peer audience.

### *Course themes and related learning activities*

This project relates to the course theme: Degenerative disease.

### *Task description*

#### **Task 1**

Identify the current uses of AI in neuroimaging, describing THREE applications used for the assessment and management of lesions/diseases of the brain. You can describe different imaging modalities (e.g., CT vs MRI) or the same imaging modality used for different lesions/diseases of the brain.

#### **Task 2**

Critically evaluate the benefits and risks of using AI applications in neuroimaging.

#### **Task 3**

Develop a one-page infographic/poster that highlights the uses, benefits, and risks of using AI applications in neuroimaging. The poster should be included in the final project presentation. References should be included.

### *Time allocation guide*

Weeks 1 + 2:	Research the literature on the uses, benefits and risks of AI in neuroimaging.
Weeks 3 + 4:	Evaluate the studies found in your literature research and begin writing the report.
Week 5:	Design a one-page infographic/poster.
Week 6:	Present your project in the SG session. Integrate feedback from your peers and facilitator and write the report.
Week 7:	Proofread and submit the final report into eMed and Turnitin via Moodle with no track changes by the due date

### *Report requirements*

The length of your written report is to be a maximum of **2000 words**. The poster should be submitted as a supporting file and included in the final project presentation.

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 and supporting file should meet the following criteria:

#### **Focus Capability 1: Patient Assessment and Management**

- Describes the current uses and applications of AI in the assessment and management of lesions and diseases of the brain. **(1.3.7. Relates procedural skills (both how and why they are performed) to relevant underlying basic and clinical sciences.)**
- Evaluates the benefits and risks of using AI in neuroradiology and neuroimaging. **(1.3.10 Places the needs and safety of patients at the centre of the care process.)**

#### **Focus Capability 2: Effective Communication**

- Identifies evidence about uses, benefits, and risks of AI in neuroimaging and communicates this effectively to inform peers. **(1.4.4 Develops clear written/visual information in relation to health and health promotion for specific target groups.)**
- Designs an infographic/poster that is aesthetically appealing, logical and clear to appropriately inform and educate peers **(1.4.6 Writes clearly and logically, using appropriate language, media and style for the intended audience.)**

### **Teamwork requirements**

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical evaluation; and Teamwork) will be assessed using the generic criteria for group projects listed in the Program guide, 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**

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

- Borchert, R. J., Azevedo, T., Badhwar, A., Bernal, J., Betts, M., Bruffaerts, R., Burkhart, M. C., Dewachter, I., Gellersen, H. M., Low, A., Lourida, I., Machado, L., Madan, C. R., Malpetti, M., Mejia, J., Michopoulou, S., Muñoz-Neira, C., Pepys, J., Peres, M., ... Rittman, T. (2023). Artificial intelligence for diagnostic and prognostic neuroimaging in dementia: A systematic review. *Alzheimer's & Dementia*, 19(12), 5885–5904. <https://doi.org/10.1002/alz.13412>
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- Syed, A. B., & Zoga, A. C. (2018). Artificial Intelligence in Radiology: Current Technology and Future Directions. *Seminars in musculoskeletal radiology*, 22(5), 540–545. <https://doi.org/10.1055/s-0038-1673383>

**Contact**

A discussion regarding this project is available through the AEB course Moodle discussion forum.

## Project 4: Central nervous system sequelae of COVID-19 infection

### *Graduate capabilities assessed in this project*

- Self-Directing Learning and Critical Evaluation
- Using Basic and Clinical Sciences

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

### *Background*

The SARS-CoV-2 coronavirus has infected several hundred million people since its appearance in late 2019. Acute COVID-19 disease is best known for causing respiratory symptoms, but it can also affect numerous other organ systems including central nervous system (CNS) function. The post-acute and post-infectious disease course can be prolonged and has raised many questions including its pathophysiology, possible misdiagnosis due to undiagnosed preexisting conditions, and management. Many questions remain unanswered, especially those around neurological and psychiatric sequelae, but the emerging evidence, while still controversial, is of increasing scientific quality. In this project, you will explore how medical knowledge about CNS-related post-COVID symptoms has evolved over the past five years.

### *Aims*

The aims of the project are to:

- Define and characterize post-COVID-19 related CNS symptoms.
- Analyse the overlap of post-COVID-19 neurological and psychiatric symptoms with other conditions.
- Critically assess the available scientific evidence. Analyse how study design and publication biases have limited the interpretability and conclusions of post-COVID-19 studies.
- Explore and explain current pathophysiological models of selected CNS symptoms.

### *Course themes and related learning activities*

This project relates to the course learning activities: CNS inflammation, CNS infectious disease, cognition.

### *Task description*

#### **Task 1 (approx. 600 words) “What is post-COVID?”**

Define the terminology currently used in the literature and how it will be used in this report (for example post-COVID, long COVID, post-acute sequelae of COVID-19). Provide an overview of 4-6 CNS symptoms (neurological and/or psychiatric) that are putatively related to a previous SARS-CoV-2 infection. Where necessary, provide explanations of these symptoms and with which part of the CNS they are associated. For example: headache would not require a detailed explanation, whereas specific cognitive symptoms such as impaired verbal working memory or selective attention need further explanation.

Briefly discuss one example of a comparable post-viral syndrome caused by a viral infection other than SARS-CoV-2.

#### **Task 2 (approx. 800 words) “What do we know and how do we know it?”**

Discuss the overlap of symptoms used for the diagnosis of post-COVID-19 with other diagnoses such as depression, anxiety, and somatic symptom disorder. How could pre-existing conditions have had an impact on post-COVID-19 studies? Identify one post-COVID-19 study (possibly, but not necessarily, an early one) that did not use appropriate control groups and whose outcome is limited by this. Select one further post-COVID-19 study that you consider to be of high quality. Discuss the two study designs and outcomes.

Discuss the difficulties of acquiring high-quality medical evidence during a highly dynamic development such as the COVID-19 pandemic.



**Task 3 (approx. 600 words) “What happens in post-COVID-19?”**

Consider the evidence analysed in the previous tasks and select a symptom or symptom complex for which plausible pathophysiological mechanisms related to a SARS-CoV-2 infection have been found, given the current medical knowledge. Discuss and explain the proposed pathophysiology.

**Time allocation guide**

Week 1:	Start a literature search; acquire an understanding of the COVID-19 related terminology and identify one other post-viral syndrome. Identify 4-6 CNS-related post-COVID-19 symptoms to discuss and explain in Task 1.
Week 2:	Research the diversity of post-COVID-19 related symptoms and identify their overlap with other neurological and psychiatric conditions.
Week 3:	Critically assess the studies found in your literature research with regard to their design (e.g. control groups, pre-existing conditions). Identify and compare one study with and one study without appropriate controls.
Weeks 4+5:	Select one post-COVID-19 symptom (or symptom complex) and explain the currently proposed pathophysiology.
Week 6:	Present your project in the SG session. Integrate feedback from your peers and facilitator and write the report.
Week 7:	Submit the final report into eMed and Turnitin via Moodle with no track changes by the due date.

**Report requirements**

Report length is a maximum of **2500 words**. It should address the assessment criteria for the focus capabilities and include a component on 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 7<sup>th</sup> 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: Self-Directed Learning and Critical Evaluation**

- Reviews the literature on post-COVID-19, identifies relevant symptoms and symptom complexes and their overlap with other medical conditions. **(1.6.1 Identifies questions and learning needs arising from scenario sessions and other teaching activities. Engages in appropriate activities to address identified needs.)**
- Critically analyses the current evidence on post-COVID-19 and assesses the quality / level of evidence obtained from different studies (i.e. with/without controls). **(1.6.5 Demonstrates an understanding of basic statistical principles and ability in handling and presenting quantitative, and to a lesser degree qualitative, information appropriately.)**

**Focus Capability 2: Using Basic and Clinical Sciences**

- Identifies post-viral symptoms (mainly post-COVID-19) and their relationship to central nervous system function. **(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.)**
- Explains the proposed pathophysiological mechanism(s) of a symptom (or symptom complex) associated with post-COVID-19. **(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.)**



### Teamwork requirements

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical evaluation; and Teamwork) will be assessed using the generic criteria for group projects listed in the Program guide, 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

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

- Aiyegbusi, O. L., Hughes, S. E., Turner, G., Rivera, S. C., McMullan, C., Chandan, J. S., Haroon, S., Price, G., Davies, E. H., Nirantharakumar, K., Sapey, E., Calvert, M. J., & TLC Study Group (2021). Symptoms, complications and management of long COVID: a review. *Journal of the Royal Society of Medicine*, 114(9), 428–442. <https://doi.org/10.1177/01410768211032850>
- Australian Government, Department of Health and Aged Care. Long COVID. Date last updated: 9 February 2024. Retrieved 3 August 2024 from <https://www.health.gov.au/topics/covid-19/long-covid>
- Fanshawe, J. B., Sargent, B. F., Badenoch, J. B., Saini, A., Watson, C. J., Pokrovskaya, A., Aniwattanapong, D., Conti, I., Nye, C., Burchill, E., Hussain, Z. U., Said, K., Kuhoga, E., Tharmaratnam, K., Pendered, S., Mbwele, B., Taquet, M., Wood, G. K., Rogers, J. P., Hampshire, A., ... Leek, C. E. (2024). Cognitive domains affected post-COVID-19; a systematic review and meta-analysis. *European Journal of Neurology*, e16181. <https://doi.org/10.1111/ene.16181>
- Fleischer, M., Szepanowski, F., Tovar, M., Herchert, K., Dinse, H., Schweda, A., Mausberg, A. K., Holle-Lee, D., Köhrmann, M., Stögbauer, J., Jokisch, D., Jokisch, M., Deuschl, C., Skoda, E. M., Teufel, M., Stettner, M., & Kleinschnitz, C. (2022). Post-COVID-19 Syndrome is Rarely Associated with Damage of the Nervous System: Findings from a Prospective Observational Cohort Study in 171 Patients. *Neurology and Therapy*, 11(4), 1637–1657. <https://doi.org/10.1007/s40120-022-00395-z>
- Garmoe, W., Rao, K., Gorter, B., & Kantor, R. (2024). Neurocognitive Impairment in Post-COVID-19 Condition in Adults: Narrative Review of the Current Literature. *Archives of Clinical Neuropsychology*, 39(3), 276–289. <https://doi.org/10.1093/arclin/acae017>
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- Wang, S., Quan, L., Chavarro, J. E., Slopen, N., Kubzansky, L. D., Koenen, K. C., Kang, J. H., Weisskopf, M. G., Branch-Elliman, W., & Roberts, A. L. (2022). Associations of Depression, Anxiety, Worry, Perceived Stress, and Loneliness Prior to Infection With Risk of Post-COVID-19 Conditions. *JAMA Psychiatry*, 79(11), 1081–1091. <https://doi.org/10.1001/jamapsychiatry.2022.2640>
- Wesselingh R. (2023). Prevalence, pathogenesis and spectrum of neurological symptoms in COVID-19 and post-COVID-19 syndrome: a narrative review. *The Medical Journal of Australia*, 219(5), 230–236. <https://doi.org/10.5694/mja2.52063>

### Contact

A discussion regarding this project is available through the AEB course Moodle discussion forum.

## Project 5: Interview with Health Professionals Working in Aged Care

### Notes:

- This project has a specific quota for each campus. Please register your interest in this project through the process described in the introduction to assessment above for assignments and projects with quotas. Each group should have 4-6 students. Students are to contact the health professionals regarding the interviews before the end of week 2. A contact list will be provided.
- This project is also available for students at rural campuses (Port Macquarie, Wagga Wagga). Depending on the availability of the health professionals, the interviews will be conducted either in person or online.
- Students who completed the Ageing & Endings A 2023 project *Interview with Health Professionals Working in Palliative Care* **cannot** select this project in AEB 2024.

### Graduate Capabilities assessed in this project:

- Teamwork
- 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 Teamwork).

### Aim

The aim of this project is for students to gain an insight into the world of health professionals who work in aged care, and with patients with dementia or other neurodegenerative diseases in particular. You will learn about their personal and professional motivations, their professional challenges and the way their work influences them as individuals.

### Course themes and related learning activities

This project relates to the course themes: The ageing process; Degenerative disease.

### Task description

Each group will be assigned one or two health professionals working in aged care:

1. An aged care physician
2. An allied health professional e.g. a nurse; physiotherapist; social worker.

The interview process does not depend on whether you will be assigned one or two health professionals, or their specific profession.

You will interview the assigned health professional(s). **For each campus (Kensington, Port Macquarie, Wagga Wagga), there is a contact person who will help to establish the contact between your team and the interview partner(s). Your contacts are listed at the end of this project description.**

### PLEASE NOTE:

All information shared with you is **strictly confidential** and must not be discussed outside the group. When writing up the report, you must ensure all references to the place the person works, their name and the names of people with whom they work, are not used. Pseudonyms are acceptable.

Your interview must be wide-ranging, *as well as reflective*. This should be a narrative work. Formulate some of your questions based on aged care teamwork research and cite the relevant research in your report.

### Suggested questions may include:

- Why did you enter your profession?
- Why did you enter the area of Aged Care?
- What is your role and what are your responsibilities in the team?
- What are the roles of other team members with whom you frequently interact?
- What are the strengths of your team?

- Which factors make teamwork easier, which make it difficult?
- What are the best and worst aspects of your work?
- What advice would you give to medical students about this area?
- Can you describe emotions that you frequently experience during your work?
- How do you cope with sadness or related emotions? What are your personal strategies?
- How do you deal with “challenging” patients or their relatives?

You will summarise the main points that you have learnt from the interviews with the health professional(s). Your report should include a discussion of similarities and differences in the roles and impacts of the work of the health professionals in aged care. If you interview two health professionals, you can compare their roles. If you can interview only one professional, compare their role to other team members as reported by your interviewee. Where applicable, relate the answers to scholarly research on aged care and geriatrics teamwork. Reflect on the interviewing skills employed and whether you encountered any problems during the interview.

You are also expected to:

- present an anonymised transcript of the interview(s) in the Appendix
- include a reflection consistent with the Phase 1 expectations for the graduate capability of “Development as a Reflective Practitioner”. This may include a critical incident analysis, identification of problems encountered and how they could be overcome next time, comparison of this experience with an earlier experience, reflection on feedback given in response to your oral presentation.

#### ***Time allocation guide***

Week 2:	Organise your interviews. <b>You must contact the health professionals and organise an interview date and time.</b> Research the literature, plan your approach and prepare questions.
Weeks 3-4:	Conduct the interviews. <b>Interviews should be completed by week 4.</b>
Weeks 4-6:	Write up the interviews, prepare final submission and present your project in <b>Week 6</b> . Include the feedback in your report.
Week 7:	Proof-read the final report. Submit the final report into eMed and Turnitin via Moodle with no track changes by the due date.

#### ***Report requirements:***

The report should be a maximum of **2500 words**.

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 7<sup>th</sup> 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: Teamwork**

- Describes and compares the different roles and responsibilities of health professionals working in aged care, as part of a healthcare team. **(1.5.5 Explains roles and functions of other health professionals in patient care).**
- Discusses some other roles within the healthcare team. Describes the strengths of the interviewee’s team and any impediments to effective teamwork that they have encountered. **(1.5.5 Explains roles and functions of other health professionals in patient care).**

### Focus Capability 2: Development as a Reflective Practitioner

- Reflects on the communication/interviewing skills employed and discusses any difficulties in the interviewing process. **(1.8.5 Analyses experiences and feedback in terms of strengths and weaknesses, identifies barriers to improvement in all capability areas and addresses these barriers, or articulates realistic and coherent plans to do so).**
- Discusses personal feelings and reactions within your group to the information conveyed by the interviewees. **(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).**
- Evaluates how this project has altered personal views about the work of health professionals in the aged care environment. **(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).**

### Teamwork requirements

In addition to the focus capabilities listed above, the generic capabilities (Effective Communication; Self-Directed Learning and Critical evaluation; and Teamwork) will be assessed using the generic criteria for group projects listed in the Program guide, 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

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

- Chen, K. X., Hsu, P. C., Lin, J. N., Lee, F. P., & Wang, J. J. (2023). Exploring the Difficulties and Strategies of Family Caregivers in Caring for Patients With Dementia in Acute Care Wards. *The Journal of Nursing Research : JNR*, 31(5), e297. <https://doi.org/10.1097/jnr.0000000000000575>.
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- Gramenz, J. (2024, June 7). "The Challenges and Rewards of Working in Aged Care." Accessed 5 August 2024 at <https://www.svcs.org.au/people/challenges-rewards-working-in-aged-care>
- Kennedy, P., Rogan, C., Higgins, D., Chen, Y., Grycuk, E., Leroi, I., Wormald, A., & Galvin, M. (2024). Changes and interruptions during COVID-19: caregivers of people with brain health challenges-A qualitative analysis. *Frontiers in Dementia*, 3, 1360112. <https://doi.org/10.3389/frdem.2024.1360112>
- Leng, M., Han, S., Sun, Y., Zhu, Z., Zhao, Y., Zhang, Y., Yang, X., & Wang, Z. (2023). Identifying care problem clusters and core care problems of older adults with dementia for caregivers: a network analysis. *Frontiers in Public Health*, 11, 1195637. <https://doi.org/10.3389/fpubh.2023.1195637>

### Contacts

If you are successful in registering for this Project, you will be given access to a list of aged care health professionals. **Your contacts are:**

**Kensington:** Frederic von Wegner ([f.vonwegner@unsw.edu.au](mailto:f.vonwegner@unsw.edu.au))

**Port Macquarie:** Linda Ferrington ([l.ferrington@unsw.edu.au](mailto:l.ferrington@unsw.edu.au))

**Wagga Wagga:** Shanzana Khan ([shanzana.khan@unsw.edu.au](mailto:shanzana.khan@unsw.edu.au))

### Discussion Board:

A discussion regarding this project is available through the AEB course Moodle discussion forum.