



CHIR873

Neuromusculoskeletal Diagnosis 1

S1 Day 2014

Chiropractic

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	2
<u>Assessment Tasks</u>	3
<u>Delivery and Resources</u>	7
<u>Unit Schedule</u>	13
<u>Policies and Procedures</u>	15
<u>Graduate Capabilities</u>	17

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General Information

Unit convenor and teaching staff

Other Staff

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Unit Convenor

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Credit points

4

Prerequisites

Admission to MChiroprac

Corequisites

Co-badged status

Unit description

This unit introduces students to common neurological and orthopaedic conditions. A variety of teaching methods are employed, including a constructivist approach, use of current evidence, and the discussion of case studies used to exemplify the diagnostic process. Students develop competency in neurological and orthopaedic examination and in developing a differential diagnosis based on the patient's signs and symptoms at clinical presentation. The knowledge and skills acquired during this unit are fundamental for diagnostic competence in chiropractic practice.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

Learning Outcomes

On successful completion of this unit, you will be able to:

Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.

Perform the clinical neuromusculoskeletal history taking and examination competently

Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.

Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin

Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings

Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals

Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

Assessment Tasks

Name	Weighting	Due
1	10%	continuous
2	10%	Week 11, 26 May, by 5pm
3	20%	Orthopaedics Week 6
4	20%	Week 12 and 13
5	40%	TBA

1

Due: **continuous**

Weighting: **10%**

Feedback quizzes will be made available to students at 12pm on Wednesdays and close at 11:59am on Wednesdays of the following week. The primary objective of the quizzes is to provide students with ongoing feedback and affirmation on their knowledge acquisition. The quiz questions will be based on lecture and tutorial reading, and will prepare students for the following week's tutorial

On successful completion you will be able to:

- Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings

2

Due: **Week 11, 26 May, by 5pm**

Weighting: **10%**


You may take any neurological topic. Write up a case study on a specific condition, under the following titles:

1. Chief complaint: patient's age, sex and presenting symptoms
2. History of the present illness
3. Relevant family history, social and environmental history
4. Relevant medications
5. List of possible diagnoses from the patient history – explain why this list was chosen
6. Results of the neurological exam tailored to the patient history – detail what was done and why it was done, as well as the results of the examination
7. List of possible diagnoses from the neurological exam – explain why this list was chosen
8. Further blood and radiological tests – explain your choices
9. Final diagnosis – explain how and why this was reached
10. Chiropractic management of the final diagnosis – explain why this management will help, and say whether this is substantiated in the present literature.

Any one specific topic can only be done by a **maximum of 3 students**. Therefore each student must send in 3 possible topics they wish to do to the co-ordinator of Neurology, and topics will be assigned on a first come first served basis. This is necessary as the case study you choose will

also be the case study you will adopt for the neuroscreens you will be doing in CHIR874.

The write-up should reflect your knowledge of the neuroanatomy, neurophysiology and neuropathology of the condition, as well as an understanding of the role of the chiropractor in the management of the condition. This requires a literature search, and all references must be cited in the text and in a reference list.

 e rubric at the end of the manual to guide you in how the task will be assessed. Referencing is Vancouver style: please print out information at: <http://www.lib.monash.edu.au/tutorials/citing/vancouver.html> and follow it to the letter.

The review must be submitted electronically to 'Turn-it-In' via the iLearn website.

Maximum Length: 4 pages

On successful completion you will be able to:

- Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
- Use acquired knowledge to evaluate conditions, research these cases further using

appropriate reference material and communicate findings

3

Due: **Orthopaedics Week 6**

Weighting: **20%**

This will assess your competency in performing the neurological and orthopaedic examinations.

On successful completion you will be able to:

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
- Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals
- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

4

Due: **Week 12 and 13**

Weighting: **20%**

This will assess your competency in performing the neurological and orthopaedic examinations

On successful completion you will be able to:

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin

- Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals
- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

5

Due: **TBA**

Weighting: **40%**

This will cover the content of all three strands for the entire semester. It tests your knowledge of the theory, and the ability to connect that knowledge to real life situations (e.g. case studies, clinical presentations). It will consist of a 3 hour written exam with multiple choice questions, short answer questions and case studies.

On successful completion you will be able to:

- Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings

Delivery and Resources

Delivery mode

This unit is characterised by a moderate degree of flexibility. It incorporates a variety of learning tools and media. It will comprise:

	Strand 1 - Orthopaedics	Strand 2 – Neurology	Total

<p>Lectures</p>	<p>2 × 2 hour lectures per week, weeks 1 – 11</p> <p>Lecture 1: Monday 3pm-5pm (E7B T2)</p> <p>Lecture 2: Wednesday 9am–11am (E7B T2)</p> <p>!</p>	<p>1 × 2 hour lectures per week, weeks 1 – 12</p> <p>Lecture 1: Tuesday 9am-11 am, E7B T2</p>	<p>6 hours per week, weeks 1-12</p>
<p>Tutorials</p>	<p>1 × 2 hour tutorial class per week, weeks 2 – 13</p> <p>Thursday 9-11am or 11am-1pm (E5A 330 South Lab)</p>	<p>1 × 2 hour tutorial class per week, weeks 2 – 13</p> <p>Wednesday 2-4, 4-6 (choose one) in (E5A 320 North Lab)</p>	<p>4 hours per week, weeks 2-13</p>
<p>Other</p>	<p>1-2 hours per week revision, self-instructional learning and readings from the text</p>	<p>1 - 2 hours per week revision, self-instructional learning and readings from the text</p>	<p>2 - 4 hours per week</p>

Further details on class time and locations for this unit can be found by following the link below:

<https://timetables.mq.edu.au/2014/>

Tutorials

You must attend the tutorial class in which you enrolled. Students must not exchange their class time. In special circumstances, you may request a specific change. These requests are to be submitted to the strand coordinator.

Attendance Requirements

If you miss your assigned tutorial in any week, you may request attendance at an alternative session, through written request and appropriate documentation to the unit convenor. This allowance may be used on a maximum of 2 occasions.

Unit Web Page

You can log in to [iLearn](#) System via the link listed below:

<http://learn.mq.edu.au>

All lecture materials will be posted on ilearn, and there is also a link to ECHO360 for **audio or audiovisual** (where available) recordings of the lectures.

[Required and Recommended Resources](#)

[Strand 1: Orthopaedics](#)

Notes are summarised under 'Lectures' on iLearn for CHIR 873

Required:

1. Magee D.J. (2013). Orthopaedic Physical Assessment. 6th Edition. W.D Saunders, Philadelphia

Recommended Reading

- 1) **Hammer W.** 3rd Ed. Functional Soft Tissue Examination & Treatment by Manual Methods. Jones and Barlett, Sudbury Massachusetts.
- 2) **Souza TA.** (1997) Differential Diagnosis for the Chiropractor. Aspen Publications.
- 3) **Evans RC.** (2008) Illustrated Orthopaedic Physical Assessment. Mosby.
- 4) **Brukner P, Khan, K.** (2011) Brukner & Khan's Clinical Sports Medicine. 4th Ed. McGraw-Hill Book Company Australia.
- 5) **Hertling D, Kessler, RM.** (2006) Management of Common Musculoskeletal Disorders: Physical Therapy Principles And Methods. Lippincott Williams & Wilkins.

NOTE: Weekly tutorial case reports and readings will be made available through iLearn.

Students will be required to complete weekly quizzes based on recent peer-reviewed journal articles that will be made available on iLearn.

Strand 2: Neurology

Required:

1. Blumenfeld H (2010) *Neuroanatomy through Clinical Cases*. 2nd ed. Sinauer Associates Inc, Massachusetts. Distributed by Palgrave Macmillan, Victoria, Australia.

1. CHIR873 - Neurology *Tutorial Course Manual* – available at Co-op bookshop. Macquarie University Printery.

Recommended:

- Gates P (2010) *Clinical Neurology A Primer*. Churchill Livingstone Elsevier, Sydney, Australia
- Krebs C et al (2012) *Neuroscience* in Lippincott's Illustrated Reviews (Harvey RA Ed) LWW, USA
- Kandel ER et al (2000) *Principles of Neural Science, 4th ed*. McGraw-Hill, New York.
- Jull, GA et al (2008) *Whiplash, headache, and neck pain: Research-based directions for physical therapies*, 1st ed. Churchill Livingstone: Elsevier, Edinburgh.
- Olesen J et al (2006) *The Headaches 3rd ed*. LWW, PA.
- Purves D et al (2012) *Neuroscience 5th ed*. Sinauer Inc, USA
- McCance KL et al (2010) *Pathophysiology, The biologic basis for disease in adults and children*

Mosby, Elsevier, Canada

- Bickley LS (2009) *Bate's Guide to Physical Examination and History Taking 10th ed.* Wolters Kluwer/Lippencott Williams & Wilkins, PA
- Kiernan, JA (2009) *Barr's The Human Nervous System An Anatomical Viewpoint 9th ed.* Wolters Kluwer/LWW, PA
- Haines, DE (2008) *Neuroanatomy: An Atlas of Structures, Sections, and Systems 7th ed.* Wolters Kluwer/LWW, PA
- Nolte, J (2009) *The Human Brain: An Introduction to its Functional Anatomy 6th ed.* Mosby/Elsevier, PA

Required Diagnostic Equipment (Neurological Diagnosis Kit):

1. A diagnostic set with otoscope and ophthalmoscope (Welsh Allen series 97200-BI recommended - ~\$515)
2. A tailor's measuring tape
3. A 128 and 512Hz tuning fork (Al weighted)
4. Neurotips (no sewing pins or pinwheels allowed strictly by OHS/Biosafety regulations)
5. Large stem ear buds
6. Disposable tongue depressors
7. Tomahawk reflex hammer
8. Cotton wool

Changes made to previous offerings in this unit

The tutorials in the orthopaedics strand of CHIR 873 have been condensed from 2x1 hour tutorials into 1x2 hour tutorial. The idea of this change is to maximise the time students have with the teaching staff and improve the flow of tutorial classes.

Unit Schedule

The Neurology Timetable:

Wk	Start Date of wk	Lecture (Tuesday, 9 – 11 am)	Tutorial (Wednesday 2 - 4, 4 - 6 pm)
1	3 March	Introduction to Clinical Neurology Nerve Tension Tests	None
2	10 Mar	Nerve Tension Tests and Mobilisations	Nerve Tension Tests and Mobilisations
3	17 Mar	Altered Cognition Seizures	Nerve Tension Tests and Mobilisations
4	24 Mar	Psychiatric disorders	Neurological History Taking Neuroexam: mental status
5	31 Mar	Sleep Disorders	Neuroexam: mental status
6	7 April	Eye Presentations	Neuroexam: cranial nerves
14 April – 27 April: Mid-semester Break			

7	28 April	Hearing and Balance Presentations	OSCE
8	5 May	Cerebrovascular Disease and Brain Neoplasms	Neuroexam: cranial nerves
9	12 May	Trauma of the Spinal Cord and Localisation of the Lesion	Neuroexam: motor
10	19 May	Trauma of the Spinal Cord and Localisation of the Lesion	Neuroexam: motor
11	26 May	Common Lesions of the NS	Neuroexam: sensory
12	2 June	Common Lesions of the NS	Neuroexam: sensory
13	10 June (Tues)		OSCE

Orthopaedics

WEEK	LECTURE 1	LECTURE 2	Tutorial
1	Introduction to Orthopaedics(B. Brown)	Introduction to clinical reasoning, diagnostic test accuracy, and the classification of low back pain (B. Brown)	No Tutorial
2	Lower Back Pain due to Serious pathology(B. Brown)	Lower Back Pain with Associated Radiculopathy I (B. Brown)	Orthopaedic Assessment of the Lumbar Spine – Part I
3	Lumbar Intervertebral Disc Degeneration (B.Brown)	Lumbar Spine Spondylosis (B.Brown)	Orthopaedic Assessment of the Lumbar Spine – Part II
4	Lumbar Spine Spondylolysis and Spondylolisthesis (B.Brown)	Lumbar Instability and Hypermobility (B.Brown)	Orthopaedic assessment of Lumbar Spine Stability, and Generalised Hypermobility
5	Non-Specific Lower Back Pain - Part I (B.Brown)	Non-Specific Lower Back Pain - Part II (B.Brown)	Orthopaedic Assessment of the Sacroiliac Joint and Coccyx

6	Orthopaedic Assessment of the Older Patient (B.Brown)	Leg Length Discrepancy (B.Brown)	OSCE 1
7	Developmental and degenerative changes in the hip (M.Pribicevic)	Myofascial & neural causes of hip pain (M.Pribicevic)	Orthopaedic Assessment of the Hip - Part I
Mid Semester Break April 14th – April 25th, 2014			
8	Labral & impingement syndromes of the hip (M.Pribicevic)	Knee collateral and cruciate ligament injuries (M.Swain)	Orthopaedic Assessment of the Hip - Part II
9	Patellofemoral and growth plate disorders of the knee (M.Swain)	Joint and meniscal dysfunction of the knee (M.Swain)	Orthopaedic Assessment of the Knee – Part I
10	Injuries of the lower leg and ankle (B.Brown)	Joint & ligament disorders of the ankle- Part I (B.Brown)	Orthopaedic Assessment of the Knee – Part II
11	Joint & ligament disorders of the ankle - Part II (B.Brown)	Disorders of the mid-foot, forefoot and toes (B.Brown)	Orthopaedic Assessment of the Foot and Ankle - Part I
12	Review Lecture (B.Brown)	Seizures (S.Whillier)	Orthopaedic Assessment of the Foot and Ankle - Part II
13	No Lecture	No Lecture	OSCE 2

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.
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- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
- Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings
- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

Assessment tasks

- 1
- 2
- 3
- 4
- 5

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Demonstrate a sound competency in integrating and applying neuromusculoskeletal anatomy, physiology and pathology.
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- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
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- Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings
- Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals

Assessment tasks

- 2
- 3
- 4
- 5

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-

musculoskeletal origin

- Use acquired knowledge to evaluate conditions, research these cases further using appropriate reference material and communicate findings
- Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals

Assessment tasks

- 2
- 3
- 4

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
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- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

Assessment tasks

- 2
- 3
- 4

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
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- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

Assessment tasks

- 3
- 4

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their

professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Perform the clinical neuromusculoskeletal history taking and examination competently
- Show an ability to draw on their theoretical knowledge in order to tailor the physical examination to the clinical presentation of the patient and from this develop a differential diagnosis.
- Develop strong clinical reasoning skills and the ability to diagnose conditions that are suitable or contraindicated in chiropractic care, including conditions of non-musculoskeletal origin
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- Participate in practical sessions in which the knowledge acquired in texts and lectures is applied in a group situation. They should be able to reason, question and communicate your understandings to each other and your tutors as they complete tasks set in the practicals
- Develop a respect and empathy for patients, and an ethical and professional attitude to health care. In this regard, they should develop a commitment to remain informed and up-to-date in their profession

Assessment tasks

- 2
- 3
- 4