



MEDS20007 Advanced Paediatric Ultrasound

Term 1 - 2020

Profile information current as at 07/05/2024 05:38 pm

All details in this unit profile for MEDS20007 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

This unit will enable you to gain knowledge concerning the performance of paediatric ultrasound. You will develop the advanced knowledge and skills required to interpret the clinical signs, symptoms and diagnostic test results associated with complex pathophysiological conditions in the paediatric patient. Comparison of imaging, prognosis and treatment options will be undertaken within an ethical framework of family-centered practice and patient safety. To evaluate existing and emerging technology, diagnostic parameters and radiological interventions in paediatric ultrasound you will undertake a review of the relevant literature in an area of your choice. Please note that you will be required to have clinical access to paediatric patients in order to undertake and review a number of clinical cases.

Details

Career Level: *Postgraduate*

Unit Level: *Level 9*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

There are no requisites for this unit.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 1 - 2020

- Online

Attendance Requirements

All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Postgraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Portfolio**

Weighting: 50%

2. **Written Assessment**

Weighting: 50%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from "Have your say" feedback

Feedback

Students found the unit material useful and practical

Recommendation

The unit can be further enhanced with clinically oriented and practical knowledge by inviting more clinicians to contribute to the teaching team.

Feedback from "Have your say" feedback

Feedback

Students have requested more hand-on videos demonstrating standardized scanning of the neonatal head, hips and paediatric spine.

Recommendation

More lectures demonstrating practical scanning skills should be developed.

Unit Learning Outcomes

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

1. Differentiate the clinical appearance, aetiology and outcomes of advanced ultrasound assessment of paediatric and congenital disease
2. Evaluate the physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures in the paediatric patient
3. Evaluate and present information concerning existing and emerging technology, diagnostic parameters and radiological interventions in a chosen area of paediatric ultrasound based on a review of relevant literature
4. Apply practical skills and critical thinking to advanced clinical assessment and reporting of the paediatric patient.

This masters unit does not lead to entry into the sonography profession. It is for advanced practice by qualified practitioners. As such it does not require external accreditation but we will be seeking approval for the course from the accrediting body, the ASAR.

Alignment of Learning Outcomes, Assessment and Graduate Attributes

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Portfolio - 50%	•	•		•
2 - Written Assessment - 50%	•	•	•	

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Knowledge	○	○	○	○
2 - Communication	○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○	○
4 - Research		○	○	
5 - Self-management				○
6 - Ethical and Professional Responsibility			○	○
7 - Leadership				
8 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes							
	1	2	3	4	5	6	7	8
1 - Portfolio - 50%	○	○	○		○	○		
2 - Written Assessment - 50%	○	○	○	○		○		

Textbooks and Resources

Textbooks

MEDS20007

Prescribed

Paediatric Ultrasound A Practical Guide

Edition: 1st (2013)

Authors: Allison Holly

Allison Holley Consulting

Sydney , NSW , Australia

ISBN: 9780987526021

Binding: Paperback

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Supplementary

A Practical Guide to Fetal Echocardiography: Normal and Abnormal Hearts

Edition: 3rd (2016)

Authors: Alfred Z. Abuhamad, Rabih Chaoui

Wolters Kluwer

Philadelphia , PA , USA

ISBN: 978-1451176056

Binding: Paperback

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Supplementary

Pediatric Ultrasound - How, Why and When

Edition: 2nd (2010)

Authors: Rose De Bruyn

Churchill Livingstone Elsevier

Sydney , NSW , Australia

ISBN: 978-0443069178

Binding: Paperback

Additional Textbook Information

Copies are available for purchase at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Microphone and camera to attend the Zoom sessions

Referencing Style

All submissions for this unit must use the referencing style: [Vancouver](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Jessie Childs Unit Coordinator

j.childs@cqu.edu.au

Michelle Fenech Unit Coordinator

m.fenech@cqu.edu.au

Schedule

Week 1 - Welcome and basics - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Welcome to Paediatric Sonography.		
Basics and general issues. Appointments, waiting area, examination.	Lectures and notes on Moodle site	Zoom Tutorial - Please see schedule posted on the Moodle page.
Special procedures and equipment. Choosing equipment, Doppler, occupational injuries, image recording, new applications, safety.		Quiz 1: Formative quiz

Week 2 - Urinary Tract - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Urinary Tract: Embryology / Anomalies, Prenatal renal pelvis dilatation, UTI, Cystic kidneys, "Bright" kidney, Calculi / nephrocalcinosis, Hypertension, Trauma, Tumours.	Lectures and notes on Moodle site	Quiz 2: Formative Quiz

Week 3 - Hepatobiliary - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Liver: Liver embryology/anatomy, Neonatal liver, Cystic dilatation of biliary system, Diffuse abnormalities, Focal lesions, Gallbladder / bile ducts	Lectures and notes on Moodle site	Zoom Tutorial - Please see schedule posted on the Moodle page
Spleen: Normal spleen, congenital variants, splenomegaly, small spleen, focal lesions, trauma.		Quiz 3: Formative Quiz
Pancreas: Congenital anomalies, cystic fibrosis, diffuse conditions, focal lesions.		

Week 4 - Abdomen and gut - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Abdomen and Bowel including Duodenum: Developmental abnormalities/embryology, body wall defects, GORD, HPS, stomach conditions, malrotation, duplication, intussusception, appendix, bowel wall thickening, anorectal anomalies, cystic masses. Mesentery, omentum and peritoneum.	Lectures and notes on Moodle site	Quiz 4: Formative Quiz

Week 5 - Female Reproductive System - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Female Reproductive System: Embryology, normal appearances, congenital abnormalities, neonatal masses, ambiguous genitalia, ovarian cysts.	Lectures and notes on Moodle site	Zoom Tutorial - Please see schedule posted on the Moodle page
Precocious puberty, isolated premature thelarche, adrenarchy, puberty delay, menstrual dysfunction		Quiz 5: Formative Quiz
Ovarian neoplasms.		Portfolio Due: Week 5 Monday (6 Apr 2020) 10:00 am AEST

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - The Scrotum - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Scrotum and Testes: Embryology. Congenital anomalies, cryptorchidism, hernias and hydroceles, varicocele. Painful scrotum: torsion, epididymo-orchitis, appendicular torsion. Microlithiasis Tumours Extratesticular masses Trauma	Lectures and notes on Moodle site	

Week 7 - The Spine - 27 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Neck and Spine: Thyroid gland: anatomy, embryology, congenital anomalies, diffuse enlargement, malignancy. Parathyroid glands. Neck masses: thyroglossal cyst, branchial cleft anomaly, cystic hygroma, torticollis, lymphadenopathy, thymus, parotid. Spine: anatomy/embryology, dysraphism, sacral pit, dorsal dermal sinus, diastematomyelia, lipoma, tight filum terminale, meningocele, caudal regression, trauma.	Lectures and notes on Moodle site	Zoom Tutorial - Please see schedule posted on the Moodle page. Quiz 6: Formative quiz

Week 8 - The Brain - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Brain: Measurements, normal anatomy/embryology, intracranial hemorrhage, periventricular leukomalacia, congenital cystic abnormalities, trauma, hydrocephalous, vascular abnormalities.	Lectures and notes on Moodle site	Quiz 7: Formative Quiz

Week 9 - MSK - 11 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
The Musculoskeletal System: Developmental dysplasia of hip, Graf technique. Osteomyelitis. Transient synovitis Tendon abnormalities Soft tissue masses.	Lectures and notes on Moodle site	Zoom Tutorial - Please see schedule posted on the Moodle page Quiz 8: Formative quiz.

Week 10 - Interventional US - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
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Paediatric interventional ultrasound:

Anesthesia

Venous access

Biopsy: renal, liver, others

Aspiration and drainage

Sclerotherapy

Urological intervention

Lectures and notes on Moodle site

Quiz 9: Formative Quiz

Week 11 - The Eye - 25 May 2020

Module/Topic

Chapter

Events and Submissions/Topic

Paediatric Eye Ultrasound:

Technique and pathology of the paediatric eye.

Lectures and notes on Moodle site

Zoom Tutorial - Please see schedule posted on the Moodle page.

Quiz 10: Formative Quiz.

Week 12 - Pitfalls in Paediatric Ultrasound - 01 Jun 2020

Module/Topic

Chapter

Events and Submissions/Topic

Pitfalls in Paediatric Ultrasound:

Common pitfalls and errors of paediatric ultrasound.

Lectures and notes on Moodle site

Written Assessment Due: Week 12 Monday (1 June 2020) 10:00 am AEST

Review/Exam Week - 08 Jun 2020

Module/Topic

Chapter

Events and Submissions/Topic

Exam Week - 15 Jun 2020

Module/Topic

Chapter

Events and Submissions/Topic

Term Specific Information

The unit coordinator is Dr Jessie Childs (Adelaide). The best way to contact Jessie is via email at: j.childs@cqu.edu.au.

It is important to check your student email regularly as updates about the unit will be sent from the unit coordinator by email. Please ensure email correspondence is done via your CQU student email.

This unit is a 6 credit point unit which requires you to allocate around 12 hours per week for study. The unit is graded. There are two assessment items: a portfolio 50% and a written assessment 50%. Both assessment pieces require review of the relevant up to date literature to inform the work.

Tutorials will be offered in the evening to enable students on clinical placement or working to attend. You will be able to ask questions, gain feedback and join in discussions on how to best complete the assessment tasks.

Assessment Tasks

1 Portfolio

Assessment Type

Portfolio

Task Description

As a general sonographer, especially if you work with children, paediatric imaging is a very important aspect of your practice. There are many aspects of imaging children which are different from adult imaging. Children present with varied symptomatology than adults. The incidence and prevalence of diseases are also very different from the adult population. It is imperative that you consider the differences in paediatric imaging. This assessment item gives you required knowledge to appreciate various paediatric specific pathologies by collecting a few representative case studies. This assessment item is a collection of paediatric cases that you come across in your everyday practice. The aim of this assessment is for you to collect clinically interesting cases and to reflect upon the role of ultrasound in their management. It enables you to differentiate the clinical appearance, aetiology, and outcomes of advanced ultrasound assessment of paediatric and congenital disease in terms of physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures. You can then apply practical skills and critical thinking to advanced clinical assessment and reporting of the paediatric patient. This assessment item will not only enhance your knowledge,

communication, cognitive, technical and creative skills but will also help in strengthening your self-management, ethical and professional responsibilities.

The portfolio is a collection of 4 case reports. You are to choose 4 interesting cases from your routine ultrasound practice showing some pathology. If you do not have access to paediatric patients you can source the case and images from any other source as long as you acknowledge the source.

Each case report should address the following: Brief history and presentation of the patient with the clinical question asked. Discussion of other imaging and non-imaging investigations completed at the time of writing this assessment and pre-test diagnosis (with the degree of confidence). Details of the ultrasound examination performed. Discussion of findings of ultrasound and post-test diagnosis and discussion on comparison with pre-test diagnosis. Discussion of further management of the patient.

At least 5 references are to be cited for each case. Each case report should be short and to the point and not more than 1000 words (excluding the reference list). Relevant images (completely anonymised) are to be included. These images should be your own. You can use images from other sources, even the internet, but they **MUST** be properly referenced. There is no residential school for this unit. Students must successfully pass each individual assessment item in order to pass the unit. Minimum passing marks are 50%.

Assessment Due Date

Week 5 Monday (6 Apr 2020) 10:00 am AEST

Return Date to Students

Week 6 Monday (20 Apr 2020)

Collaborated marks and feedback will be provided to the students within 2 weeks.

Weighting

50%

Assessment Criteria

Each case report will be assessed by considering each of the following: (Detailed marking rubric is available on the unit Moodle site).

Have you presented the case history adequately enough to raise a clinical suspicion or narrow differential diagnosis?

Can you differentiate the clinical appearance, aetiology, and outcomes of advanced ultrasound assessment of paediatric and congenital disease?

Have you included enough relevant detail?

Can you evaluate the physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures in the paediatric patient?

Can you apply practical skills and critical thinking to advanced clinical assessment and reporting of the paediatric patient?

Have you adequate support from references?

Is your spelling, grammar and use of vocabulary exemplary?

Have you kept to the word limit?

Have you included images of a reasonable quality?

You need a minimum of 50% to pass this assessment

Referencing Style

- [Vancouver](#)

Submission

Online

Learning Outcomes Assessed

- Differentiate the clinical appearance, aetiology and outcomes of advanced ultrasound assessment of paediatric and congenital disease
- Evaluate the physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures in the paediatric patient
- Apply practical skills and critical thinking to advanced clinical assessment and reporting of the paediatric patient.

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Self-management
- Ethical and Professional Responsibility

2 Written Assessment

Assessment Type

Written Assessment

Task Description

Paediatric imaging is rapidly changing with advancement in technology and a better understanding of paediatric pathologies. As a sonographer, paediatric imaging is a significant part of your practice. Awareness of changing spectrum of imaging technologies and protocols is essential to provide a specialised service that is efficient, modern and keeps up with the current trends. This assessment item requires you to write a detailed report on a clinically relevant topic with the aim to discuss the role of imaging, particularly the new technologies in ultrasound. It requires a detailed description of the clinical appearance, aetiology, and outcomes of advanced ultrasound assessment of paediatric or congenital disease, with evaluation of the physiological, pathophysiological and pharmacological factors relevant to diagnostic and therapeutic procedures. The emphasis is on evaluating existing and emerging technology, diagnostic parameters, and radiological interventions, especially paediatric ultrasound, based on a review of relevant literature. This assessment will not only enhance your knowledge, communication, cognitive, technical and creative skills but also improve your research capability and ethical and professional responsibilities.

You are to select one topic that interests you clinically, in consultation with the unit coordinator. A decision as to your topic must be concluded, with the unit coordinator agreement, by the end of week 2. Discuss the topic under the following headings (you can add more headings as deemed necessary):

Unstructured abstract (200 words)

A well-stated aim of the assessment. You can use Problem/Patient/Population, Intervention/Indicator, Comparison, Outcome, and Time (PICOT) to construct the aims.

An introduction that includes the typical presentation, aetiology, and epidemiology of the case, with pathophysiology. Discuss existing and emerging diagnostic technologies, parameters and radiological interventions in paediatric ultrasound in reference to the topic. Evaluate their role and discuss the advantages and disadvantages of these procedures.

Conclude by giving your recommendations. You can use tables, figures and graphs to support your discussion.

You can use ultrasound images that must be your own (completely and properly anonymised). If you do not have your own images you can use the images from any other source (imaging or online) but you **MUST** properly reference the source. You will perform an exhaustive literature search that supports your arguments. The word limit is 3000 (it excludes the abstract, tables, figures, diagrams and reference list). Further information about the assessment is provided on the unit Moodle site and will be discussed in Zoom tutorial sessions.

Assessment Due Date

Week 12 Monday (1 June 2020) 10:00 am AEST

Return Date to Students

Exam Week Monday (15 June 2020)

Feedback and aggregate score will be provided to the students within 2 weeks.

Weighting

50%

Minimum mark or grade

50%

Assessment Criteria

The assessment will be marked based on: (The detailed marking rubric is available on the unit Moodle page).

Differentiate the clinical appearance, aetiology, and outcomes of advanced ultrasound assessment of paediatric and congenital disease.

Evaluate and present information concerning existing and emerging technologies, diagnostic parameters and radiological interventions in a chosen area of paediatric ultrasound based on an extensive review of relevant literature. Evaluate the physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures in the paediatric patient.

You must ask yourself the following: Is the introduction to the case engaging to the audience with a clearly stated aim?

Is the description of the case clear and concise whilst giving all the relevant background information?

Have you critically reflected upon and evaluated the imaging and non-imaging investigations in this case?

Does the analysis of the case demonstrate academic rigour, depth, and insight?

Have you done an exhaustive literature search about the current/emerging technologies and new imaging methods in ultrasound available that can be used in the case to advantage?

Is the conclusion concise and clear in its evaluation and summary of the significance of the communication pitfalls and in its vision for your performance development?

Is your spelling, grammar and use of vocabulary exemplary?

Is the sentence structure and language used scientific and easily understandable?

This assessment must be submitted with all identifying factors removed. Identifying factors include such things as

patient name, date of birth and clinical site name for example. You must achieve a mark of 50% to pass this assessment. Further details are available on the unit Moodle page along with detailed marking criteria.

Referencing Style

- [Vancouver](#)

Submission

Online

Learning Outcomes Assessed

- Differentiate the clinical appearance, aetiology and outcomes of advanced ultrasound assessment of paediatric and congenital disease
- Evaluate the physiology, pathophysiology and pharmacological factors relevant to diagnostic and therapeutic procedures in the paediatric patient
- Evaluate and present information concerning existing and emerging technology, diagnostic parameters and radiological interventions in a chosen area of paediatric ultrasound based on a review of relevant literature

Graduate Attributes

- Knowledge
- Communication
- Cognitive, technical and creative skills
- Research
- Ethical and Professional Responsibility

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem