Course Outline

HRM 777 May - June 2023
Methods for Diagnostic and Prognostic Research

Course coordinator: Alfonso Iorio, Carolina Alba
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Instructors: Kerstin de Wit, Marek Smieja, Sameer Parpia, Farid Foroutan, Lina Santaguida

 Time: Monday and Thursday 9:00 am – 12:00pm
Location: Online on May 1, room HSC 1J10 on May 15 and 18, and room HSC 4N55A the rest of the classes.

1. Background and course description
This is an advanced course in diagnostic and prognostic test methodology and statistical analysis.

There has been growing health care, third party payer, and societal interest in ensuring appropriate testing to inform disease status and management. Some of this has focused on discouraging health professionals from ordering tests that have not been shown to improve patient outcomes. At the same time, there has been increasing demand to test for markers that can lead to individualized, or stratified, care. Over the past few years, research methodology that aims to improve the validity of test studies has been rapidly evolving.

Diagnosis, prognosis and treatment are three distinct yet inter-connected aspects of advancing knowledge, and health and medical care. A correct diagnosis leads to a discussion of the disease prognosis and options for appropriate care. Prognosis provides information on disease behavior.

This first half of this course is dedicated to diagnostic testing. We begin by reviewing basic test agreement and test accuracy indices that were introduced in HRM 721. We will then discuss phases of test development, introduce frameworks that describe the role of the test in the patient care pathway, and discuss using an adaptation of PICOS to formulate the research question. We will discuss basic and advanced study designs, when they are appropriate, threats to validity, and recent solutions to verification problems. We will end by discussing methodological issues particular to systematic reviews of diagnostic testing.

Prognostic research is discussed in the second half of the course. The four units will cover the entire field of prognostic research, sub-classifying it as proposed by the PROGRESS group in overall prognosis, risk factor research, prediction modeling, and stratified medicine. For each of the areas, we will cover the research concept, research cycle, risk of bias appraisal and systematic review of the literature evidence.

The availability of advanced statistical analyses and their uses will be presented for both diagnostic and prognostic research.

We will end by a presentation on formulating guidelines and will discuss modifications to the GRADE approach that are specific to diagnostic and prognostic tests.

Throughout the course, we will emphasize the need to address patient important outcomes.

2. Course objectives
- Introduce students to current advanced concepts in the design and analysis of diagnostic and prognostic studies
- Learn the sources of bias in diagnostic and prognostic study designs, the techniques to minimize its impact and the tools to assess bias when appraising diagnostic and prognostic literature
- Learn the phases of a diagnostic test or predictive factor development, that is, how to proceed from conceiving a possible test, or identifying a predictive factor, to assess if and how it can or should be used in practice
- Learn basic and advanced statistical techniques used in diagnostic and prognostic research, when they are appropriate, and their limitations
- Learn the potential role for systematic reviews as applied to diagnostic and prognostic studies
- Learn how to apply GRADE to diagnostic and prognostic bodies of evidence in the framework of guideline development

For diagnostic testing, understand:
- The use of PICOS to formulate the research question, in order to include a description of the proposed place of the test in the current diagnostic pathway and to explicitly state patient important outcomes.
- The appropriate design for the phase of study development, including designs for accuracy (case control, retrospective and prospective), randomized trials, decision analysis
- When an accuracy study is sufficient and when it is not
- Why test results may vary between populations
- The importance of providing a detailed description of the index test and the tools that are availability for guidance
- The importance of describing the role of the proposed index test, including replacement, add-on or triage to an already existing test
- How to deal with indeterminate test results
- Possible solutions when there is no single adequate reference standard applied to all patients, including imputation and adjustment; differential verification; sensitivity analyses; composite reference standard; panel diagnosis; and latent class modeling.
- The use of multivariable modeling and diagnostic score construction
- How to determine sample size for a diagnostic study

For prognosis research, understand:
- The difference between overall prognosis, prognostic factor, predictive modeling, and the concept of stratified medicine
- The main design features, and clinical application of overall prognosis research, including systematic reviews.
- The role of overall prognosis research for design and interpretation of a treatment trial and the concept of baseline risk
- What is meant by a prognostic factor
- The different components of prognostic factor research, from exploration, to confirmation (replication) and systematic review/meta-analysis, including the tools available for the assessment of risk of bias
- The ways that prognostic factors impact on efficacy and effectiveness research
- Limitations of current prognostic factor literature and key ways for improvement of prognostic factor research
- The performance characteristics of a predictive model, including the basic steps for its derivation, validation, re-calibration and update.
- The options available for assessment of risk of bias and systematic review of predictive models
- The difference between prognostic factors and predictors of differential treatment response
- The role of prognosis research in developing stratified medicine, including interpretation of the results of studies reporting on predictors of differential treatment response

3. Pre-requisites

HRM 721 and HRM 702 are prerequisites.

In this course, we will focus on specific aspects of study design important for diagnostic and prognostic research, but we will assume that the student understands the basic concepts of case control, cohort and randomized controlled studies. We will focus on specific aspects of bias and confounding that are relevant and/or specific to diagnostic/prognostic research, but we will assume that the learner understands the basic concepts of confounding and bias. We will cover specific aspects of regression analysis applied to diagnosis and prognosis, but we will assume that the learner understands the general concepts of linear, logistic and Cox regression.

4. Unit outline

Session	Date	Room	Topic
1	Monday May 1	online	Review of diagnostic test properties
2	Thursday May 4	HSC 4N55A	Methods in diagnostics research
3	Monday May 8	HSC 4N55A	Advanced concepts in diagnostic research
4	Thursday May 11	HSC 4N55A	Advanced statistical methods in diagnostic testing
5	Monday May 15	HSC 1J10	Reporting and systematic reviews in diagnostic accuracy
6	*Thursday May 18*	HSC 1J10	*Student presentations: diagnostic testing*
*** Monday May 22 and Thursday May 25 : NO CLASS***				
7	Monday May 29	HSC 4N55A	Introduction to prognostic research: Overall prognosis
8	Thursday Jun 1	HSC 4N55A	Appraising and summarizing evidence on prognostic risk factors
9	Monday June 5	HSC 4N55A	Statistical methods for predictive modeling
10	Thursday June 8	HSC 4N55A	Predictive models
11	Monday June 12	HSC 4N55A	Appraising, summarizing and implementing evidence provided by predictive models: from clinical predictive guides to stratified medicine
12	Thursday June 15	HSC 4N55A	Introduction to GRADE for formulating guidelines for diagnostic and prognostic tests
13	*Monday June 19*	HSC 4N55A	*Student presentations: prognosis research*

Online learning portal
The McMaster online learning portal Avenue to Learn is the main point of contact for the course. It is here that all unit descriptions, assignments, readings, instructions, and course news are posted. Students submit their Research Question, course papers, and critiques (see below) online through Avenue.

5. Course format
This course follows the principles of problem based learning. Nine units consist of small group tutorials that are preceded by a large group lecture. Each of these units has a learning package consisting of readings and an assignment. Two additional units on advanced statistical methods will combine the lecture and tutorial time into a large group interactive learning session.

There is no textbook for this course, as there are few textbooks on diagnosis / prognosis and unfortunately none are up to date with the current literature. The readings therefore are from the primary literature and consist of published articles or online documents. They were chosen because they are the most relevant, informative, and current for each unit topic.

Prior to class, students are expected to have read all the readings that are listed as "Required". You will notice that some readings may discuss additional topics that are clearly not part of the unit (this is a consequence of using readings rather than a textbook!); you are not required to read these parts of the articles.
Readings that are listed as "Supplementary" are only provided for those who may want to delve into more detail on a specific topic or as future reference for those who may become more involved in diagnostic / prognostic study research.

Prior to class, students must complete the unit assignment for the discussion in the tutorial. The purpose of the assignments is to help the student understand the key concepts for each unit. The group lecture is designed to integrate and synthesize the information and highlight the core concepts for each unit. The small group tutorials allow further consolidation of the concepts, assist the student in interpreting and understanding the course material, and help clarify outstanding issues, questions, and concerns through group discussion. The tutorials are run under the guidance of a tutor.

We also encourage students to use some of the tutorial time to discuss any issues they may be related to their research question and paper.

6. Student evaluation
- Tutorial participation (sessions 1-5, 7-11) x 1 mark   10%
- Submission of question for diagnosis and prognosis papers 2 x 5 marks   10%
- Course papers   2 x 20 marks   40%
- Peer review of another student's paper 2 x 10 marks   20%
- Presentation of course papers 2 x 10 marks   20%

 6.1 <u>Tutorial participation</u>
Preparation of the assignments and discussion of issues in the tutorial are crucial to successful learning. Students are expected to be helpful and communicate with each other in a respectful manner. All personal communication equipment is to be used only for issues relevant to the

course (e.g. brief on-line look-up); if you are on call or if there are other extenuating circumstances to use your personal communication equipment, please inform your group.

Assignments are not marked, but participation is marked as: 0 – absent or no communication, 0.5 – some contribution, 1 - well prepared, appears to understand the issues in the assignments or is willing to ask for help, good contribution to the discussion.

6.2 Submission of the question for your course papers

- Write the research question as a single sentence question, with a question mark at the end
- For the diagnosis question, use the PIRATES format as discussed in class
- For the prognosis question, use the format discussed in class: state the population (P), the outcome (0), and any effect modifiers / prognostic factors
- Provide a brief background
- State the rationale
- Provide 1 or 2 pertinent references
- All this must be on maximum 1 1/2 pages, single spaced, 12 point font, with 1.0 inch margins
- Submit your question on Avenue to learn (see "Important dates" for deadline)
- One of the course coordinators will review the submitted question and provide feedback. The question can be approved (5 marks) or if changes are requested, the student can make the requested changes with the opportunity to revise the mark upwards
- Before the question is submitted, it is recommended that it be discussed in the tutorial for the other students' feedback and suggestions

6.3 Course papers

As part of the course, the students are required to develop 2 brief (7 pages maximum) research protocols, focusing on methodological issues, as a way of applying the newly acquired knowledge and offer an opportunity for assessment. One paper is submitted as a protocol for a diagnostic test assessment, and the other for a prognostic research question.

The question for each proposal is the student's choice. If the student is already working on a specific research area, he/she may consider developing a complementary prognosis / diagnosis question. For example, if the student is developing an educational intervention for obesity prevention in school age children, he/she may consider building a prediction tool to predict adherence or response to the educational intervention.

The question must be a primary research question, that is, it cannot be a systematic review or guideline development.

Please see the "Course Paper Instructions" below detailing the contents and formatting of the proposals. Also see "Important dates" for submission deadlines.

6.4 Critique of a fellow student's paper

Each student will be assigned a research protocol from a fellow student to critique. The assignment will be determined randomly. The students will use a similar structured paper assessment form as the course instructors, but focusing on methodologic issues. Assessment of the adequacy of the critique will be assessed by the instructor, using a structured format (see below: Assessment of Student Peer Review).

Because of previous student requests, the critique will be forwarded to the submitting student before the due dates of the presentation and paper submission. However, we cannot guarantee that the critique comments are appropriate or correct, so we urge discretion and judgment before incorporating any comments.

6.5 Presentations

The students will present their research papers to the class. The presentation time is 10 minutes and should focus on salient methodological issues. The presentation is limited to 6 slides including the title slide. Animation cannot be used as substitutes for additional slides. After the presentation there will be 5 minutes for discussion and comments.

7. Important dates

Saturday May 6	Research question for diagnosis submitted by 11:59pm
Tuesday May 16	Diagnosis course paper submitted by 9:00am
	Papers distributed for student critiques by 11:00am
Thursday May 18	Critiques submitted by 9:00 am
	Student presentations
Tuesday May 23	Revised course paper (optional) submitted by 9:00am
Saturday Jun 3	Research question for prognosis submitted by 11:59pm
Friday June 16	Prognosis course paper submitted by 9:00am
	Papers distributed for student critiques by 11:00am
Monday June 19	Critiques submitted by 9:00 am
	Student presentations
Tuesday June 20	Revised course paper (optional) submitted by 9:00am

Session	Date	Topic
1	Monday May 1	Class
2	Thursday May 4	Class
	Saturday May 6	*Research question for diagnosis submitted by 11:59pm*
3	Monday May 8	Class
4	Thursday May 11	Class
5	Monday May 15	Class
	Tuesday May 16	*Diagnosis course paper submitted by 9:00am* *Papers distributed for student critiques by 11:00am*
	Thursday May 18	*Critiques submitted by 9:00 am* *Student presentations: diagnostic testing*
*** Monday May 22 and Thursday May 25 - NO CLASS***		
	Tuesday May 23	*Revised course paper (optional) submitted by 9:00am*
6	Monday May 29	Class
7	Thursday Jun 1	Class
	Saturday Jun 3	*Research question for prognosis submitted by 11:59pm*
8	Monday June 5	Class
9	Thursday June 8	Class
10	Monday June 12	Class
11	Thursday June 15	Class
	Friay Jun 16	*Prognosis course paper submitted by 9:00am Papers distributed for student critiques by 11:00am*
	Monday June 19	*Critiques submitted by 9:00 am* *Student presentations: prognosis research*
	Tuesday June 20	*Revised course paper (optional) submitted by 9:00am*

8. Course evaluation

Each student is requested to complete the course evaluation. The content, organization, lecture, tutorials and tutors will be evaluated. Student observations and suggestions for improving the course have been used and are most helpful and welcome.

9. Where to go for help:

Alfonso Iorio
HRM 777 Co-coordinator
(905) 525-9140 x22421
iorioa@mcmaster.ca

Carolina Alba
HRM 777 Co-coordinator
carolina.alba@uhn.ca

For technical help with Avenue to Learn:
Use HELP section
If you cannot find appropriate information go online to:
http://avenue.mcmaster.ca/help/contactsupport-f.php

For concerns with disabilities:
If you have a disability that that may affect your ability to participate or meet course requirements, you may wish to contact the course coordinators or the McMaster Centre for Student Development (http://csd.mcmaster.ca/sswd/) to discuss appropriate accommodations or access support services.

Please contact us early with concerns.
This is a fast paced course with much content to assimilate and it is easy to fall behind.

10. Academic integrity

Please be familiar with McMaster University Academic Integrity Policy (below) in regards to, among others, issues of plagiarism, inappropriate collaboration, forms and procedures

McMaster University Academic Integrity Policy
You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at http://www.mcmaster.ca/academicintegrity

The following illustrates only three forms of academic dishonesty:
1.   Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2.   Improper collaboration in group work.
3.   Copying or using unauthorized aids in tests and examinations.

11. HRM Program Attendance Policy

The HRM Program Attendance Policy includes the following:

11.1 Any absence must be due to a reasonable excuse that is exceptional and out of the control to some extent of the student (illness, death in family, special exams etc).

11.2 One absence from a tutorial with a legitimate excuse is reasonable, 2 may be acceptable at the discretion of the instructor, but if you miss 3 or more tutorials you will not obtain credit for the course. You will be required to withdraw from the course before the last drop deadline or you will receive an 'F' in the course.

11.3 Attendance is considered in the assignment of participation grades. In cases where participation is credited for each session, you will normally receive 0 for participation for any day you are absent.

If you are unable to attend a session, please request permission from one of the course coordinators.

HRM 777: Methods for Diagnostic and Prognostic Research

COURSE PAPERS – May-June 20223

There are two papers that the student will submit for this course. The first is a proposal for a diagnostic testing study, and the second is a protocol for a prognostic research question. The proposals must focus on a primary research question, that is, the study cannot be a systematic review or concern guideline development, as this course does not provide the student with the sufficient tools for these latter study types.

The objective of these papers is for the student to apply the knowledge acquired in this course and to demonstrate his / her understanding of the methodological issues in diagnosis and prognosis research covered in this course. The research question for each proposal is the student's choice. If the student is already working on a specific research area, he/she may consider developing a complementary prognosis / diagnosis question. For example, if the student is developing an educational intervention for obesity prevention in school age children, he/she may consider building a prediction tool to predict adherence or response to the educational intervention.

Your papers must be submitted online to Avenue to Learn:
>   Diagnosis paper by Tuesday May 16, 9:00am
>   Prognosis paper by Friday June 16, 9:00am

Your paper is then distributed the following day to a fellow student for critique.
You present your paper to the group on Thursday May 19 (diagnosis) and Monday June 20 (prognosis).
If you wish to revise your paper after hearing student and tutor comments during your presentation, you can submit the revised paper the next day (May 20 diagnosis), June 21 prognosis), but you must use "track changes" to indicate the changes, otherwise you will be marked on your original submission.

Formatting
Formatting is strictly enforced and you will lose marks if the following instructions are not followed:
1. The maximum length of the paper is 7 pages, excluding tables, diagrams, references, and cover sheet
2. Font size is 12 point font, double spaced
3. Margins are 1.0 inch
4. References are in a consistent format
5. Cover sheet has:
   - Student ID number
   - Title of the proposal
   - Date
6. Each page (excluding cover sheet) has

- Student ID number as a header, flushed right
- Page number at the bottom of each page (excluding cover sheet), flushed right.

Content

1. <u>Research question</u>. The research question must be relevant and researchable. It must have been reviewed and approved by one of the course coordinators.

Write the research question as a single sentence question, with a question mark at the end.

Use the format as discussed in class, and follow the example described in your readings. Identify the components of your question.

2. <u>Background</u>: This is limited to 1 page. Provide a short literature review of the problem, what diagnostic testing / prognostication has been done with discussion of methodologic strengths and weaknesses. If a systematic review or meta-analysis has been published, it should be discussed and referenced.

3. <u>Rationale</u>: From your literature review, provide a succinct justification for your research question: what is the need for your question, how is your proposed question novel, how the proposed study will add to current knowledge; for a diagnostic accuracy question, also explain why are you proposing the proposed cutoff values for sensitivity and specificity.

4. <u>Methodology</u>
Diagnostic testing: If you are planning an accuracy study, follow the relevant sections of the STARD checklist to describe your research plan. If you are planning a randomized trial, you will need to follow both STARD and criteria for a RCT (such as CONSORT). You are not expected to go into detail in regards to the statistical analysis: simply describe in general terms what would be the appropriate statistical analysis for your question.

Prognosis: You will be given instructions in class.

5. Describe the strengths and weaknesses of your study, in particular regarding its relevance to patient important outcomes.

6. Do not submit a budget.

7. You may add appendices (these are not included in the 7 page limit), but the reviewers are not obligated to read the appendices.

8. References are not included in the 7 page limit.

HRM 777: Assessment for
RESEARCH QUESTION submission for course paper: DIAGNOSTIC TESTING

Student name	
Student number	

Research Question	**Mark:** / 3.5
Identifies study population adequately 0.5 mark	Comments:
Index text appropriately described; states if test is replacement, add-on or triage 1 mark	
Reference standard and target condition adequately described 1 mark	
Patient important outcomes stated, as well as minimum acceptable sensitivity and specificity 1 mark	

Background	**Mark:** / 0.5
Succinct summary of what is known 0.5 mark	Comments:

Rationale	**Mark:** / 1
Why is current study needed, particularly in regards to limitations of current literature, and how the study adds to current knowledge. For a diagnostic accuracy question, also explain why are you proposing the proposed cutoff values for sensitivity and specificity.	Comments:

Comments/Suggestions:	

Overall Mark for question submission	**Mark:** / 5

HRM 777: Assessment for
RESEARCH QUESTION submission for course paper: PROGNOSIS

Student name	
Student number	

Research Question	**Mark:** / 3
Identifies study population adequately 0 - 1 mark	Comments:
If relevant, identifies prognostic factor under consideration and any effect modulators. 0 - 2 marks	

Background	**Mark:** / 1
Succinct summary of what is known	Comments:

Rationale	**Mark:** / 1
Why is current study needed, particularly in regards to limitations of current literature, and how the study adds to current knowledge	Comments:

Comments/Suggestions:

Overall Mark for question submission	**Mark:** / 5

HRM 777: Review criteria and marking for DIAGNOSTIC TESTING PAPER

Literature Review and Rationale	Mark: / 20
Succinct summary of what is known, including if pertinent, what diagnostic testing has already been reported with identification of the main methodologic strengths and weakness of existing studies; provides theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge. For a diagnostic accuracy question, also explain why are you proposing the proposed cutoff values for sensitivity and specificity.	Comments:

The Research Question	Mark: / 5
Identifies the study population, index test, whether index test is replacement, add-on or triage, reference standard, target condition, patient important outcomes, minimum sensitivity and specificity	Comments:

Study Design	Mark: / 15
Discussion of the study design and the rationale for the methodology	Comments:

Study Methods	Mark: / 50
Discussion of population: clinical characteristics, inclusion and exclusion criteria, setting, sampling method /15	Comments:
Discussion of the index text: described in adequate detail so that it can replicated; test agreement considered, blinding to reference standard discussed /15	
Discussion of reference standard: time sequence in regards to index test, reference standard adequately described, blinding to index test discussed, limitations of reference standard and how handled /15	
Discussion of strengths and weaknesses of the proposed study / 5	

Document	Mark: / 5
Not more than seven pages; reasonable size margins and type face; references provided in consistent format	Comments:

Writing Style	Mark: / 5
Clarity; logical flow of ideas; crispness; enjoyable to read	Comments:

Overall Comments/Suggestions (continue on back)	

Overall Mark for paper	Mark: / 100

HRM 777: Review criteria and marking for PROGNOSIS PAPER

Literature Review and Rationale	Mark: / 20
Succinct summary of what is known, including if pertinent, what prognostic studies have already been reported with identification of the main methodologic strengths and weakness of existing studies; provides theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge	Comments:
The Research Question	**Mark: / 5**
Identifies the study population, prognostic factor and effect modulators if relevant, reference standard, patient important outcomes	Comments:
Study Design	**Mark: / 15**
Discussion of the study design and the rationale for the methodology	Comments:
Study Methods	**Mark: / 50**
Discussion of population: clinical characteristics, inclusion and exclusion criteria, setting, sampling method /20	Comments:
If relevant, discussion of prognostic factor, effect modulators and outcome in adequate detail so that they can replicated; discussion of appropriate use of blinding and other measures to reduce risk of bias. /25	
Discussion of strengths and weaknesses of the proposed study / 5	
Document	**Mark: / 5**
Not more than seven pages; reasonable size margins and type face; references provided in consistent format	Comments:
Writing Style	**Mark: / 5**
Clarity; logical flow of ideas; crispness; enjoyable to read	Comments:
Overall Comments/Suggestions (continue on back)	
Overall Mark for paper	**Mark: / 100**

HRM 777: Student critique of DIAGNOSTIC TESTING PAPER

Please use the following format for reviewing your fellow student's paper. Comment in each box; you can enlarge the boxes for your comments.

Literature Review and Rationale
Succinct summary of what is known, including if pertinent, what diagnostic testing has already been reported with identification of the main methodologic strengths and weakness of existing studies; provides theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge; for a diagnostic accuracy question, also explains reason for the proposed cutoff values for sensitivity and specificity.

The Research Question
Identifies the study population, index test, whether index test is replacement, add-on or triage, reference standard, target condition, patient important outcomes, minimum sensitivity and specificity.

Study Design
Discussion of the study design and the rationale for the methodology

Study Methods
Discussion of population: clinical characteristics, inclusion and exclusion criteria, setting, sampling method
Discussion of the index text: described in adequate detail so that it can replicated; test agreement considered, blinding to reference standard discussed
Discussion of reference standard: time sequence in regards to index test, reference standard adequately described, blinding to index test discussed, limitations of reference standard and how handled
Discussion of strengths and weaknesses of the proposed study

Document
Not more than seven pages; reasonable size margins and type face; references provided in consistent format

Writing Style
Clarity; logical flow of ideas; crispness; enjoyable to read

Any additional comments

HRM 777: Student critique of PROGNOSIS PAPER

Please use the following format for reviewing your fellow student's paper. Comment in each box; you can enlarge the boxes for your comments.

Literature Review and Rationale
Succinct summary of what is known, including if pertinent, what prognostic studies have already been reported with identification of the main methodologic strengths and weakness of existing studies; provides theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge

The Research Question
Identifies the study population, prognostic factor and effect modulators if relevant, reference standard, patient important outcomes

Study Design
Discussion of the study design and the rationale for the methodology

Study Methods
Discussion of population: clinical characteristics, inclusion and exclusion criteria, setting, sampling method
If relevant, discussion of prognostic factor, effect modulators and outcome in adequate detail so that they can replicated; discussion of appropriate use of blinding and other measures to reduce risk of bias.
Discussion of strengths and weaknesses of the proposed study

Document
Not more than seven pages; reasonable size margins and type face; references provided in consistent format.

Writing Style
Clarity; logical flow of ideas; crispness; enjoyable to read

Overall Comments/Suggestions

HRM 777: Assessment of STUDENT PEER REVIEW: Diagnostic testing paper

Literature Review and Rationale	Mark: / 15
Adequately assessed the following in fellow student's paper: Succinct summary of what is known, what diagnostic testing has already been reported with identification of the main methodologic strengths and weakness of existing studies; theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge; for a diagnostic accuracy question, reason for the proposed cutoff values for sensitivity and specificity.	Comments:
The Research Question	**Mark: / 10**
Adequately assessed how well the research question identified: the study population, index test, whether index test is replacement, add-on or triage, reference standard, target condition, patient important outcomes, minimum sensitivity and specificity.	Comments:
Study Design	**Mark: / 10**
Adequately assessed the fellow student's discussion of the study design and the rationale for the methodology	Comments:
Study Methods	**Mark: / 65**
Adequately assessed the discussion of the population, including clinical characteristics, inclusion and exclusion criteria, setting, sampling method /20	Comments:
Adequately assessed discussion of the index text: whether it was described in adequate detail so that it can replicated; whether test agreement was considered, if blinding to reference standard discussed /20	
Adequately assessed discussion of reference standard, including: time sequence in regards to index test, reference standard description, blinding to index test, limitations of reference standard and how these limitations were to be handled /20	
Adequately assessed strengths and weaknesses of the proposed study / 5	
Overall Comments/Suggestions (continue on back)	
Overall Mark for student peer review	**Mark: / 100**

HRM 777: Assessment of STUDENT PEER REVIEW: Prognosis paper

Literature Review and Rationale	Mark: / 15
Adequately assessed the following in fellow student's paper: summary of what is known, what prognostic studies have already been reported with identification of the main methodologic strengths and weakness of existing studies; theoretical rationale for proposed study and how the proposed question is novel and adds to current knowledge	Comments:
The Research Question	Mark: / 10
Adequately assessed how well the research question identified: the study population, prognostic factor and effect modulators if relevant, reference standard, patient important outcomes	Comments:
Study Design	Mark: / 10
Adequately assessed the fellow student's discussion of the study design and the rationale for the methodology	Comments:
Study Methods	Mark: / 65
Adequately assessed the discussion of the population, including clinical characteristics, inclusion and exclusion criteria, setting, sampling method /25	Comments:
Adequately assessed the following in fellow student's paper: If relevant, discussion of prognostic factor, effect modulators and outcome in adequate detail so that they can replicated; discussion of appropriate use of blinding and other measures to reduce risk of bias. /35	
Adequately assessed strengths and weaknesses of the proposed study / 5	
Overall Comments/Suggestions (continue on back)	
Overall Mark for student peer review	Mark: / 100

HRM 777: Presentation assessment

Student Number:	
Title of Presentation:	

Clarity and pace of the presentation   ___ / 5
(adherence to 10 minutes,
maximum 6 slides including title)

Organization of presentation   ___ / 5
(logical progression of ideas)

Content of presentation   ___ / 50
(brief introduction, research question,
then emphasis on methods and their justification)

Responses to questions   ___ / 30
(understands questions; not defensive;
provides adequate response)

Is a respectful participant and asks appropriate
questions of the other presenters in the group   ____/10
(complete this mark at the end of the session)

Total score   **___ / 100**

 Comments:

HRM 777: Methods for Diagnostic and Prognostic Research
Student information

Student name (please PRINT)	Email

HRM 777: Methods for Diagnostic and Prognostic Research
Tutorial attendance sheet

Date_____

Unit _____

Student name	Mark*

*0 – absent or no communication
0.5 – some contribution
 1 - well prepared, appears to understand the issues in the assignments or is willing to ask for help, good contribution to the discussion.