



Comhairle na nDochtúirí Leighis
Medical Council

**FINAL REPORT ON ACCREDITATION VISIT
UNIVERSITY COLLEGE CORK'S
GRADUATE ENTRY TO MEDICINE (GEM) PROGRAMME
4TH AND 5TH NOVEMBER 2010**

CONTENTS OF REPORT

A. PREFACE

B. SUMMARY AND GENERAL ASSESSMENT

**C. EVALUATION OF THE PROGRAMME, BASED ON WORLD FEDERATION OF MEDICAL
EDUCATION (WFME) GLOBAL STANDARDS FOR QUALITY IMPROVEMENT IN
MEDICAL EDUCATION: EUROPEAN SPECIFICATIONS**

D. APPENDICES:

1. Agenda for visit
2. Presentation by University College Cork
3. University College Cork Team

MEDICAL COUNCIL ACCREDITATION TEAM

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Note: Recommendations are numbered and in *bold italics*

Statement with regard to the Freedom of Information Acts, 1997 and 2003

The Medical Council currently makes information routinely available to the public in relation to its functions and activities and, in line with that practice, a summary of this report will be available on the Council's website, www.medicalcouncil.ie in due course.

The Freedom of Information Act is designed to allow public access to information held by public bodies which is not routinely available through other sources and access to this document may be sought in accordance with that Act. The Medical Council complies fully with the terms of the Freedom of Information Act. It should be noted that access to information under the Freedom of Information Act is subject to certain exemptions and one or more of those exemptions may apply in relation to some or all of this report.

A. PREFACE

1. Context of the visit

University College Cork (UCC) established a new four year programme leading to the award of an MB BCH BAO in 2008. It is at undergraduate (basic in WFME terminology) level with an exclusively graduate entry. UCC also delivers a direct entry medical programme of five years duration which leads to the award of the same degree. The two "streams" merge at the start of the Graduate Entry to Medicine (GEM) students' third year, and the direct entry students' fourth year, and spend the following two years gaining clinical experience. The UCC's GEM is derived from a common template devised by the Irish Universities Medical Consortium, which is in turn informed by the *Scottish Doctor* model.

The Council's policy is that the accreditation of all new programmes is provisional until one full cycle of the programme has been completed. The full accreditation of the University College Cork's Graduate Entry Medical Programme (UCC GEM) will depend upon the demonstrable success of the programme over the four years 2008–2012, and evidence of its longer-term sustainability.

The monitoring visit in 2010 took place two years after the initial accreditation visit (on 20th November 2008). Assessors investigated the "totality" of the first two years of the programme now that students on the GEM programme have "merged" with their peers who have completed three years of the UCC's longstanding five year programme.

2. The Team

The Medical Council Accreditation Team is listed on the title page of this report. Special mention must be made of Professor Alan Johnson (former Dean of the Faculty of Medicine and Health Sciences and Director of the Graduate Entry Programme, Royal College of Surgeons in Ireland) who acted as the external assessor.

The Medical Council also thanks the University College Cork Team, led by Professor George Shorten, Dean of the University's Medical School, and Professor Mary Horgan, Director of the GEM programme, for their co-operation and hospitality. In addition, the Medical Council wishes to thank the students who met the Team on both days, whose feedback is most helpful in formulating this report.

3. Documentation

Prior to the visit, the Team reviewed the previous report of 2008, UCC's response to same and UCC's update in 2010 of the GEM programme based on the World Federation of Medical Education's Standards.

4. Schedule

The accreditation visit over two days included inspection of facilities and meetings with UCC staff, consultants, and with students in the Teaching Hospitals of Bon Secours Hospital Cork, South Tipperary General Hospital and Tralee General Hospital on the first day, and a UCC presentation (by various staff members of the GEM programme), an in-depth discussion between the Council Team and representatives of the University and a private session with students on the second day.

5. Appendices

The agenda for the visit is attached as **Appendix 1**. A copy of the UCC presentation is attached as **Appendix 2**. The UCC staff who took part in the process are listed in **Appendix 3**.

6. The Report

The Medical Council's agreed policy is to use the World Federation of Medical Education's Standards to assess medical programmes. These WFME standards have been used for all accreditations since 2005 so this is a consistent approach. The section headings used in part C of this report are therefore those of the World Federation of Medical Education's *Global Standards for Quality improvement; Basic Medical Education* (2003), informed by the WFME's more recent *European Specifications* (2007).

The observations, comments and recommendations contained in this report are grouped under either the Basic or the Quality heading, and there are some statements by the Team about the level of UCC's attainment of these standards. In a few cases, the observations, comments and recommendations may be deemed "less than Basic", but will be grouped under the Basic heading. In a few cases, the B / Q definition is set out for information but with no comment attached.

7. Additional comments by the Team

(i) Additional documentation

The Team would have welcomed, prior to the visit, the additional documentation well in advance of the visit, so that the Medical Council Team would be in a position to read it thoroughly. Although the additional documentation was received shortly in advance of the visit, it had to be distributed to Team members located throughout the country. The Team would hope to receive any relevant updated documentation well in advance of the next visit, allowing time for distribution.

(ii) Meetings with staff

The Team would have welcomed at all the affiliated sites, private meetings with the staff members/consultants, at which UCC staff members were not present, and this should form part of future agendas.

B. SUMMARY AND GENERAL ASSESSMENT

1. Conclusion of Council Team

On the evidence of analysis of the documentation and following the accreditation visit, the Accreditation Team have formed the opinion that the UCC programme is satisfactory and is designed in a way that appears likely to produce doctors who are ready to undertake an internship.

2. Main findings of Council Team

The Team make three *main* recommendations; the priorities identified for UCC are:

(a) Relations with teaching hospitals / access to clinical placements

The Team recommend that ***UCC provide information regarding Memoranda of Understanding or formal contracts with clinical teaching sites*** (although the Team recognise that these would be likely to be in respect of UCC medical students in general and not UCC GEM students in particular). The Team believes these arrangements are needed to place medical education and training on a sound footing. The Medical Council must be assured that the commitment to deliver the major clinical placements is available to UCC.

(b) Capacity

The Medical Council recommends that ***any increase in the number of students – European Union or non-European Union - be carefully evaluated in light of the available resources, ensuring that resources – human and physical, campus and training sites – can cope with any increase without compromising quality***. The Medical Council must be assured that there will be sufficient capacity for the planned intake.

(c) Staff identification and assignment

The impact of any delays in appointments could be seriously detrimental. In view of the critical importance of sufficient high-calibre staff, the Team recommends that ***the timely identification and assignment of suitable staff should be a major priority for UCC***. The Medical Council must be assured that the required staff will be in place.

3. Recommendations additional to the major recommendations (a) – (c) above:

- a) UCC's educational outcomes should link in with the Medical Council's postgraduate standards in this area.
- b) Additional support be afforded to students with non-scientific backgrounds in relation to basic medical sciences.
- c) Guest lecturers should be informed as to what students have already learnt prior to their own lectures and any topics covered should be linked with UCC lecturers in devising assessments/examinations.
- d) That staff development continues both on campus and on clinical training sites, and that increase of resources and funding and development of staff at affiliated sites takes place and be protected.
- e) Small-group learning should continue with staff:student ratios protected.

- f) Video-link facilities should be made available throughout campus and on training sites.
- g) Additional PCs should be provided for students to address the issue of access resulting from increasing student numbers.
- h) In relation to Anatomy, students should have greater access to the dissection room than exists at present.
- i) Consider how the unused space and facilities in Clonmel could be put to better use for the benefit of students. In particular, this unused space could be considered for use as additional study space for students.
- j) Continue to maximise potential for primary and community experience.
- k) Maximise access to library facilities.
- l) Continue to maximise patient and lay person involvement in the programme and its governance.
- m) There is need for consistency when giving feedback to students from the courses and from affiliated sites.
- n) Students were not clear about the format/structure of the first year first term examination. Feedback should be given to students earlier in the first semester.
- o) Staff cover should be planned in advance when future staff shortages are anticipated.

4. The Team commends UCC for:

- a) A Student centred case-based programme.
- b) The UCC Medical School and affiliated hospital staff for their work, enthusiasm and commitment.
- c) Students' impressions of the programme, which are generally very positive.
- d) Student involvement in decision making and that the students felt that they have the power to influence the Medical School, both through formal processes and day-to-day interactions.
- e) For the development of assessment methods.
- f) For actively seeking external expertise in staff development, research and programme development.
- g) The Clinical Streaming Mapping Document 2010 - 2011 which is a comprehensive guide to clinical teaching throughout the UCC-affiliated hospital network.
- h) Involvement of stakeholders in GEM programme development.
- i) Community placement and use of primary care teams.
- j) For having taken on board recommendations following previous visit in 2008.
- k) Provision of student support which was felt to be excellent, available and accessible.

5. The Team request the following information / clarification from UCC:

- a) regarding Memoranda of Understanding or formal contracts with ALL clinical teaching sites.
- b) regarding the developments in sourcing funds, allocation of the resources for which the Medical School is responsible and becoming a budget holder.
- c) regarding the outcome of the National Research Group regarding the admission policy and selection.
- d) Developments regarding collaboration with other educational institutions, including a possible educational exchange policy with University of Calgary, Canada.
- e) When key appointments mentioned in this report would be filled.
- f) (In due course) the results of evaluation, both interim and at the end of Year 1.

6. The Team's recommendation to the Medical Council Professional Development Committee (incorporating the Education and Training Committee)

The Visiting Team recommends that the Professional Development Committee recommend to the Medical Council the continuation of provisional accreditation of University College Cork's graduate entry programme. This is contingent upon an assurance that the University will address the issues raised in this Report, and that the University will ensure that the three major issues identified are satisfactorily resolved.

In line with Medical Council policy and procedure, full accreditation is not possible until the first cohort of students has successfully completed the programme.

7. Recommended Further action

On-going engagement with UCC will be a key part of the quality assurance process. ***The Team recommend a monitoring re-visit in 2011 (at a time when the Team can meet the students).*** At this visit, the Team will assess progress, have discussions with students, hold discussions with teachers (including clinical teachers), and visit clinical training sites.

C. EVALUATION OF THE GRADUATE ENTRY PROGRAMME, BASED ON WFME STANDARDS

1. Mission and Objectives

1.1. Statements of Mission and Objectives

*B: The Medical School **must** define its Mission and Objectives and make them known to its constituency. The Mission Statements and Objectives **must** describe the educational process resulting in a medical doctor competent at a basic level, with an appropriate foundation for further training in any branch of medicine and in keeping with the roles of doctors in the health care system.*

*Q: The Mission and Objectives **should** encompass social responsibility, research attainment, community involvement, and address readiness for postgraduate medical training.*

The Team felt that overall, the mission and six major objectives are defined and are congruent with the educational process that will produce competent doctors.

The Medical School are convinced of the value of the two stream approach; the Team endorses the view that both the traditional five year direct entry and the new graduate entry routes have a role to play in student recruitment.

UCC's perspective is that in the graduate entrants they are educating a different type of *student* but do not have a mission to produce a different type of *doctor*; the intended outcome of the graduate entry programme is essentially the same as the outcome of the traditional direct entry programme, a competent doctor.

The Medical School encompasses public stakeholders, and community involvement into its programme. It is too early in the programme to state whether it addresses readiness for postgraduate medical training. Many of the stakeholders have links with postgraduate training bodies. The Team recommend **(Recommendation – R 1) that UCC's educational outcomes should link in with the Medical Council's postgraduate standards in this area.** Patient representatives play a valuable role in the programme, but find it hard to participate at a committee level. Every encouragement should be given by the School for the patient representatives to participate fully.

1.2. Participation in Formulation of Mission and Objectives

*B: The mission statement and objectives of a medical school **must** be defined by its principal stakeholders (e.g. Dean, members of faculty board, university, government, medical profession).*

The mission statement appears to be based on input from relevant internal stakeholders including the basic science faculty, clinical faculty, educators and administrators.

*Q: Formulation of mission statements and objectives **should** be based in input from a wider range of stakeholders (e.g. representatives of staff, students, the community, education and health care authorities, professional organisations, postgraduate training bodies).*

Input from graduates on the direct entry programme, and from colleagues within UCC and UCC affiliated sites, from Irish Universities Medical Consortium, and international graduate entry programmes were obtained. Current members of the Medical School Team have had prior experience in working in graduate entry programmes elsewhere.

UCC are aware of Council's previous recommendation that they could consider finding ways of increasing input from other external stakeholders, including professional organisations, postgraduate training bodies, the public, and relevant lay organisations and are further exploring this suggestion.

1.3. Academic autonomy

*B: There **must** be a policy for which the administration and faculty/academic staff of the medical school are responsible, within which they have freedom to design the curriculum and allocate the resources necessary for its implementation.*

UCC stated that the Medical School had complete autonomy in developing the programme's mission and objectives, its design and the curriculum.

However, Council awaits the developments regarding allocation of the resources. It was noted that the School do not have freedom to allocate resources.

At this stage, therefore, 1.3. Academic Autonomy is therefore deemed "less than basic".

*Q: The contributions of all academic staff **should** address the actual curriculum and the educational resources **should** be distributed in relation to the educational needs.*

1.4. Educational outcome

*B: The medical school **must** define the competencies that students should exhibit on graduation in relation to their subsequent training and future roles in the health system.*

The agreed learning outcomes centre on four major themes and 12 learning objectives that the UCC GEM medical student should have. The Team feel that these are generally well described and appropriate. There is a link between the UCC GEM and the Medical Council based on the Eight Domains of Good Professional Practice as devised by the Medical Council.

Under the Irish system, all medical schools have an active role in the intern year, with the Deans signing off the experience of interns at the end of their first postgraduate year in 2010, and this responsibility, under the Medical Practitioners Act 2007, will fall to the Medical Council from 2011. There has been active engagement between the hospitals, the Medical School and the Medical Council in the development of guidelines for interns.

The Medical Council expects that the quality assurance of intern training programmes will ensure that Interns develop the required professional and personal skills, which will result in good patient care and an excellent foundation for further postgraduate training. This is based on the Eight Domains of Good Professional Practice as devised by the Medical Council.

UCC Medical Education Unit in the school is a partner in the MEDINE2 project, and are one of two schools in Ireland participating in the most current stage of the Tuning process.

At this stage, therefore, 1.4. Educational outcome is therefore deemed "more than basic" but does not as yet meet quality standard.

*Q: The linkage of competencies to be acquired by graduation with that to be acquired in postgraduate training **should** be specified. Measures of, and information about, competencies of the graduates **should** be used as feedback to programme development.*

2. Educational programme

2.1. Curriculum models and instructional methods

*B: The medical school **must** define the curriculum models and instructional methods employed.*

*Q: The curriculum and instructional methods **should** ensure that students have responsibility for their learning process and **should** prepare them for life-long, self-directed learning.*

This is a feature of graduate entry programmes in general, and is evident in both the UCC and the students' approach.

UCC is commended for the models and methods used to ensure that students have responsibility for their learning process, which should prepare them for lifelong self-directed learning.

UCC is also commended for the emphasis that is placed throughout the programme on patient safety.

2.2. Scientific method

*B: The medical school **must** teach the principles of scientific method and evidence-based medicine, including analytical and critical thinking, throughout the curriculum.*

The Team felt that the curriculum is based on the principles of scientific method and evidence-based medicine.

*Q: The curriculum **should** include elements for training students in scientific thinking and research methods.*

The Team emphasises the need for small group interactive learning to continue to be protected as "small" groups given the increasing numbers of students. If not, it loses the focus on individuality in the group.

2.3. Basic Biomedical Sciences

*B: The medical school **must** identify and incorporate in the curriculum the contributions of the basic biomedical sciences to create understanding of the scientific knowledge, concepts and methods fundamental to acquiring and applying clinical science.*

The Team **recommend (R-2) to UCC to ensure that those students without a science background feel supported and that help is available where needed.** The first semester of Year 1 is designed to familiarise all students with the basics of human biology, and the Team recognises the importance of these early introductory sessions. More direction and emphasis in/on basic science would be more beneficial i.e. what books to study etc. Extra support (e.g. teaching support or extra classes) by UCC should be made available particularly to students with a non-science background as students thought that "everyone would be starting at the same level". Feedback on progress should be provided at an earlier stage in Semester 1.

*Q: The contributions in the curriculum of the biomedical sciences **should** be adapted to the scientific, technological, and clinical developments, as well as to the health needs of society.*

2.4 Behavioural and Social Sciences and Medical Ethics

*B: The medical school **must** identify and incorporate in the curriculum the contributions of the behavioural sciences, social sciences, medical ethics and medical jurisprudence that enable effective communication, clinical decision making and ethical practices.*

*Q: The contributions of the behavioural and social sciences and medical ethics **should** be adapted to scientific developments in medicine, to changing demographic and cultural contexts and to health needs of society.*

It was noted that the issue of involving non-medical experts and advocates (e.g. patients with relevant health or lifestyle backgrounds) in the programme had been explored, and the Team encourages this.

In the original documents supplied to the Team prior to the visit, the Team found little student internalisation and resourcing themselves and self reflexive practice. However, some clarification was provided in the documentation presented to the Medical Council on the day of the visit (i.e. SAFEMED Programme).

Students expressed concern that there was a gap in integrating behavioural science into the curriculum earlier on. They felt a little overwhelmed as to how to conduct interviews with psychiatric patients. They also expressed that classes/tutorials in patient history should be taken earlier or that patient contact could come to UCC.

2.5 Clinical Sciences and Skills

*B: The medical school **must** ensure that students have patient contact and acquire sufficient clinical knowledge and skills to assume appropriate clinical responsibility upon graduation.*

The planned programme is on course to achieve the programme standard on training.

UCC therefore fulfil the need in a modern curriculum for early patient contact and the students seemed eager to experience it.

The Team flagged the importance of medical students learning with and from other health professions and were assured there is a multi-disciplinary approach, facilitated by the multi-disciplinary nature of the Brookfield Health Sciences Complex and in the multi-disciplinary "group" projects taking place in the affiliated teaching hospitals.

Concern was expressed by students that they do not feel adequately prepared when on clinical placement in surgery i.e. in taking surgical history.

At this stage, therefore, 2.5 Clinical Sciences and Skills is therefore deemed "more than basic" but does not as yet meet quality standard.

*Q: Every student **should** have early patient contact leading to participation in patient care. The different components of clinical skills training **should** be structured according to the stage of the study programme.*

2.6. Curriculum Structure, composition and duration

*B: The medical school **must** describe the content, extent and sequencing of courses and other curricular elements, including the balance between the core and optional content, and the role of health promotion, preventative medicine, and rehabilitation in the curriculum, as well as the interface with unorthodox, traditional or alternative practices.*

*Q: Basic sciences and Clinical Sciences **should** be integrated in the curriculum.*

The context, extent and sequencing of the constituent elements appear to be defined, including the balance between core and optional elements. Basic sciences and Clinical Sciences appear to be integrated in the curriculum.

2.7 Programme management

*B: A curriculum committee **must** be given the responsibility and authority for planning and implementing the curriculum to secure the objectives of the medical school.*

The Team feels that this is satisfactory. However, it is noted that it is difficult for the UCC Medical School to obtain the quality standard fully as they are not in a position to secure their own resources. Council awaits the development of allocation of the necessary resources.

*Q: The curriculum committee **should** be provided with resources for planning and implementing methods of teaching and learning, student assessment, course evaluation, and for innovations in the curriculum. There **should** be representation on the curriculum committee of staff, students and other stakeholders.*

2.8 Linkage with medical practice and the health care system

*B: Operational linkage **must** be assured between the educational programme and the subsequent stage of training or practice that the student will enter after graduation.*

*Q: The curriculum committee **should** seek input from the environment in which graduates will be expected to work and **should** undertake programme modification in response to feedback from the community and society.*

In the Medical Council's visit in 2008, the UCC GEM programme had recently commenced and the practical impact of the links between the School, hospitals and other clinical sites would become clearer as the programme progresses.

The Clinical Streaming Mapping Document 2010 - 2011 by Dr Denis O'Mahony is a comprehensive guide to clinical teaching throughout the UCC-affiliated hospital network. This work involved Dr. Bronagh Clarke and the document itself is to be commended.

3. Assessment of Students

3.1. Assessment methods

*B: The medical school **must** define and state the methods used for assessment of its students, including the criteria for passing examinations.*

*Q: The reliability and validity of assessment methods **should** be documented and evaluated and new assessment methods developed.*

Details relating to the assessment methods were outlined in the supporting documentation which UCC provided and in the presentation by UCC GEM staff members.

The Team were impressed by the information provided and commends Dr Siun O'Flynn and her department on the documentation submitted and in the development of assessment methods.

3.2 Relation between assessment and learning

*B: Assessment principles, methods and practices **must** be clearly compatible with educational objectives and **must** promote learning.*

The Team wishes to highlight the apparently excessive amounts of information that students in Year 1 Term 1 need to absorb. The Team also sees the need for and wishes to encourage further integrated learning.

Guest lecturers should be informed as to what students have already learnt prior to their own lectures and any topics covered should be linked with UCC lecturers in devising assessments/examinations (**R 3**).

*Q: The number and nature of examinations **should** be adjusted by integrating assessments of various curricular elements to encourage integrated learning. The need to learn excessive amounts of information **should** be reduced and curriculum overload prevented.*

4. Students

Overview

The Team met with students from the Graduate Entry to Medicine Programme on both days of the visit. The Team met with students from the GEM who were on clinical placement in the three Teaching Hospitals visited. In UCC itself, the Team met with students, which included student representatives and those who were chosen by random selection "based in Cork".

The students feel that they are working well together as a group and that there is a supportive rather than a competitive element to the group. The profile of students is approximately 60:40 science to non-science backgrounds.

The feedback from students was generally very positive and enthusiastic about their experience thus far. They are pleased with the course and the teaching. The students were particularly complimentary about the supportive and empathetic interactions with staff.

4.1 Admission policy and selection

*B: The medical school **must** have an admission policy including a clear statement on the process of selection of students.*

The admissions policy at UCC is clear; it is based on a minimum of a 2.1 degree and the results of the Graduate Medical School Admissions Test (GAMSAT).

*Q: The admission policy **should** be reviewed periodically, based on relevant societal and professional data, to comply with the social responsibilities of the institution and the health needs of community and society. The relationship between selection, the educational programme and desired qualities of graduates **should** be stated.*

The Team awaits the outcome of the National Research Group regarding the admission policy and selection.

It is noted that the current system of the admission policy and selection does not assess motivation for a career in Medicine.

UCC is looking to widen the admission process to the GEM. The development of mature entry medicine as an entry pathway to medicine should be supported and encouraged.

4.2 Student intake

*B: The size of student intake **must** be defined and related to the capacity of the medical school at all stages of education and training.*

The number of EU students have been determined by the HEA and has increased as per agreements in subsequent years. The number of non-EU students is still undergoing discussion with the HEA and HSE. At present, it is UCC's plan to add 20-25 non-EU students per year. It is noted that the size and nature of student intake was not amenable to measurement at this time.

*Q: The size and nature of the intake **should** be reviewed in consultation with relevant stakeholders and regulated periodically to meet the needs of the community and society.*

4.3 Student support and counselling

*B: A programme of student support, including counselling, **must** be offered by the medical school.*

*Q: Counselling **should** be provided based on monitoring of student progress and **should** address social and personal needs of students.*

The Team feel that the UCC student support services are noteworthy for their awareness, accessibility and availability.

Students are advised on the organisation of accommodation and network of support available etc.

4.4 Student representation

*B: The medical school **must** have a policy on student representation and appropriate participation in the design, management and evaluation of the curriculum, and in other matters relevant to students.*

*Q: Student activities and organisations **should** be encouraged and facilitated.*

Overall, the students felt that they have the power to influence the Medical School, both through formal processes and day-to-day interactions and that the School responds positively to their suggestions, where possible. The students felt that issues they raise are listened to and addressed as soon as possible i.e. current first year GEM students' curriculum is different than in the first year of the course. Feedback is actively sought and acted upon in a fluid manner. However, whether it helps those in the current year is open to question.

5. Academic Staff / Faculty

5.1. Recruitment policy

*B: The medical school **must** have a staff recruitment policy which outlines the type, responsibilities and balance of academic staff required to deliver the curriculum adequately, including the balance between medical and non-medical staff; and between full-time and part-time staff, the responsibilities of which **must** be explicitly specified and monitored.*

*Q: A policy **should** be developed for staff selection criteria, including scientific, educational and clinical merit, relationship to the mission of the institution, economic considerations, and issues of local significance.*

The Team noted that a well developed policy exists in relation to staff selection and this policy takes account of education and clinical merit.

The Team believe that UCC School of Medicine have recruited people with a strong research agenda.

5.2. Staff policy and development

*B: The medical school **must** have a staff policy which addresses a balance of capacity for teaching, research and service functions, and ensures recognition of meritorious academic activities, with appropriate emphasis on both research attainment and teaching qualifications.*

*Q: The staff policy **should** include teacher training and development and teacher appraisal. Teacher-student ratios relevant to the various curricular components and teacher representation on relevant bodies **should** be taken into account.*

The Team is impressed with the quality and commitment of the teaching staff and is encouraged by the recognition of the need for educational research and staff development i.e. in advance assessment courses and in obtaining other qualifications. The **Medical Council strongly recommends (R 4) that this continues and that increase of resources and funding and development of staff at affiliated sites takes place.**

Resources should continue be made available for the development of staff.

The availability of audio-visual technology in all locations would assist staff development involved in the programme.

6. Educational Resources

6.1. Physical facilities

*B: The medical school **must** have sufficient physical facilities for the staff and the student population to ensure that the curriculum can be delivered adequately.*

Members of Medical Council Team visited the facilities at the affiliated Teaching sites of Bon Secours Hospital Cork, South Tipperary General Hospital, and Tralee General Hospital. Members of Medical Council Team had previously visited and looked in detail at the Brookfield Health Sciences Centre so this facility was not inspected on this occasion.

The facilities at the Bon Secours Hospital Cork were good. The facilities at South Tipperary General Hospital were modest. However, the Team would like to commend the Radiology facilities. The facilities at Tralee General Hospital were modest. Concern was expressed by the Team that visited Tralee General Hospital about cramped office facilities for the Clinical Coordinator.

The Clinical staff at the Teaching Sites visited are committed and enthusiastic, and in particular the UCC Clinical Co-ordinators of Dr Claire O'Brien (Tralee General Hospital), Dr Deirdre Bennett (Bon Secours Hospital Cork), and Dr Claire O'Leary (South Tipperary General Hospital) are to be commended.

It is emphasised that all facilities must meet the capacity requirements of the GEM students, for this and future years. The Team urges that both UCC and the Medical Council give a high priority to monitoring this, and that ***on-going provision of suitable facilities, on and off campus, should be a pre-requisite for the continuation of Medical Council provisional accreditation.***

*Q: The learning environment for the students **should** be improved by regular updating and extension of the facilities to match developments in educational practices.*

6.2. Clinical training resources

*B: The medical school **must** ensure adequate clinical experience and the necessary resources, including sufficient patients and clinical training facilities.*

On the evidence available, there appears to be a reasonable mix of clinical settings and rotations through disciplines.

The Team support aspirations towards provision of resources which will include facilities for student teaching, administration as well as storage facilities and accommodation at South Tipperary General Hospital and Kerry General Hospital.

The administrative support at the Teaching Sites in particular was very strong and a greater time commitment may be required if quality is to be maintained and resources in supporting this area should be protected.

Clinical staff at both UCC School of Medicine itself and the Teaching Sites are committed and enthusiastic.

In anatomy, there is a need to increase the facilities/time available with cadavers.

*Q: The facilities for clinical training **should** be developed to ensure clinical training which is adequate to the needs of the population in the geographically relevant area.*

6.3 Information Technology

*B: The medical school **must** have a policy which addresses the evaluation and effective use of information and communication technology in the educational programme.*

This appears to be up-to-date with an effective Blackboard system and a teleconference facility in the main lecture hall. The University has a computer centre and a computer training centre. There should be wireless access throughout the campus. In the Medical Council's visit in 2008, the Team recommended that audio-visual links to affiliated sites was a necessity and that progress would be monitored at the next Medical Council inspection. The Team emphasises the need for audio-visual links to affiliated sites should be implemented without delay, so that students at Tralee General Hospital and other sites without this link should not be disadvantaged. The Team were told that there would be scope to include audio-visual in the funding submission for UCC's budget.

Library facilities are an important aspect in students' educational experience, and accessibility of these facilities to support the needs of students is important. In light of this, the opening hours of the Library at South Tipperary General Hospital needs to be extended or students should have 24 hour swipe card access. The Team noted positive development in the libraries which include online journals.

There are currently two computers in the Tralee General Hospital Library which students use to access information and link to/from UCC. Concern was expressed that with the increase in the number of students in the New Year and as the number of GEM students increases, that this is not sufficient. The Team recommends that UCC considers the purchasing of additional computer(s) to solve this issue. Wi-Fi is also not available in all rooms of the accommodation at Tralee General Hospital, and should be.

There is no evidence at this stage that teachers and students are enabled to use information and communication technology for managing patients and working in health care systems.

*Q: Teachers and students **should** be enabled to use information and communication technology for self-learning, accessing information, managing patients and working in health care systems.*

6.4 Research

*B: The medical school **must** have a policy that fosters the relationship between research and education and **must** describe the research facilities and areas of research priorities at the institution.*

*Q: The interaction between research and education activities **should** be reflected in the curriculum and influence current teaching and **should** encourage and prepare students to engagement in medical research and development.*

The Team's impression is that UCC is aware and committed to the role to be played by research and research-led teaching, and of the need for students to engage with it.

There is a high amount of research taking place in UCC and UCC is acutely aware of the importance of and encourages research development.

The Team were particularly encouraged by student selected components (SSC) in years 2 and 3.

The research project is chosen in fourth year and done in fifth year.

6.5. Educational expertise

*B: The medical school **must** have a policy on the use of educational expertise in planning medical education and in development of teaching methods.*

*Q: There **should** be access to educational experts and evidence demonstrated of the use of such expertise for staff development for research in the discipline of medical education.*

The Team recognise the internal expertise of those involved in planning and development of the GEM programme. The Team commends UCC for actively seeking external expertise in staff development and in research.

6.6. Educational exchanges

*B: The medical school **must** have a policy for collaboration with other educational institutions and for the transfer of educational credits.*

The Team recognises that UCC GEM has started looking at the possibility of collaboration with other educational institutions. The Team would actively encourage this and its development. More communication with graduate entry programmes in other medical schools and students should be encouraged. The Team awaits development on a possible educational exchange policy with University of Calgary, Canada. The Team would welcome more detail on this and other plans once further development has taken place. At this stage, therefore, 6.6. Educational exchanges is therefore deemed "less than basic".

*Q: Regional and international exchange of academic staff and students **should** be facilitated by the provision of appropriate resources.*

7. Programme evaluation

7.1. Mechanisms for programme evaluation

*B: The medical school **must** establish a mechanism for programme evaluation that monitors the curriculum and student progress, and ensures that concerns are identified and addressed.*

The mechanisms for programme evaluation are detailed and are presented in line with the above. The Team cannot comment overall on the GEM programme as it is too early in the development of the programme at this stage.

University College Cork supports and monitors students in the preparation of doing the United States Medical Licensing Examination (USMLE). UCC Medical School staff are committed to providing tuition and advice in regards to this. Comments raised by students in this area was that they felt they would benefit from learning about the reproductive system earlier in the programme to best prepare them for sitting the USMLE.

The Team commends the use of external assessment

*Q: Programme evaluation **should** address the context of the educational process, the specific components of the curriculum and the general outcomes.*

7.2. Teacher and Student Feedback

*B: Both teacher and student feedback **must** be systematically sought, analysed, and responded to.*

*Q: Teachers and students **should** be actively involved in planning programme evaluation and in using its results for programme development.*

The Team believe this has developed into a very systematic two way process and that UCC has reviewed and amended issues of previous years.

Dr Aislinn Joy (Module Coordinator GM1004 – Lecturer in Clinical Practice) and Dr Deirdre Bennett (Module Coordinator GM2010 – Lecturer in Clinical Practice) were particularly highlighted by the students themselves for their openness and feedback to/from the students. Dr Joy's use and development of the Eight Domains of Good Professional Development into the course is particularly commended by the Team. Dr Clare O'Leary was commended for the "mock" examinations that she organises for the students.

Students commented on the help and support given by UCC staff, particularly when they are unwell, in facilitating them as much as possible in meeting deadlines/examinations.

There are a number of areas that need further strengthening which relate to the individual student experience.

Concern was expressed by students regarding examinations, timings, feedback and about areas of weakness. Certain courses/lecturers/tutors were better than others at giving feedback for written assignments/presentations. There is need for consistency when giving feedback to students from the courses. More feedback should be given to the students and closer to the time of the submission of the assessment/project to make the feedback comprehensible and relevant and so that they can learn from it and act upon it. For example, in the presentation at end of the paediatric rotation, the students were unsure as to whether they get the feedback /marks separately or at the end of the year, and in epidemiology, they hope to get feedback in a more timely manner. The students do not get results after each module/topic and they feel that they need timely feedback to get direction as to their weakness. They suggest that a number of 'mock exams' and feedback from them would be beneficial. This would prepare them further for hospital placements.

More feedback from affiliated sites could be encouraged.

Comments were raised by UCC lecturers/tutors that there is a low rate of feedback from students when required. Students said that they do not fill out the feedback form when they are happy with the course. The feedback form is available on the Blackboard. Students would also like to be able to give feedback anonymously, as they feel that at times it would be easier to do so.

UCC should alleviate in some way (help, advice, sample questions, etc) the "mystery" of the first year first term examination.

Students expressed that pathology should be taught by clinicians as well as by those of a science background.

They would also like more "hands on" practical experience with UCC and Consultants.

Students expressed concern regarding the facilities and time available for anatomy. Currently there are four cadavers and students have twenty minutes practical experience of dissection. They feel that it is too rushed.

7.3 Student performance

*B: Student performance **must** be analysed in relation to the curriculum and the mission and objectives of the medical school.*

The Team cannot comment overall on a detailed analysis on GEM student performance as it is too early in the programme at this stage.

Student performance will be analysed with respect to student satisfaction, pass rates, dropout rates, and career choices. Currently one student failed and repeated first year and another left and went to another university. There have been no dropouts this year.

Obviously analysis of long-term student outcome is not yet possible but there are plans to initiate it in due course, along with some special analyses relevant to the graduate entry cohort i.e. cohorts/socio-economic backgrounds. The Team will be especially interested to assess any identifiable significant differences in outcome between UCC's direct and GEM cohorts.

The Medical Council looks forward to receiving an interim report in early 2011 on graduate entry criteria on the evaluation and correlation of graduate entrants background, degree, and GAMSAT performance. The team noted the suggestion of interschool collaboration.

It is noted that UCC would like medical students to be registered with Medical Council i.e. student registration, which they felt may help in relation to students with difficulties. However, the Medical Practitioners Act 2007 does not allow for student registration with the Medical Council. The issue is one that UCC and the Medical School need to consider. The Medical Council has recently agreed on "Guidelines on Students' Ethical Standards and Behaviour for Medical Schools" which is due to be published shortly, which may provide some guidance/help in this matter.

*Q: Student performance **should** be analysed in relation to student background, conditions and entrance qualifications, and **should** be used to provide feedback to the committees responsible for student selection, curriculum planning and student counselling.*

7.4 Involvement of Stakeholders

*B: Programme evaluation **must** involve the governance and administration of the medical school, the academic staff and the students.*

*Q: A wider range of stakeholders **should** have access to results of course and programme evaluation, and their views on the relevance and development of the curriculum **should** be considered.*

The Team notes the range of stakeholders outlined in the documentation submitted.

The Team welcomes that public and patient group feedback is involved throughout the GEM programme.

8. Governance and Administration

8.1 Governance

*B: Governance structures and functions of the medical school **must** be defined, including their relationships within the University.*

*Q: The governance structures **should** set out the committee structure, and reflect representation from academic staff, students and other stakeholders.*

The governance structures and relationships are generally clear and include a description of Medical School committees. The Team were pleased to see that the Director of the Graduate Entry to Medicine Programme at Professorial level has been recruited and will hold membership of all relevant committees.

8.2. Academic leadership

*B: The responsibilities of the academic leadership of the medical school for the medical educational programme **must** be clearly stated.*

*Q: The academic leadership **should** be evaluated at defined intervals with respect to achievement of the mission and objectives of the school.*

The academic leadership is well defined and appears to be evaluated with respect to achievement of the mission and objectives of the school. Professor George Shorten, Dean of the School of Medicine, recently took up post. The Team appreciates the work done by his predecessor Professor David Kerins.

8.3 Educational budget and resource allocation

*B: The medical school **must** have a clear line of responsibility and authority for the curriculum and its resourcing, including a dedicated educational budget.*

It is noted that UCC is currently in the process of devolution and that there will be a new administrative structure in place in UCC.

The GEM programme is an important source of revenue to UCC's funding. The way that money is distributed should be changed. Presently, the School of Medicine does not have a dedicated educational budget. The Medical Council wishes Professor Shorten success in sourcing funds and becoming a budget holder. At this stage, therefore, 8.3 "Educational budget and resource allocation" is therefore deemed "less than basic".

*Q: There **should** be sufficient autonomy to direct resources, including remuneration of teaching staff, in an appropriate manner in order to achieve the overall objectives of the school.*

8.4 Administrative staff and management

*B: The administrative staff of the medical school **must** be appropriate to support the implementation of the school's educational programme and other activities, and to ensure good management and deployment of its resources.*

In the current economic times, UCC like many other employers is facing challenges on recruiting staff members. However, the Team feel that it is vital that several key appointments would be made to support the GEM programme in particular.

The Team is disappointed to learn that since January 2010, there is no fully dedicated administrative support of an executive assistant, who has primary responsibility to support the

GEM programme and its related activities. Extended administrative support at the affiliated sites should be considered and improved facilities for the current administrative support in Tralee should be considered.

The Team encourages the appointment of a Deputy Director of the GEM programme to further strengthen the GEM programme.

The Team were told that funding for a Surgical Tutor for South Tipperary General Hospital and Tralee General Hospital has been identified and that it would be hoped that a new appointment would be commenced in early 2011.

For the sake of continuity of programme delivery provision for maternity cover for key posts need to be made.

*Q: The management **should** include a programme of quality assurance and the management should submit itself to regular review.*

8.5. Interaction with health sector

*B: The medical school **must** have a constructive interaction with health and health-related sectors of society and government.*

The Team would welcome clarification regarding Memoranda of Understanding or formal contracts with ALL clinical teaching sites, whilst recognising that these would be likely to be in respect of UCC medical students as a whole general and not UCC GEM students in particular. Currently there is no Memoranda of Understanding with Tralee General Hospital and with all General Practitioners. The Team believes these arrangements are needed to place medical education and training on a sound footing.

The Team lauds community placement and encourages the use of primary care teams.

*Q: The collaboration with partners of the health sector **should** be formalised.*

9. Continuous Renewal

*B: The medical school **must** as a dynamic institution initiate procedures for regular reviewing and updating of its structure and functions and **must** rectify documented deficiencies.*

*Q: The process of renewal **should** be based on prospective studies and analyses and **should** lead to the revisions of the policies and practices of the medical school in accordance with past experience, present activities and future perspectives.*

The mechanisms for the above standards are documented by UCC and the Team are pleased to note that there is a UCC standard for ongoing renewal.

End of report



Comhairle na nDochtúirí Leighis
Medical Council

SECTION D
APPENDICES

APPENDIX 1. AGENDA FOR VISIT

AGENDA

MONITORING VISIT TO UNIVERSITY COLLEGE CORK GRADUATE ENTRY PROGRAMME

DATE: THURSDAY 4th AND FRIDAY 5th NOVEMBER 2010

VISITING TEAM

**Dr Anna Clarke (Vice President and Chair of the Visiting Team)
Professor Alan Johnson (External Assessor)
Ms Katharine Bulbulia (Medical Council Member)
Ms Marie Murray (Medical Council Member)**

Accompanied by

**Mr Paul Lyons (Medical Council staff)
Ms Ruth Thompson (Medical Council staff)**

VENUES:

DAY ONE AT CLINICAL TRAINING SITES

DAY TWO UNIVERSITY COLLEGE CORK CAMPUS

DAY ONE – THURSDAY 4th NOVEMBER

MEDICAL COUNCIL TEAM TO SPLIT INTO TWO GROUPS

TEAM A

10.00 am – 12.00 pm	Team A to visit and to meet with management and the clinicians involved in education and training at South Tipperary General Hospital, Clonmel and to review the facilities
12.00 pm – 12.45 pm	Meeting with students
12.45 pm – 1.00 pm	Light lunch (sandwiches) to be provided for Team followed by departure of Team at 1.00 pm
	<i>Team A to catch the 13.28 train to Cork, arriving at 15.55</i>
4.30 pm – 6.00 pm	Team A to visit: Bon Secours Hospital
6.00 pm	Team A to transfer to Hayfield Manor Hotel

TEAM B

11.30 am to 1.15pm	Team B to visit and to meet with management and the clinicians involved in education and training at Kerry General Hospital, Tralee and to review the facilities
1.15 pm – 2.00 pm	Meeting with students
2.00 pm – 2.30 pm	Light lunch (sandwiches) to be provided for Team followed by departure of team
	<i>Team B to catch the 15.15 train to Cork, arriving 17.45 hrs</i>
6.00 pm	Team B to transfer to Hayfield Manor Hotel

DAY TWO – FRIDAY 5th NOVEMBER 2010

UNIVERSITY COLLEGE CORK

8.15 am – 9.15 am	One Hour Preparatory Session: Medical Council Team only Venue: UCC Brookfield Health Sciences Campus Tea and coffee to be made available for the Team
9.15 am – 10.45 am	Plenary Session with University College Cork and affiliated Hospitals representatives from Medical, Surgical, Paediatric, Obstetrics and Gynaecology specialties The Plenary Session will include a formal presentation to the Council team 9.15 – 10.00 am. This is will be followed by a question and answer session from 10.00 am to 10.45 am. The UCC presentation should include: • An overview of the delivery of the programme, including any changes since the Council's previous visit, to the structure and delivery of the curriculum • Plans for the remainder of the 2010/11 academic year • Plans for the 2011/12 academic year • New / proposed appointments • Student and staff feedback on the programme • A statement on student assessment and on course evaluation processes.
10.45 am – 11.45 am	Meeting with third year students including Tea and Coffee
11.45 - 12.45 pm	Meeting with first and second year students
12.45 – 1.30 pm	Light lunch for Medical Council Team (in private)
1.30 – 2.30 pm	Plenary session for Medical Council Team (in private)
2.30 – 3.30 pm	Final meeting between University College Cork staff and Medical Council Team followed by departure of team.

APPENDIX 2. PRESENTATION BY UNIVERSITY COLLEGE CORK



University College Cork
School of Medicine

Graduate Entry Medicine University College Cork

Presentation to Medical Council
November 5th, 2010



Mission Statement

- To provide graduate students with an integrated, holistic, student-centered medical curriculum based on the principles of adult learning and emphasizing professionalism and life-long learning skills



University College Cork
School of Medicine

Organizational structure



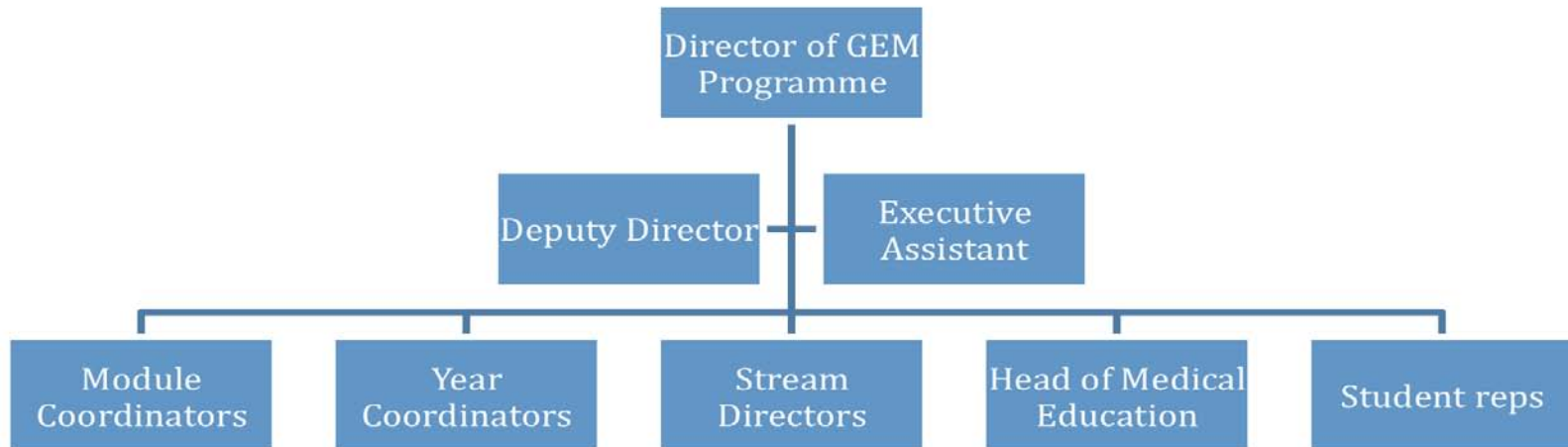
University College Cork
School of Medicine

Medical School



Graduate Entry program

Structure of the Committee





Terms of reference of GEM committee

- To review the content and relevance of the graduate medical curriculum in accordance with the evolving nature of the program and future needs of medical graduates.
-
- To develop areas specific to the learning requirements and career opportunities of graduate entrants
-
- To oversee assessment of the curriculum including internal review panel for examinations.
-
- To prepare for and respond to external review on curriculum development, delivery and assessment
-
- To ensure preparedness for integration with the DE program
-
- To advocate on behalf of the staff and students of the GEM program; to encompass staff and student welfare.
-
- To promote the GEM program at a national and international level

Reports to:

Medical School Board
Head of Medical School

Frequency of Meetings:

At least twice per teaching period



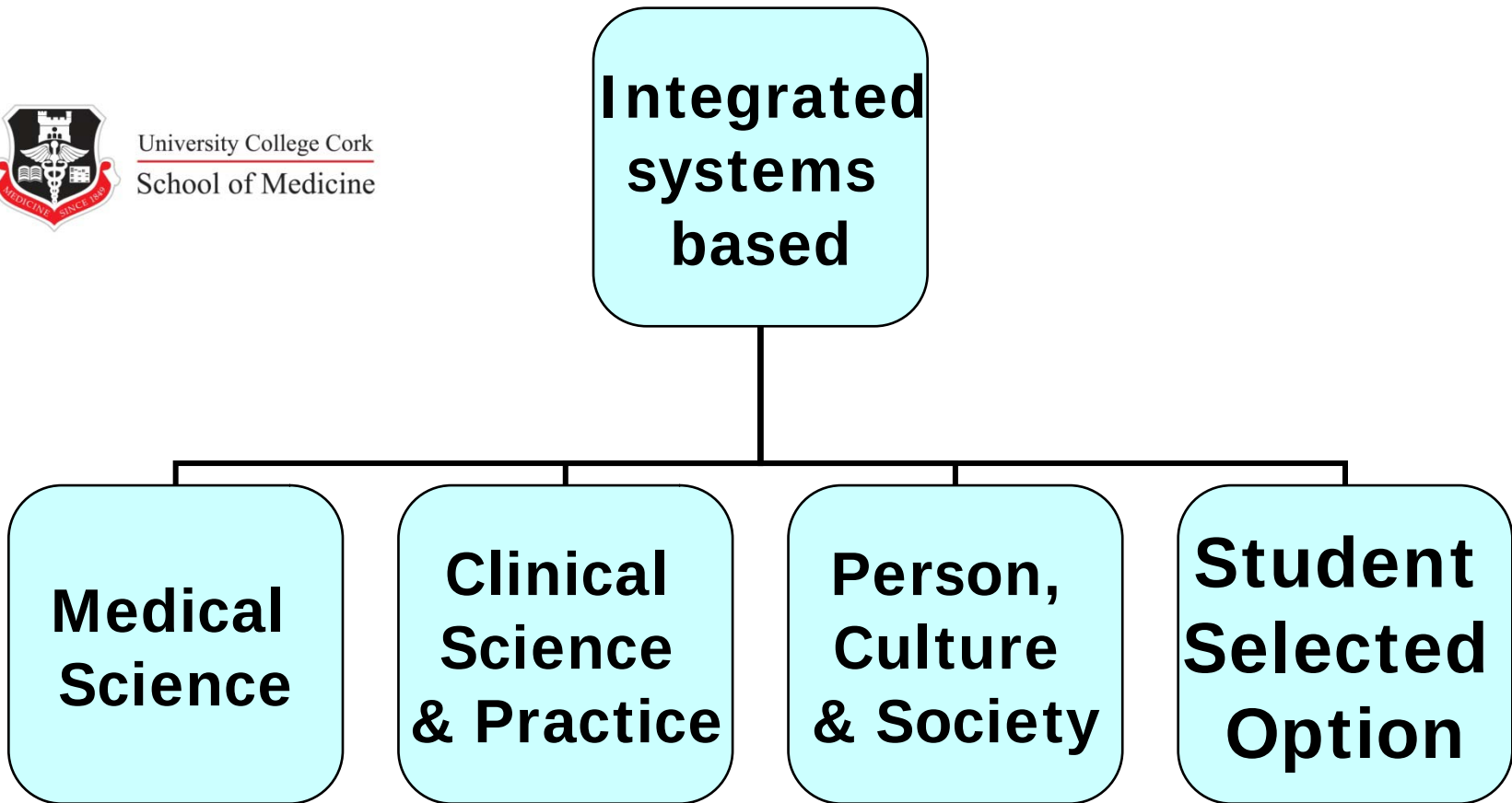
GEM STAFF

- EXISTING AND NEW APPOINTMENTS
 - SECTION 18
- PROPOSED NEW APPOINTMENTS
 - Permanent appointment of assigned EA (replacement)
 - Replacement of Deputy Director
 - SL in Radiology
 - Commitment to buy-out clinical sessions in UCC teaching hospital network

4 stream structure – modular framework



University College Cork
School of Medicine





Year 1

Introduction to Normal Biology, Function & Disease Processes
Systems-based Approach Integrating Normal & Abnormal in Clinical Context
Introduction to Professional Development and Clinical Skills
Health and Disease in Society

Year 2

Systems-based Approach Integrating Normal & Abnormal in Clinical Context
Health and Disease in Society
Professional Development/Clinical Skills/Junior Clinical Attachments
Integrated Case Studies
Student Selected Module Options

Year 3

Specialist Clinical Attachments
Academic half-days
Health and Disease in Society
Student Selected Module Options

Year 4

Senior Clinical Attachments
Advanced Professional Development and Clinical Skills
Integrated Case Studies



University College Cork
School of Medicine

GEM year 1



University College Cork
School of Medicine

GM1001
Fundamentals of
Medicine I
Fundamental
principles & basic
concepts

GM1005 Health
and Disease in
Society I

GM1002
Fundamentals of
Medicine II :
Systems-based I

GM1004
Professional
Development
and Clinical
Skills I

GM1003
Fundamentals of
Medicine III:
Systems based II

Map of undergraduate activities

Appendix 1: Map of Undergraduate Activities, Clinical Years, 2010-11

Graduate Entry Programme Year 1

GEM 1 2011		
Orientation	1	23/08/2010
	2	30/08/2010
Lectures	3	06/09/2010
	4	13/09/2010
	5	20/09/2010
	6	27/09/2010
	7	04/10/2010
	8	11/10/2010
	9	18/10/2010
	10	25/10/2010
	11	01/11/2010
	12	08/11/2010
Study/Review	13	15/11/2010
	14	22/11/2010
Assessment	15	29/11/2010
	16	06/12/2010
Christmas	17	13/12/2010
	18	20/12/2010
Lectures	19	27/12/2010
	20	03/01/2011
	21	10/01/2011
	22	17/01/2011
	23	24/01/2011
	24	31/01/2011
	25	07/02/2011
	26	14/02/2011
	27	21/02/2011
	28	28/02/2011
	29	07/03/2011
	30	14/03/2011
	31	21/03/2011
	32	28/03/2011
Assessment	33	04/04/2011
	34	11/04/2011
Lectures	35	18/04/2011
	36	25/04/2011
Easter	37	02/05/2011
	38	09/05/2011
Lectures	39	16/05/2011
	40	23/05/2011
	41	30/05/2011
	42	06/06/2011
Study	43	13/06/2011
	44	20/06/2011
Exams	45	27/06/2011
	46	04/07/2011
Orals	47	11/07/2011
	48	18/07/2011
	49	25/07/2011
	50	01/08/2011
	51	08/08/2011
	52	15/08/2011

Changes to structure and delivery

- Any changes (based on external review)
 - Clear and consistent Learning Objectives are detailed for all teaching sessions
 - Restructuring of GM1005 to decrease number of hours delivered
 - Revision of GM1004 (DR JOY)
 - Change of MCQ examination format to *single best answer/best of five* and reconsideration of negative marking
 - Introduction of anonymous marking throughout all course components
 - Exam/exam-setting procedures in place
 - Working group in place
 - GEM Committee to review papers (in addition to extern and Departmental review)
- Research active staff



Learning Methods

Teaching modalities

- Signposts
- Tutorials
- Computer-aided learning
- Online histology
- DR practicals → topographical anatomy, histology, radiology
- Radiology and Clinical Anatomy tutorials
- Flag tests
- Laboratory sessions; both interactive and computer simulations
- Clinically - based tutorials
- Small group visits to Neurophysiology out-patient clinic
- DVD physiology demonstrations
- Small group learning



Basic Science Assessment

- **Working-group established**
 - Report to Prof. Horgan and GEM Committee
 - Introduction of more assessment types to the Course i.e. SAQ, written Anatomy spot examinations, DR-based spot examinations (actioned last year)
 - Requirement to pass each discipline (min 40%; actioned last year)
 - Incorporation of SGL into continuous assessment and introduction of optional summative CA into Book of Modules (actioned last year)
 - Incorporation and protection of a reading week into each module (actioned last year)
 - Standardise examination formats across trimesters (underway)
 - Undertake review of balance between CA and end of year examination weighting (underway)
 - Inclusion of a stipulation that the GEM Committee will act as an internal examination review committee for end of year papers into committee Terms of Reference (actioned this year)



Changes to GM1004

2010/2011

A three term module from Aug - June

Clinical / Communication Skills

History Taking

- Smaller group (n=5) history taking practice with immediate feedback
- Recording the history and writing a summary with immediate feedback
- Extra material provided about functional illness and recognition of same –
.....“The patient’s lament”

Physical Examination

- Temperature measurement added this year (ref GMC clinical skill competence)
- Recording temperature

Communication Skills

- Communication skills workshops – Four Habits model.
- Large group introductory session, followed by small group (n=10) workshops.
- Involvement of Director of Communication Skills.

Collaboration and Teamwork

First Aid

- Collaboration with nursing and allied health professionals for delivery of same – role modeling teamwork

Multi/Interdisciplinary disciplinary team concept

- Other Healthcare Professional roles introduced through core clinical topics series and infection control
- Role played clinical scenarios involving other healthcare workers

Scholarship

Horizontal integration with Basic Science module

- Core Clinical Topics by outside clinicians mapped to content delivery of Basic Science module and small group learning cases.
- For professional development / identity also

Patient Safety

Introduction to safe prescribing

- Reconciling the medication history.
- Role playing hospital/community/GP communication for safety.

Relating to patients/professionalism

Earlier real patient visits to BHSC

- Two in the first term. Patient- centred reflections.
- Earlier community and hospital patient visits - term 2
- Patients educating students re procedures such as glucometer checks - term 3

Reflective Practice

- Patient-centred reflections throughout the year with follow up discussion
- Learning Log for reflections on personal development

Management

SELF

- Stress management
- More informal assessment of progress
- Mock exams with feedback prior to the real thing
- More course evaluations – mid term x 3 as well as end of year (please see appendix attached)
- More follow up and discussion with the class re progress/course evaluation to complement oversight meetings

HEALTHCARE

- More emphasis on preventative medicine
- Healthcare systems and channels of communication



University College Cork
School of Medicine

GEM year 2



GM2001
Fundamentals of
Medicine IV

GM 2004
Clinical Medicine 1

GM1004
Professional
Development
and Clinical
Skills I

GM2002 Global
Health and Disease

GM2005
Clinical Medicine II

GM2006 Junior
Clinical Elective



Graduate Entry Programme Year 2

GEM 2 2011		
Orientation	1	23/08/2010
Lectures	2	30/08/2010
	3	06/09/2010
	4	13/09/2010
	5	20/09/2010
	6	27/09/2010
	7	04/10/2010
	8	11/10/2010
	9	18/10/2010
	10	25/10/2010
	11	01/11/2010
	12	08/11/2010
	13	15/11/2010
	14	22/11/2010
	15	29/11/2010
Study/Review Assessment	16	06/12/2010
Christmas	17	13/12/2010
	18	20/12/2010
Clinical Attachments (4 x 4 weeks)	19	27/12/2010
	20	03/01/2011
	21	10/01/2011
	22	17/01/2011
	23	24/01/2011
	24	31/01/2011
	25	07/02/2011
	26	14/02/2011
	27	21/02/2011
	28	28/02/2011
	29	07/03/2011
	30	14/03/2011
	31	21/03/2011
	32	28/03/2011
Easter Exams	33	04/04/2011
	34	11/04/2011
Elective/ Primary Care	35	18/04/2011
	36	25/04/2011
	37	02/05/2011
	38	09/05/2011
	39	16/05/2011
	40	23/05/2011
	41	30/05/2011
	42	06/06/2011
Study Exams & Orals	43	13/06/2011
	44	20/06/2011
Holidays	45	27/06/2011
	46	04/07/2011
	47	11/07/2011
	48	18/07/2011
	49	25/07/2011
	50	01/08/2011

Note: Graduate Entry 3 consists of the same programme of study as Direct Entry 4

GM2010

Professionalism and Patient Centred Care

- This module is the amalgamation of the original Behavioural Science module and Professional Development and Clinical Skills Module.
- The Behavioural Science component is now more applied than under the previous structure.

GM2010 - Changes

- Core clinical topics series of lectures
 - Clinician delivered
 - Matched to material being covered in Basic Sciences.
- Medical Professionalism Workshop.
- Patient Safety, Risk and Medical Error Workshop.
- Multidisciplinary Team Working Series of Lectures.
 - Clinician delivered
 - Opportunity to attend MDT meeting on attachment.
- Formative OSCE sessions.
 - Promoting peer feedback.
 - Positively evaluated by students.
- Joint Teaching – Orthopaedics Week.
- Case Based Learning – Using DE Year 3 cases.

GM 2010 Assessment (new elements)

- Reflection – students write a reflection on their clinical attachments.
- MCQ – 60 question, single best answer paper. Broadly modelled on USMLE structure.
- Orthopaedics Short Answer Paper – joint assessment with DE Yr 3 on content of Orthopaedics Week.

GM2010 – Plans for 2011/2012

- To improve clinical aspects of the SGL cases in conjunction with basic science colleagues.
- To improve the timing of clinical teaching to match with the relevant basic science teaching.
- To increase joint teaching with Direct Entry Year 3.
- To increase involvement of other health professionals in the teaching of Multidisciplinary Team Working.

Course Evaluation

- GM2010 will be evaluated at the end of the module using a combination of Likert scaling and qualitative open text questions.
- Individual teaching sessions eg. Respiratory Formative OSCE have been positively evaluated.

USMLE Support

- USMLE Information Evening – November 4th.
 - Facilitated by faculty.
 - Delivered by students experienced in sitting USMLE.
- Medical School Office.
 - Support with application process
 - Screening of students
- Supplementary Teaching – Step 1.
 - Saturday mornings during Period 2.
 - Targeted at “high yield” areas for USMLE
- Question Banks, Diagnostic Tests and Simulated Exams for Step 1
- Supplementary Teaching – Step 2.
 - Built in to the GM3/DE 4 academic half day schedule
 - USMLE targeted.
 - Simulated patient sessions.



GM 2004

- Orientation day with DE students
 - OSCE feedback
 - Case-based analysis
 - Presentations skills
 - Feedback skills / leadership
- Pre-hospital care focus, including day attachment with paramedics
- Communication workshops



GM 2004

- Develop clinical problem solving
 - Medication use review
 - In depth SNAPPs analysis
 - EMQ practice
- Formative feedback on professionalism profiling



Assessment

- Increase opportunities for work-based assessment e.g. mini-CEX
- Move to SBA from EMQ (2012)
- Increase opportunities for EMQ practice
- Examiner training



GM 2004 Evaluation

- On-line survey – 13/46 responses
- Clinical site evaluation – low RR
- Staff feedback – difference in approach to learning noted e.g. more enthusiastic, more likely to join in out of hours activities, more questioning
- Exam performance



Evaluation for GM2004

- Focus on
- Clinical site feedback
- Development of Mini-CEX
- SGL evaluation
- Evaluation of parallel charts



GM2005

- Expand primary care placements
- Consider moving Family attachment scheme to earlier in the course (2012) –replace with community mapping
- Develop use of MiniCEX& Case based assessment in the community setting
- Ongoing qualitative analysis of primary care attachment and use of art-work for assessment purposes



University College Cork
School of Medicine

Fourth Medical Year 2010/2011



University College Cork
School of Medicine

CP4004
Fundamentals of
adult disease

CP4003
Reproduction,
pregnancy, child
health and
development

MX4090 research
and
professionalism in
Medicine

BH4001
Psychiatry and
Psychological
Medicine

BH4004 ethical,
legal and
governance issues
in Healthcare



University College Cork
School of Medicine



UCC

Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

**School of Medicine CP4004 Handbook
Fundamentals of Adult Disease**



UCC

Coláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

**School of Medicine CP4003 Handbook
Reproduction, Pregnancy,
Child Health and Development**





Year 4: The content

6 wks	10 days	4wk	4wk	4wk	4wk	4wk	4wk	4wk
Lecture blocks	Academic Half-Days x 20	Obs/ Gyn	Paeds	Surgery	Medicine	Derm/ Ophth /Surg Spec/ Anaest	Emerg Med/ *SSM	Psych
Large group lectures	Large group lectures and small group workshops	Apprentice-based clinical attachments *SSM-only – Classroom-based workshops						



Year 4: Assessment

6 wks	10 days	4wk	4wk	4wk	4wk	4wk	4wk	4wk
Lecture blocks	Academic Half-Days x 20	Obs/ Gyn	Paeds	Surgery	Medicine	Derm/ Ophth /Surg Spec/ Anaest	Emerg Med/ *SSM	Psych
Credits	BH4004 100 CA=100	CP4003 300 CA=200 WE=100		CP4004 400 CA=300 WE=100			*MX4090 100 CA=100	BH4001 300 CA=200 WE=100

The Patient Safety Agenda

Year 4 as an example



Introduction

- Last decade increasing awareness of medical error and the inadequacies of the delivery of health care systems
- Increasing focus on health care quality and patient safety
 - Industry tools to assess risk and quality
- Overreaching commitment to providing safe doctors



Rationale

- Deficiencies in the apprentice model
- Generic skills that cannot be assessed
- Education and training
- Non traditional subjects
- Integrated into curriculum from year 1 through final year.
- Multidisciplinary topics



Examples

- Research module
 - Research vs audit option
- Professionalism
- Risk management/quality
 - CIS / HIQA
- Ethics
- Safe prescribing

Thursday, 27th January 2010, am	Dr M Bolster & Dr K Doran	Forensic Medicine; and Governance Issues in Irish Healthcare	The Role of HIQA and the CIS; and Toxicology	BH4004
Thursday , 27th January 2011, pm	Prof. William Molloy	Chronic disease and Rehabilitation	Multidisciplinary teaching session	CP4004
Friday, 28th January 2011, am	Dr Michelle Reardon	Trauma	Trauma outline as discussed with Stephen Cusack;8.30 lecture, epidemiology, prevention etc and pre-test/quiz,9.30- 11.50 workshops, 20 min workshops x7, 6 active stations 1 rest, each in duplicate,6 active stations may be as follows; Shock moulage,Cardiothoracic trauma including X-RAY and Drain,Ortho/neurosurgmoulage multi trauma patient with back/neck injury,Ortho CE injured knee,Ortho CE injured shoulder, Plastics soft tissue injury scenario	CP4004
Friday, 28th January 2011, pm	Prof Horgan	Career Pathways	Representatives from all disciplines	CP4004
Thursday, 3rd March 2011, am	Dr Michelle Reardon & Dr. Eugene Moylan	A Focus on Cancer Care	Breast cancer as the signpost case. Epidemiology, Prevention, management and treatment modalities, multidisciplinary teams, end of life issues. Input from Ms Deirdre O Hanlon	CP4004
Thursday, 3rd March 2011, pm	Dr Deirdre Murray	Seizure Disorders	Multidisciplinary teaching ession	CP4004
Friday, 4th March 2011, am	Dr A Campbell	BH to confirm	BH to confirm	BH4001
Friday, 4th March 2011, pm	Dr. AislinnJoy/ Prof David Kerins	Safe Prescribing (Group A)	Across discipline teaching with School of Pharmacy, Irish Medicines Board	CP4004

Radiation Protection-UCC

- Pilot Preprogramme-Compulsory e-learning module established June 2008 for 4th Medical year.
- Students evaluated by Questionnaire pre- and post module.
- Data presented Faculty Of Radiologists Annual Scientific Meeting, September 2009.
- Winner of HSE funded Prize for Audit and Patient Safety promotion in Imaging, September 2009



University College Cork
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Final Medical Year 2010/2011



Aims

- Produce tomorrow's doctors not just people with medical degrees
- Knowledge, skills and attitude
- Professionalism, Patient safety, Clinical skills and knowledge



Year 5: The content

1wk	4wk	4wk	4wk	4wk	4wk	4wk	4wk
Lecture block	Obs/gyn	Paediatrics	Surgery	Medicine	Geriatrics	GP	CP+P*
Large group lectures	Apprentice based clinical attachments						Small group tutorials



Clinical pathways and professionalism rotation

Week 1						Week 2						Week 3						Week 4				
M	T	W	T	F	S/S	M	T	W	T	F	S/S	M	T	W	T	F	S/S	M	T	W	T	F
*	Tutorials Case based learning					*	Tutorials Case based learning					Intern Shadowing Surgery						Intern Shadowing Medicine				

* procedural skills

Clinical pathways and professionalism rotation

Procedural skills in skills lab, with log book

Integrated Case-Based Learning sessions

Tutorials in

ethics

stress
management

professionalism

safe prescribing

patient
safety



Year 5:Assessment

1wk	4wk	4wk	4wk	4wk	4wk	4wk	4wk
Lecture block	Obs/gyn	Paeds	Surgery	Medicine	GM/ Study leave	GP	CP+P
	200	200	200	400			0
	CA =40 WE=80 CL=80	CA=40 WE=90 CL=70	CA=20 WE=60 CL=120	CA=100 (50/20/30) WE=100 CL=200			Log

CA = continuous assessment, WE= written examination
CL=clinical examination



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Clinical Placement/Stream 2

Clinical Stream Mapping Document

UCC School of Medicine

2010-2011



**School of Medicine
University College Cork**



ucc

Golláiste na hOllscoile Corcaigh, Éire
University College Cork, Ireland

Research and Professionalism- Stream 2



Research & Professionalism Year 2 GEM



Student
Selected
Components



Junior
Clinical
elective

Semester 1

Semester 3

- Early integration with direct entry course
- Vertical Integration with other streams
- Horizontal integration
- Beyond the Core
- Self organised & self directed
- Clinical or Research interest areas



Research & Professionalism Year 3 & 4 GEM



Research

Scientific Method
Communication
Time Management
Organisation



Life Skills

Reflection
Professionalism
Leadership
Management
Stress awareness and regulation



Electives

Clinical Practice
Teamwork
Organisation
Life Skills



Stream 4 Initiatives

- Student Research Awards 2010
 - Travel Bursaries
 - Summer Scholarships
- Health Research Board Summer Scholarships
- Research e-Newsletter
- New SSCs
 - Sports & Exercise Medicine
 - Medical Writing
 - Palliative care
- Student Medical Journal for 2011 (GEM Student initiative)





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Emergency Medicine Curriculum

Professor Stephen Cusack

Life in the real “ER”: enhancing the student experience!

M. Horgan¹, B. Clarke, S. Cusack²

¹ Dept of Medicine-UCC, Cork, Ireland

² Department of Emergency Medicine, Cork University Hospital

1 Introduction

✓ Emergency Medicine (EM) is a key educational experience for undergraduate students.

✓ The ability of students to appreciate emergency medical situations is essential. Earlier in the curriculum students learn BLS skills and the theoretical component of some common emergencies.

✓ A clinical attachment in the Emergency Department (ED) allows students to observe closely and actively participate in care of patients, to actively learn and also apply the theory learnt earlier in their career.

✓ *The aim of this project is to outline the structured approach to teaching EM in clinical undergraduate teaching at UCC.*

2 Methods

✓ Formal integration of EM into the undergraduate medical curriculum was developed for year 4 at the time of introduction of the new curriculum

✓ A 2 week clinical attachment was assigned to the discipline and a coordinator was identified

✓ A uniform approach to teaching and assessment of students was developed across 4 ED's in the Munster region

✓ Each student was given an individualized timetable outlining learning objectives, teaching and clinical activities

✓ Students were assigned to shift work to enhance their clinical experience

Results

3 ✓ Students were assessed in 9 areas of competency appropriate to EM: Wound care, Fracture care, Head injury assessment, Chest pain assessment and initial management, ECG-perform and interpret, The poisoned patient, Data interpretation of a patient cared for by student, Major case presentation of a patient cared for by student, Presentation of resuscitation case witnessed by student

✓ Practical procedure card
Measurement of vital signs, Measurement of oxygen saturation, Obtaining a venous sample, IV cannulation, Intramuscular injection, Placement of urinary catheter

✓ 54 students have completed their EM attachment to date
✓ 52 students have completed their assignments
✓ One student did not submit
✓ One assessment was incomplete
✓ c. 572 assessments completed to date
✓ Average mark: 3.95 out of 5



4 Conclusion

✓ A new teaching module for EM has been implemented in year 4 Medicine UCC involving 4 ED's in the region
✓ It consists of:
✓ Structured teaching in the theory of EM
✓ Clinical assignment records in 9 key areas being completed
✓ Practical procedure card for common procedures undertaken in the ED being completed
✓ Student feedback has been positive
✓ 96.2% have successfully completed all aspects of assessment

5 References

UCC FOURTH YEAR MEDICINE PRACTICAL PROCEDURES CARD

Emergency Medicine Attachment

Student Name: UCC ID No: _____

Supervisor Name: Date of Assessment: _____

Supervisor Signature: Official Stamp (where available)

Practical Procedures

	Observed	Performed	Supervisor ID
Wound Assessment			
Wound Dressing			
Wound Debridement			
BP/HR/RR Assessment			
ECG calculation			
SpO2 measurement			
Venous Access			
Intramuscular Injection			
Urinary Catheterisation			
Urinary Catheter			
Other Procedures			

Note: The student MUST perform each of the above listed procedures above of the supervisor. If a student cannot perform a procedure then the supervisor should observe and sign. If a student cannot perform a procedure then the supervisor should observe and sign. If a student cannot perform a procedure then the supervisor should observe and sign.

UCC FOURTH YEAR MEDICINE CLINICAL ASSIGNMENT RECORD

Emergency Medicine Attachment

Student Name: UCC ID No: _____

Supervisor Name: Date of Assessment: _____

Supervisor Signature: Official Stamp (where available)

Practical Procedures

Student's Observations and Comments:

Procedure	Observed	Performed	Supervisor ID
Wound Assessment			
Wound Dressing			
Wound Debridement			
BP/HR/RR Assessment			
ECG calculation			
SpO2 measurement			
Venous Access			
Intramuscular Injection			
Urinary Catheterisation			
Urinary Catheter			
Other Procedures			

Note: The student MUST perform each of the above listed procedures above of the supervisor. If a student cannot perform a procedure then the supervisor should observe and sign. If a student cannot perform a procedure then the supervisor should observe and sign. If a student cannot perform a procedure then the supervisor should observe and sign.



EM Curriculum

- Communication
- Competencies
- Team Working
- Specific areas of Clinical Care
- Clinical Risk Awareness



EM Curriculum

- 1st/2nd Year-: BLS/AED course; 'First Aid'; Introduction to suturing, phlebotomy, IV access
- 3rd Year-: Clinical Risk awareness; Identifying the 'sick patient'; Ambulance attachment; Access to Care; Maritime Medicine Module (optional)
- 4th Year-: Clinical Assignments and basic competency development; Trauma Care
- 5th Year-: Simulator Training (bringing it all together)



Overseas Electives

- Awareness of diverse needs of GEM students
- Establishment of overseas electives during term time to approved sites
- Each elective application reviewed

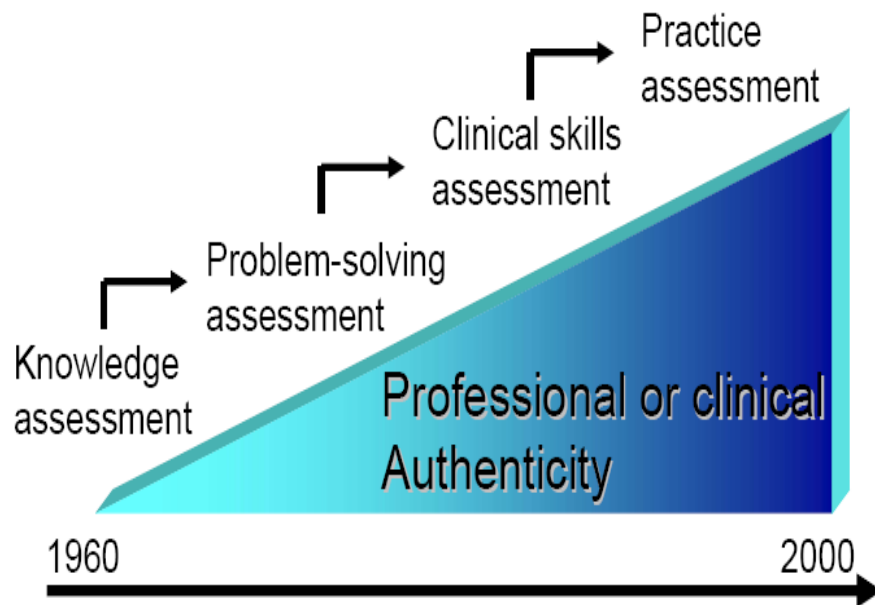


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Assessment and Evaluation

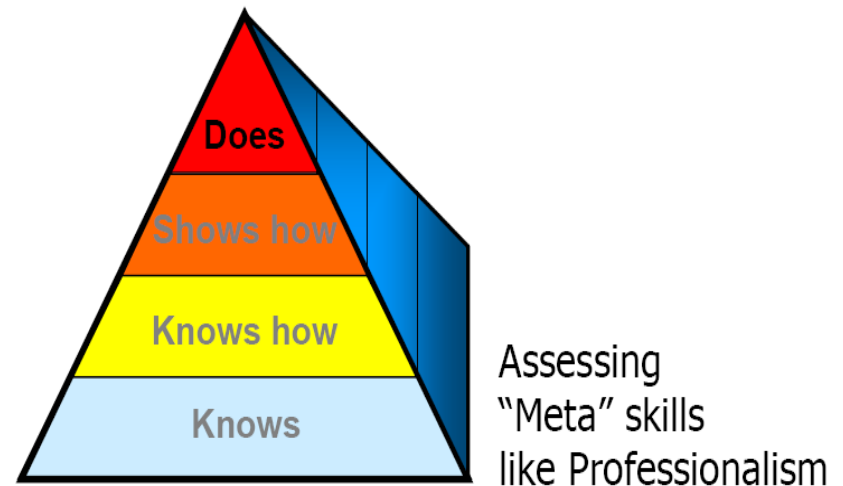


Assessment



(adapted from van der Vleuten 2000)

Extending the Pyramid





“You can recover from bad teaching but not from bad assessment”

Significant staff development – in house / UMAP sessions and attendance at St Georges courses, Independent External Assessment review 2009

RIGOR- sampling

The larger the sample the better

The more samples the better

The larger the range of kinds of samples the better

Consequently we are committed to multi- modal assessment but at times students feel over assessed especially as the course progresses

Blueprinting

Each module - ensures stated outcomes are assessed – can be challenging in integrated modules

Variety of formats -Multiple Choice Questions ,Extended matching Questions, Short answer questions, essay questions, OSCE, portfolios ,Mini CX, procedure skills logs and DOPs, tutor and supervisor observations forms, long case and short case, project work. Newer innovative assessment formats associated with student selected components.



Current issues

Redistributing continuous versus
end of year assessment

GEM requests to increase mark allocation for end
of year exams

Examiner training to improve item
writing and standard setting

Ongoing

Valid and reliable tools to assess
professionalism – modifying
the CI index work with Mac
Lachlan et al Durham

McLachlan, J.C., G. Finn, and J. Macnaughton, *The conscientiousness index: a novel tool to explore students' professionalism*. Acad Med, 2009. **84**(5): p. 559-65.

Limitations to OSCEs , structured clinical exams
and portfolios

Workplace based assessments are key

Vigilance re students causing concern ...

Student Affairs – Mentorship Programme

Significantly more project work in
UCC than other schools

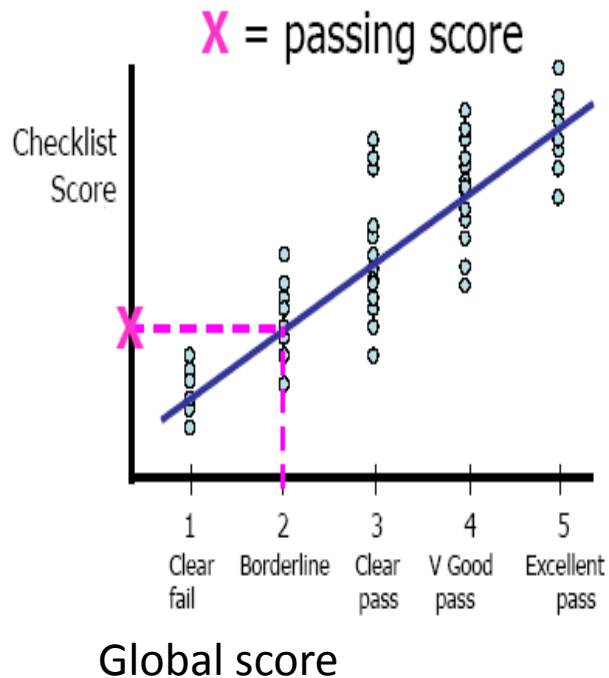
Fitness to Practice Guidelines..IMC role -Register
Professionalism Project

One of our strengths – ongoing refining of
assessment here – labour intensive for staff and
students



Standard setting – a work in progress

modified borderline group method – all OSCEs



Written examinations - Angoff method

– Subject matter experts decide whether or not a minimally competent or borderline candidate would answer the item correctly.

The pass score is set as the sum of the correct responses attributed to this hypothetical candidate

Students and new staff take time to really understand this

In the case of appeal - do universities really understand this ?



The Utility Equation

$$Utility = V \times R \times E \times A \times C$$



Where we are.....

- **Validity**
- **Reliability**
- **Educational Impact**
- **Acceptability**
- **Cost**

We are using multiple recognised formats which are reliable and valid

Need to optimise feedback – new software very helpful – revolutionised OSCE feedback but need to increase feedback opportunities for written exams. Assessment burden mindfulness – sequence and spacing- student feedback

Fitness to practice - Professionalism ? National Register

Variety of assessment formats can take time for students to adapt...significant assessment burden

More authentic assessments are costly, significant assessment expenditure



Programme evaluation

- Significant informal evaluation, student representation on committees / class reps
- Module level – each module is evaluated, also a year by year and stream framework. Minutes available.
- Sought independent external programme evaluation
- Performance in other licensing exams

**Students occasionally have to be cajoled to engage with formal evaluation
response rates can be low**

**Clinical site evaluation – DREEM
/Manchester benchmarking – have
published findings... scores are excellent**

**Made available to you – we have acted
on recommendations received**

**MCEE and USMLE rates – these are
excellent**



Integration

- Teaching
 - Orthopaedic week
- Assessment
 - OSCE year 2
- SSM
 - Year 2-term 1
- USMLE
- Clinical practice
 - GEM3/DE4



Plans for 2011/2012

- Further alignment with CP and BS in years 1 and 2
- Further alignment and integration with specific aspects of GEM and DEM
- Reconfiguration
 - impact on patients and students
- Earlier clinical exposure (MK)
- Staff appointments
- Term dates

Acknowledgements

APPENDIX 3 - UNIVERSITY COLLEGE CORK TEAM

At Bon Secours Hospital, Cork

Dr. James Gaensbauer - Paediatrician
Dr. John Owens - Anaesthetist - lead for GM2 and DE3 anaesthetics attachment
Dr. Eamonn Carmody - Radiologist
Dr. Lucina Jackson - Gastroenterologist
Dr. Liam Doherty - Respiratory Physician
Dr. John McCarthy - Rheumatologist - lead for Intern and Medical NCHD education at the Bons
Dr. Brian Bird - Oncologist

At South Tipperary General Hospital

Dr Niall Colwell, Cardiology, GIM
Dr Cyrus Mobed, A&E
Ms Carol Broadbank, Acting General Manager
Dr Clare O'Leary, Senior Lecturer / Gastroenterologist, GIM
Dr Tom Rice, Anaesthetics
Dr Meera Varghese, GIM
Dr Paud O'Regan, Consultant Gastroenterologist
Dr Christina Donnellan, Consultant Geriatrician

At Tralee General Hospital

Dr. Claire O'Brien, Lecturer in Medical Education
Ms Eileen Cooper, Executive Assistant
Dr. Richard Liston, Consultant Geriatrician/Physician, Clinical Director
Dr. Tom Higgins, Consultant Physician & Intern Tutor
Dr. Muhammad Tariq, Consultant Physician
Dr. Ishfaq Hussain, Locum Consultant Geriatrician & Physician
Mr. Tom McCormack, Consultant Surgeon
Dr. Klaus Pollmann-Daamen, Consultant Anaesthetist
Dr. Sean Gibbons, Consultant Anaesthetist
Dr. Eamonn Bannan, Consultant Radiologist
Dr. Paul Hughes, Consultant Obstetrician/Gynaecologist
Dr. Khan, Paediatrician
Mr. Tony Higgins, Consultant Orthopaedic Surgeon
Mr. Brian Moriarty, Consultant ENT
Mr. P. J. Harnett, KGH Hospital Manager also attended meeting

At University College Cork (Morning Session)

Professor Mary Horgan, Director – GEM Programme
Professor George Shorten, Dean School of Medicine
Dr Siun O'Flynn, Head of Medical Education
Dr Ahmad Ahmeda, Module Coordinator – GM2001 – Lecturer in Physiology
Dr Deirdre Bennett, Module Coordinator – GM2010 – Lecturer in Clinical Practice
Dr Geraldine Boylan, Module Coordinator – GM2006 – Director of Stream 4 – Student Selected Modules
Dr Gemma Browne, Module Coordinator – GM1005/GM2002 – Lecturer in Epidemiology
Dr Ruaidhri Carmody, Lecturer in Biochemistry
Professor Stephen Cusack, Professor of Emergency Medicine
Mr Jerry Deasy, IT Systems Administrator
Dr Louise Gibson, Senior Lecturer in Paediatrics and Child Health
Dr Niall Hyland, Module Coordinator, GM1003 – Lecturer in Pharmacology
Dr Aislinn Joy, Module Coordinator – GM1004 – Lecturer in Clinical Practice

Dr Martina Kelly, Module Coordinator, GM2004/GM2005 – Senior Lecturer in Clinical Practice
Professor David Kerins, Consultant in Cardiology and Therapeutics
Professor Michael Maher, Professor of Radiology
Mr Tony McNamara, CEO, Cork University Hospital
Ms Connie Mulcahy, Manager, School of Medicine
Dr Michelle Murphy, Consultant in Dermatology
Dr Deirdre Murray, Senior Lecturers in Paediatrics and Child Health
Dr Michael O'Connor, Consultant in Geriatric Medicine
Dr Ger O'Keeffe, Module Coordinator – GM1002 – Lecturer in Anatomy
Dr Denis O'Mahony, Director of Stream 2 – Clinical Science and Practice, Senior Lecturer
Dr Mairead O'Riordan, Senior Lecturer in Obstetrics and Gynaecology
Dr Margaret O'Rourke, Director of Stream 3, Senior Lecturer – Person, Culture and Society
Mr Peter O'Sullivan, Consultant in ENT
Professor Nollaig Parfrey, Head of Pathology
Professor Mike Prentice, Professor of Medical Microbiology
Dr Mark Rae, Module Coordinator – GM1001 – Lecturer in Physiology
Professor Paul Redmond, Head of Surgery
Mr Uwe Schiller, AV Senior Technician

End of appendices