

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Final Report (2016-17)

Report due 30 April 2018

Please return by email to The Ad hoc Committee on Planning of eLearning Infrastructure
mmcd@cuhk.edu.hk

PART I

Project title: Management of Trauma in the Emergency Department

Principal supervisor: Ronson Sze-Long Lo

Co-supervisor(s): Colin Graham (Professor of Emergency Medicine, Unit Director), Janice Yeung (Trauma Nurse Specialist), Kevin Hung (Assistant Professor of Emergency Medicine), Sarah Leung (Educational Coordinator)

Department / Unit: Accident and Emergency Medicine Academic Unit

Project duration: From May 2017 to April 2018

Date report submitted:

1. Project objectives

Is the project on track to meet its objectives?

Have the objectives been changed as a result of the experience of working on your MMCDG project?

Our objectives have not change. This project aimed to fill a major knowledge gap in the undergraduate medical curriculum. Previous informal didactic teaching has now been transformed into formal teaching syllabus during medical student's rotation at Emergency Medicine.

This eLearning approach has enhanced students learning efficiency in multiple ways.

- Higher form of teaching: This has allowed knowledge transfer to take place outside of the classroom environment, allowing higher form of education to take place during contact time
- Increases motivation: The series of micromodules were designed with an overarching clinical scenario which made the learning material clinically relevant for students to relate to, boosting intrinsic motivation

2. Process, outcomes or deliverables

Please specify the number of micro modules produced, and the course(s) (with course codes and titles) that have used the micro modules in Part IV, and provide more detailed descriptions here. Must specify duration of each micro-modules (in terms of students online contact hours), total duration time of all deliverables and style. (With reference to the “Summary of video presentation styles” developed by CLEAR)

Has the nature of the deliverables been changed?

Have you adjusted your timeline?

Overall, was the project completed satisfactorily?

Blackboard ID: 2017-AEMAU-UGEMC

All 5 micromodules have been designed and content have been created. Students are introduced to key concepts in the management of trauma in this series. Each micromodule lasted between 10-20 minutes. Contact activities for all 5 micromodules take 3 hours to complete, on average.

In micromodule 1, students are introduced to the concept of trauma call, at the end of the module, students should be able to describe members of the trauma team and their role and have a basic understanding of the criteria for activation of trauma calls.

Micromodule 2 explores the actions undergone during initial resuscitation reception. Students should understand the preparation undertaken prior to patient arrival; understand the importance of teamwork in trauma team; know what actions to undertake when entering the trauma room, and; understand the format used for exchange of Information during handover at the end of the module.

At the end of micromodule 3, students should be able to describe and understand the rationale, indications and contra-indications behind commonly ordered:

- blood investigations
- radiological investigations
- interventional investigations

Micromodule 4 discusses the importance of logroll and spinal protection in trauma and the potential adverse effects of hard spinal boards. Students will know how to perform a logroll and how to apply a cervical spine collar at the end of this module.

SAM, Sager and Hare splint is discussed in micromodule 5. Students should know the indication and contraindication for all 3 splints, and know how to use these splints appropriately.

The production of the last 2 micromodule took longer than anticipated due to video-production issues. However the project has now been completed satisfactorily.

3. Evaluation Plan

Have you altered your evaluation plans?

What monitoring data did you collect?

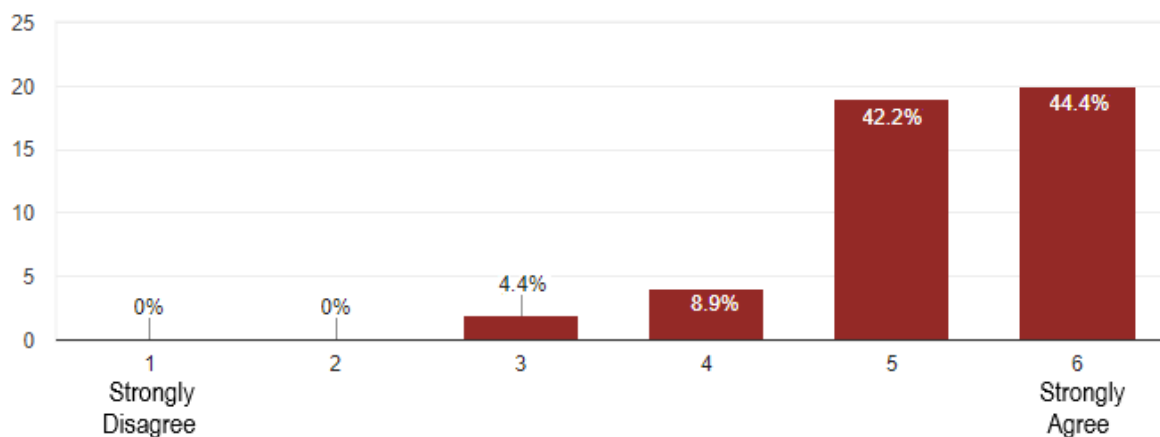
Does your evaluation indicate that you have achieved your objectives?

Evaluation plan for the project have not changed. Although contact activities for all micromodules were held, course-end student surveys were only conducted for micromodules 1-3 as e-material was not prepared at that stage. These took place between October 17 to March 18. The following questions were included in the survey for students to rate on a 6-pointed scale:

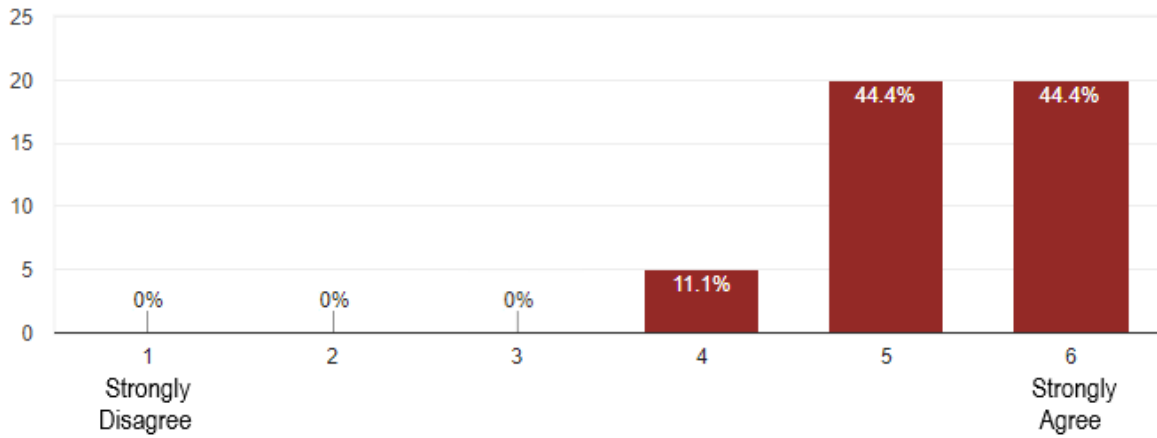
- The level of difficulty is appropriate for year 6
- I understood and learned a lot on the course
- The learning objectives set out at the start of each micromodule was useful
- The post-module quizzes were useful
- The eLearning material was useful
- The practical session was useful
- I have gained a basic understanding of trauma management in the ED
- How long did you spend on the eLearning material in total?
- Overall Satisfaction

Free text box is included in the end of the survey for any additional input.

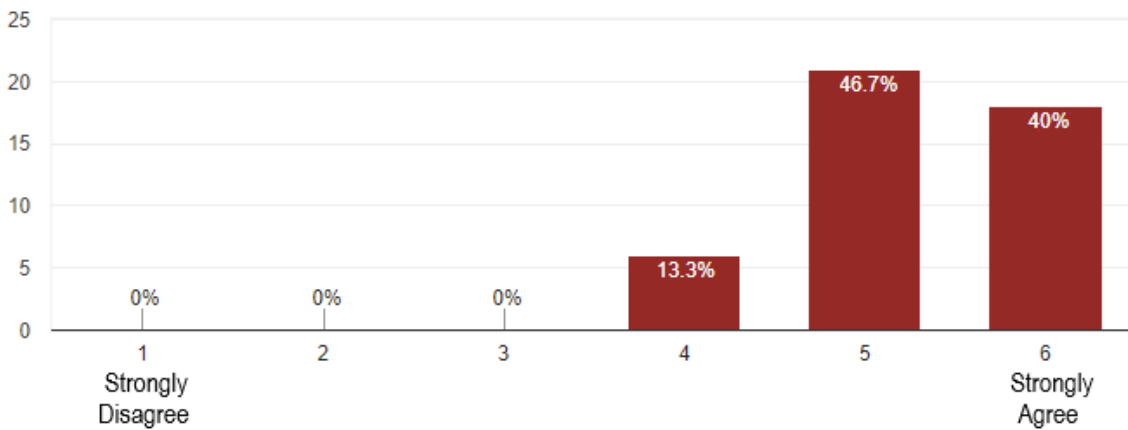
The level of difficulty is appropriate for year 6



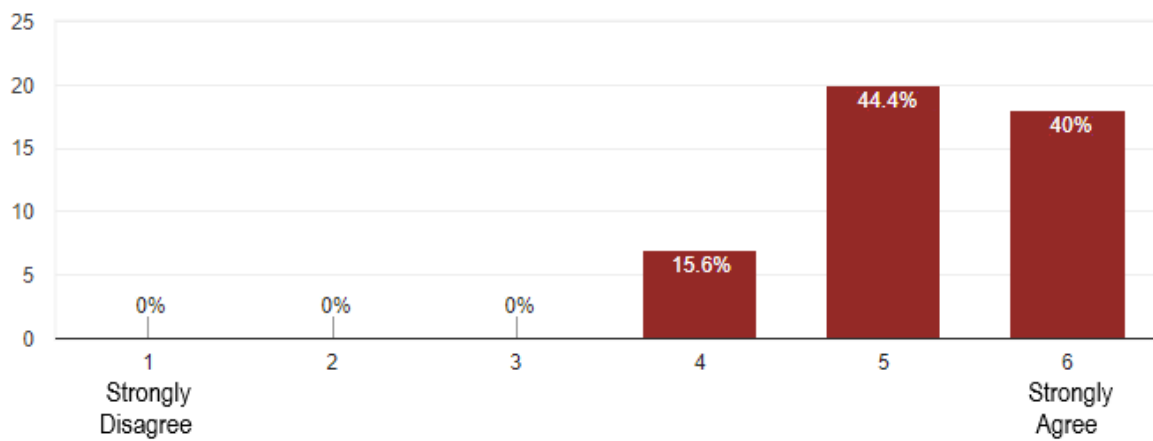
I understood and learned a lot on the course



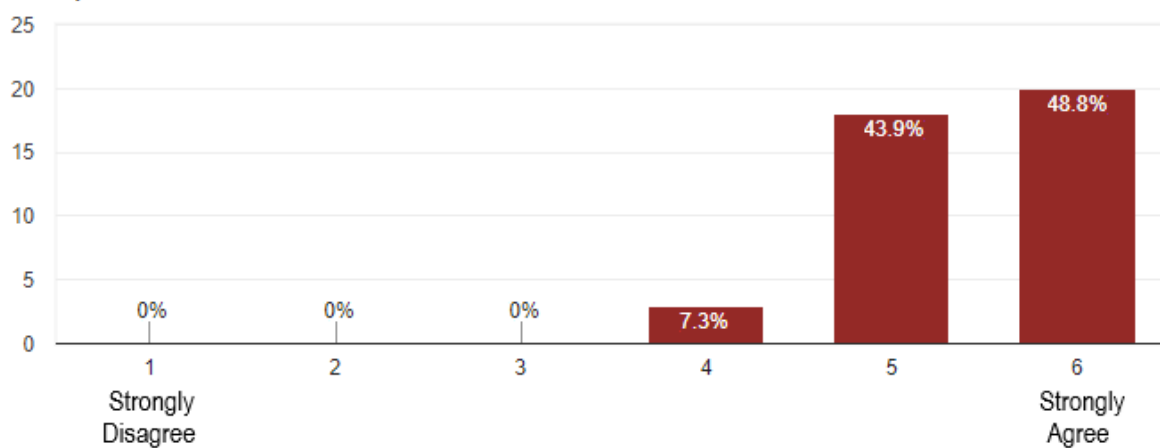
The learning objectives set out at the start of each micromodule was useful



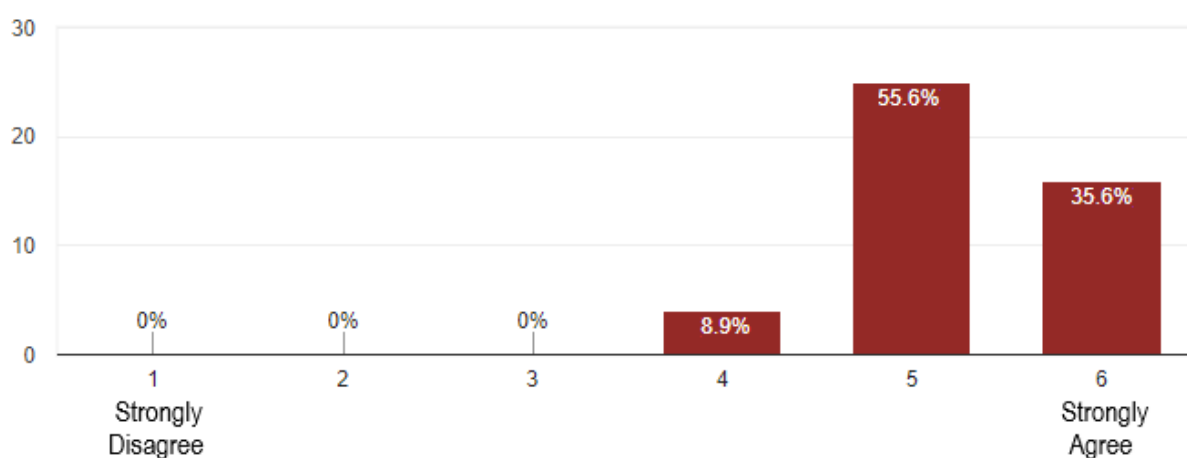
The post-module quizzes were useful



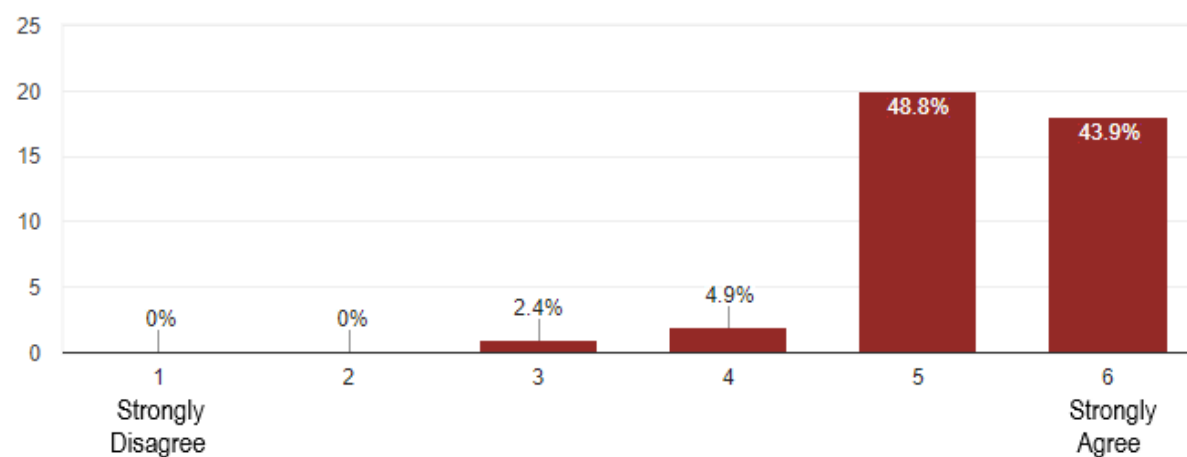
The practical session was useful



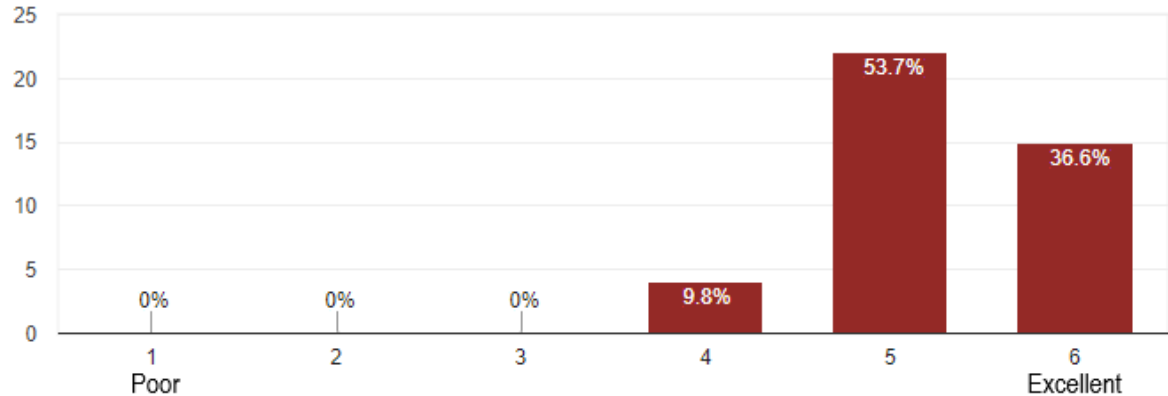
The eLearning material was useful



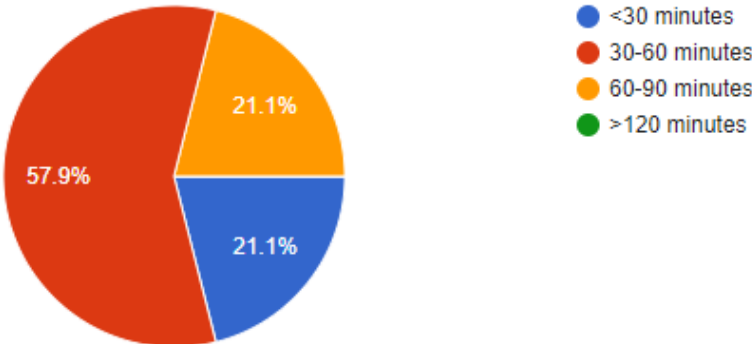
I have gained a basic understanding of trauma management in the ED



Overall Satisfaction



How long did you spend on the eLearning material in total?



Other comments and suggestions for improvement of the course:

5 responses

- Smaller groups for practical scenario is preferred
- Content was too easy
- Content was too easy. Narration too slow
- Module 2 question3 the answer for sequence of handover information seems to be a bit strange to me.
- It's great with scenarios!

4. Dissemination, diffusion and impact

Please provide examples of dissemination: website, presentations in workshops or conferences, or publications.

The micromodules were used in a post-graduate course that was offered in our unit. These modules were also shared to overseas collaborators in the UK and Denmark.

Please provide examples of diffusion: how the project results/process/outcomes/deliverables have been used in your unit and other parts of CUHK or other institutions?

As we have launched this micromodule as a pilot project, there has not been any example of diffusion as of date. This has been ran as an voluntary add-on element to the final year medical syllabus. However from the academic year 18/19, this will be incorporated into and become part of the formal assessment system.

Please provide examples of impact: how the project results (micro modules) can be adapted to other disciplines.

This project can easily be adapted for nursing and pharmacy students.

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ 99,232
Funds secured from other sources (please specify _____)	\$ 0
Total:	\$ 99,232

Expenditure:

Item	Budget as per application (HKD)	Expenditure (HKD)	Balance (HKD)
Analysis: Manpower	1,500	1,500	97,732
Design: Manpower	24,000	24,783	72,949
Audio and Video production: Room Rental	900	0	72,949
Audio and Video production: Manpower	1350	1350	71,599
Micromodule construction: Manpower	49,920	50,670	20,929
Software	5062.2	3,978.44	16,951
Implementation	6,000	6,000	10,951
Feedback: Manpower	9,000	9,000	1,951
Report production: Manpower	1,500	1,950	1
Total:	99,232	99,231	1

PART III

Lessons learnt from the project

Please describe your way forward.

This project has provided an excellent opportunity for this unit to explore eLearning. Having now completed a project, we will use the knowledge gained to produce more elearning material.

Please describe any of the following item(s) accordingly:

- *Key success factors:*
Organisation and time management skills are crucial in this project
- *Difficulties encountered and remedial actions taken:*
Get help, particularly on technological issues
- *Suggestions to CUHK, if any*
More seminars and workshops will be helpful

PART IV

Information for public access

Summary information and brief write-ups of individual projects will be uploaded to a publicly accessible CUHK MMCDG website. Please extract from Part I the relevant information to facilitate the compilation of the publicly accessible website and reports.

1. Keywords

Please provide five keywords (in the order of most relevant to your project to least relevant) to describe your micro-modules/pedagogies adopted.

- (Most relevant) Keyword 1: Trauma
 Keyword 2: Emergency
 Keyword 3: Flipped-classroom
 Keyword 4: Clinical teaching
- (Least relevant) Keyword 5: Narrated slides

2. Summary

Please provide information, if any, in the following tables, and provide the details in Part I.

Table 1: Publicly accessible online resources (if any)

(a) Project website:

If a publicly accessible project website has been constructed, please provide the URL.

(b) Webpage(s):

If information of your project is summarized in a webpage (say a page in the department's or faculty's website), please provide the URL(s) here.

<http://www.aemau.cuhk.edu.hk/index.php/mted/>

With help from the [Micro-Module Courseware Development Grant Schemes](#) of the [Chinese University of Hong Kong](#), we are able to develop Management of Trauma in the Emergency Department.

These component-based narrated slides that include interactive material to guide students through a scenario, set tasks for student to work through whilst challenging their knowledge and analytical ability. This is followed by simulation training and clinical attachment for two weeks at our Emergency Department.

This project fills a major knowledge gap in the undergraduate medical curriculum. Previous informal didactic teaching has now been transformed into formal teaching syllabus during medical student's rotation at Emergency Medicine.

(c) Tools / Services:

If you have used any tools or services for the project, please provide names of the tools or services in here.

Blackboard, KEEPMoodle, Articulate 360, VSDC Free Video Editor, Audacity, Photoshop CS2, Paint 3D

(d) Pedagogical Uses:

If any flipped classroom activities have been conducted, please provide information in here. If relevant, please indicate how your project output can be used to support flipped classroom activities.

Narrated slides, demonstration video, module-end quiz, role play workshop, case discussion

(c) Others (please specify):

Table 2: Resources accessible to a target group of students (if any)

If resources (e.g. software) have been developed for a target group of students (e.g. in a course, in a department) to gain access through specific platforms (e.g. Blackboard,

facebook), please specify.

<u>Course Code/ Target Students</u>	<u>Term & Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
2017-AEMAU-UGEMC	Since term 1, 2017/18	240	Blackboard
HMED1415	Since Oct 2017	-	KEEP Moodle

Table 3: Presentation (if any)

<i>Please classify each of the (oral/poster) presentations into one and only one of the following categories</i>	Number
(a) In workshop/retreat within your unit (e.g. department, faculty) Presentation within the unit in November 17 and March 18	2
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	<i>Please insert no</i>
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	<i>Please insert no</i>
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	<i>Please insert no</i>
(e) In international conference	1
(f) Others (please specify)	<i>Please insert no</i>

Table 4: Publication (if any)

<i>Please classify each piece of publication into one and only one of the following categories</i>	Number
(a) Project CD/DVD	<i>Please insert no</i>
(b) Project leaflet	<i>Please insert no</i>
(c) Project booklet	<i>Please insert no</i>
(d) A section/chapter in a booklet/ book distributed to a limited group of audience	<i>Please insert no</i>
(e) Conference proceeding	<i>Please insert no</i>
(f) A chapter in a book accessible internationally	<i>Please insert no</i>
(g) A paper in a referred journal	<i>Please insert no</i>
(h) Others (please specify)	<i>Please insert no</i>

A one-page brief write up

Please provide a one-page brief write-up of no more than 500 words and a short video.

Our team is extremely grateful for the MMCDGS to provide us with the opportunity to be trained and develop in designing and making e-learning micromodules. This has allowed Emergency Medicine teaching to move away from the traditional didactic teaching to 'blended learning', aligning with the University's direction. Knowledge acquirement may occur outside of lecture hall and hospital ward, and contact time will be left for analytical exercises, clinical skill practice and constructive discussions to aid understanding.

This project filled a major knowledge gap in the undergraduate medical curriculum. Previous informal didactic teaching has now been transformed into formal teaching syllabus during final year medical student's rotation at Emergency Medicine.

5 micromodules have been developed, each focusing on a different aspect of the management of trauma:

Micromodules	Learning objectives	Pedagogical Uses
MM1 Trauma call	<ul style="list-style-type: none">• be introduced to the concept of trauma call• be able to describe members of the trauma team and their role• have an understanding of the criteria for activation of trauma calls	Narrated slides, module-end quiz, case discussion
MM2 Initial resuscitation reception	<ul style="list-style-type: none">• understand the preparation undertaken prior to patient arrival• understand the importance of teamwork in trauma team• know what actions to undertake when entering the trauma room• understand the format used for exchange of Information during handover	Narrated slides, module-end quiz, role play workshop
MM3 Investigations in trauma	<ul style="list-style-type: none">• describe and understand the rationale, indications and contra-indications behind commonly ordered blood, radiological and interventional investigations	Narrated slides, module-end quiz, clinical case scenario
MM4 Logrolling and Neck Collar	<ul style="list-style-type: none">• understand the importance of logroll and spinal protection in trauma• understand the reasons why it is important to take patients off hard spinal boards• know how to perform a logroll and protect the spine	Narrated slides, demonstration video, module-end quiz, role play workshop
MM5 Splinting	<ul style="list-style-type: none">• know the indications and contraindications of SAM, Sager, and Hare splint	Narrated slides, demonstration video, module-end quiz, role play workshop

Feedback from 97.6% of the primary targeted students – final year medical students agreed that they have gained a basic understanding of trauma management in the Emergency department after completing the modules. Over 90% of students found the module “great” or “excellent”, the eLearning material was useful, the practical session was useful. Comments from students were taken into consideration when updating the course E.G. narration speed was increased, question format adjusted, and smaller group for practical scenario is accommodated.

The findings of the current project will help to motivate teachers to develop future micro-modules and to implement flipped classroom teaching approach within the discipline.