# Case Study P: An Automated Approach to Managing Clinical Placements

Diane Cashman, Mark Carty, Nicola Walshe

School of Veterinary Medicine, University College Dublin, Ireland

Module discipline:        Clinical Extra Mural Studies, Degree in Veterinary Medicine
Approximate module size: The module runs over a three-year period; therefore, 3 cohorts of students
                          require support every year. Total student cohort per academic year approx 400.
Level of module:         UCD level 4, final year module
Email:                   diane.cashman@ucd.ie
                         mark.carty@ucd.ie
                         nicola.walsh@ucd.ie

## Reasons for using analytics in the module

At the University College Dublin School of Veterinary Medicine (SoVM), students on the Bachelor of Veterinary Medicine (MVB) undertake 24 weeks of clinical work placements off-campus. Known as clinical extra mural studies (CEMS) the module aims to provide students with the opportunity to develop their day-one competencies and to gain exposure to a variety of veterinary careers. On successful completion of the CEMS module students are awarded 40 ECTS credits.

The CEMS module spans the final three years of the MVB programme, meaning the module coordinator and support team are responsible for monitoring the progress of nearly 400 students in any academic year. In addition, due to the nature of the module, students complete their 24 weeks of placements to meet their own individual learning plans which could conclude on the final day of the module. As a result the monitoring of individual student progress, at every level, at all times is critical to the success of the module and ultimately for students to complete their degree.

Students self-identify appropriate placements across a variety of veterinary work environments, e.g. small animal, equine, meat plant, research work, etc. Students must apply to the SoVM for approval before undertaking each placement. Once approved students must complete the placement and submit a workplace assessment form within 30 days. The assessment form is completed by their nominated placement supervisor, but it is the responsibility of the student to ensure this form is successfully completed and submitted to the SoVM for verification.

Prior to September 2015 all CEMS application and assessment forms were in paper-based format, which required an administrator to digitise submissions into a variety of Excel spreadsheets. From September 2015 onwards, two new online systems were introduced which mandated students to submit all CEMS forms online, thereby automatically generating a database of student activity from which the module coordinator and support staff could export a variety of reports for analysis.
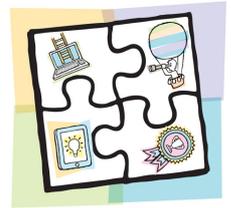
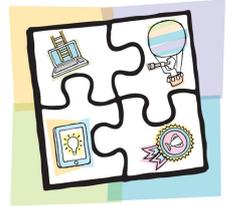**Case Studies of Data Use in Module Design/Delivery**

The implementation of this data-led approach for the CEMS module was undertaken for two key reasons:

1. In the previous paper-based format students and staff were highly reliant on centrally held Excel spreadsheets maintained by the CEMS administrator for information regarding student progress. A key driver for change was to facilitate all stakeholders to access data on-demand and to inform decision-making processes. For example, a variety of reports can be generated to identify trends and patterns of student activity. This information can be used by the module coordinator to identify which students are falling behind and to undertake the appropriate actions to help them.

2. Secondly, in years gone past students have been prevented from graduating the MVB programme simply due to a lack of organisation to co-ordinate all their placements on time and fulfil the requirements of the module. By using a data-led approach students can organise and monitor their own CEMS progress at the click of a button. This approach, we believe, will enhance students' self-regulated learning compared to the paper based format.

## Data sources/modelling approach

Student data are collated and analysed through two individual but related online systems:

1. The first system, developed by UCD MSU, is referred to as My Placements . It manages the student CEMS application and approval process while providing a number of functionalities to support both students and staff. This bespoke solution developed with the university's InfoHub system is interlinked with the university's student record system Banner. My Placements allows students to submit an application to attend a CEMS placement that they have identified. Once submitted, the CEMS administrator receives a notification; they can then approve or reject the placement. The student receives a notification that their application status has been updated. This workflow generates a real-time online record that is visible for both students and staff of the locations, dates and practice type (e.g. small animal, equine) a student is due to attend over the duration of the module. Excel reports can be generated to quickly assess this planned CEMS activity and to identify any student who may be behind the class average and in need of support. This data provides the module coordinator with quick and reliable insights into student progress.

2. The second system is a third party ePortfolio system that manages the submission of student workplace assessment forms. These online forms take a variety of formats and the student is responsible for submitting the relevant form that is associated to the placement type they have completed. Most forms require students to collate feedback from their placement supervisor and sign-off that they attended all days of the placement. The student is responsible for the collation and submission of the online forms as they would have been in the previous paper-based format. The ePortfolio has several workflows in place to support authentication of submissions and prevent plagiarism. Once a student has submitted their form, the CEMS

administrator will manually check the form to verify it. If all details of the form are completed correctly, the administrator will update the student record in My Placements to indicate that the placement is now complete. The ePortfolio system provides a range of reports that can be generated from the database, e.g. number of completions by cohort, by student; feedback from supervisors, etc. The data can be viewed online or exported to PDF or Excel format for additional analysis. These quick and accessible data provide the module coordinator with real-time information to identify any student who may need additional support. The student also has an individual profile listing all feedback from their supervisors that can be used to self-regulate their learning.

## Impact of using data

Prior to the digitisation of the CEMS workflow, students and staff were highly reliant on the CEMS administrator and their centrally held Excel spreadsheets to track and monitor individual and cohort progress. Since the introduction of the two new online systems, student progress data are readily available to all stakeholders, which has provided several benefits:

1. Students can acquire a live record of their CEMS activities, which previously may not have been available to them unless they kept their own personal records or received annual progress reports from the CEMS administrator. Students can now, through their online profile, generate an immediate personalised report of their CEMS activities both planned and completed. They can generate reports on the feedback they have received from their supervisors to identify their strengths and weaknesses. Combined, this information has considerable potential to support the student's ability to self-regulate their own learning.

2. For staff, real-time CEMS records are now accessible on-demand. Several reports can be generated from the database that can be analysed to create an overview of student progress. The new CEMS module coordinator identified an immediate benefit this data-informed approach has had to her role:

   > "As the new module coordinator, I was asked to step in at a very crucial time – 4 weeks from the end of final year - instead of having to sieve through piles of paper, an excel sheet, that had been generated through the ePortfolio and My Placements systems, facilitated a quick and in depth overview of the students. Due to the level of data available to me regarding the completion status of each student, I was able to contact the necessary students that were at risk of failing. Already I am up to speed with the status of the 2 remaining years and we are currently evaluating that data to ensure no student is being left behind. Prevention is better than cure." **Nikki Walshe, CEMS Module Coordinator, 2017.**

## Gathering further data

Prior to the digitisation process in 2015, all CEMS forms were redesigned to ensure additional data regarding each placement was collated. These additional data fields were informed by lessons learnt in previous cycles of CEMS, the needs of all stakeholders, and current best practice in workplace-based assessment in healthcare education. CEMS assessment forms, for example, now include a rating scale for several day one competencies that supervisors complete in addition to open-ended comment fields.
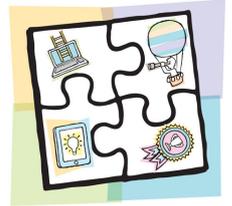
This data can potentially be triangulated with other assessment data to provide a detailed view of student progress and their learning.

## Advice for colleagues interested in using a data-enhanced approach

A wide range of skills were required to digitise the previous paper-based workflow and develop a data-led approach to the CEMS module. Our team worked collaboratively, combining a range of skills, to achieve the educational outcomes for CEMS and to facilitate change. These areas of expertise included educational technology (Mark Carty), best practice in veterinary education (Diane Cashman), CEMS logistics and UCD regulations (Belinda Whitby), implementation and fostering a culture change with students and staff (Barbara Gallagher and Nicola Walshe), School level academic leadership (Professor Grace Mulcahy and Dr Sue Rackard), UCD data protection requirements and IT infrastructure (UCD IT Services). We recommend others to embrace the resources available to them in their own institutions to ensure a successful outcome for their module.

Fostering a culture of change within a large module will take time and effort. Offer to meet individually with stakeholders to alleviate any concerns during the launch phase. Meet regularly with students and create easy-to use online support resources and dedicated channels of communication.

Ensure you consult with IT experts and legal advisors in your Institution to ensure you are meeting best practices in managing and collating data before you commence.

Monitoring our students allows us to identify trends for success and identify potential pitfalls. In our module a data-led approach enables targeted intervention so that staff time is strategically assigned to the students most in need of it. Our educational aim long-term is to use data to allow us, as educators, to empower our students to direct their own learning, and to create objective-led clinical experiences that encourage students to take responsibility for their learning outcomes. We aim to ensure that students are facilitated to get the most out of their CEMS module rather than going through the motions and just completing it. We recommend that others start with a small pilot to identify the best approach for your module to meet your educational outcomes, then scale upwards.