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# The development of a reflective portfolio of comprehensive, holistic, patient care as a means of assessing dental undergraduate competence

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as a Means of Assessing Dental Undergraduate Competence.**

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## Abstract

In a Dental University Hospital the assessment of clinical competence for senior students (4<sup>th</sup> and 5<sup>th</sup> year students) prior to this change initiative, was achieved by requiring the students to attain numerical targets for specific clinical procedures. These multiple clinical procedures could be carried out on any number of different patients and the focus of attention was on the procedure and not the patient. Under this system there is no incentive for a student to complete a patient's treatment once the required numerical target is reached. There is also no reward, or progress toward establishing competence, for a student in treating a patient if that patient does not require any of the specific procedures outlined by the numerical targets. This project in educational leadership traces the change to a paradigm of comprehensive patient care, without numerical targets, for the establishment of dental undergraduate competence. The evidence based support for this patient centred approach will be established and the change process and evaluation outlined as it was carried out.

Under the changed system of competence assessment students will build a reflective portfolio of varied completed patient cases as a means of establishing undergraduate clinical competence in dental science. Having first established that the current literature supports this more patient centred comprehensive care model of assessment, this dissertation will continue on to describe how the Health Service Executive model of change management was used to guide and manage the change process. The rationale for this change is to foster and develop a more professional student approach to proving clinical competence where the process demands that provision of comprehensive, holistic care and completion of patient treatment are core values of the process, not numerical targets. The use of the HSE change model to initiate, plan, mainstream and implement the new assessment system is crucial to the success of the change strategy. The ultimate value and achievement of the change will be measured, principally, by focus group interview with a group of five students who are piloting the new system in the current academic year. Feedback from clinical teachers on the pilot group students will also form part of the evaluation. These teachers will not be aware of the participation of these students in the pilot. The results of the evaluation have now been used for evidence in the full implementation of the change for future dental undergraduates.

## **Acknowledgements**

The author wishes to acknowledge the support and help provided from all those involved in this project for change. In particular the author would like to thank my facilitator, Sibeal Carolan, who was an ever present source of support during the action learning sets and provided vital guidance for my focus group interview and draft submission. The programme director, Pauline Joyce, who was there from the very start and imparted a tower of strength and depth of knowledge for us all to call on. All the staff in RCSI, Reservoir House, who were always so friendly and helpful. Finally, from the RCSI, I would like to thank, my fellow students on the course who were always there to support during the anxious moments.

The author would like to thank all my colleagues in the Dental Hospital for their help and support. The support and guidance from all the senior academic staff was critical for the change to come about and is much appreciated. The valuable and fruitful focus group interview from the five pilot students was a key driver for change for which I am very grateful. I hope the change project will return to them a less stressful more valuable clinical experience while achieving clinical competence.

<b>Table of Contents</b>	<b>Page</b>
Title	I
Declaration	II
Abstract	III
Acknowledgements	IV
<b>Chapter 1: Introduction</b>	<b>1</b>
1.1 Change to be implemented	1
1.2 Rationale for selecting the change	2
1.3 Summary	4
<b>Chapter 2: Literature review</b>	<b>6</b>
2.1 Introduction	6
2.2 Supporting literature for a portfolio of comprehensive care	8
2.3 Summary	13
<b>Chapter 3: The change method</b>	<b>15</b>
3.1 Introduction	15
3.2 The change process	15
3.3 Why the HSE model?	16
3.4 The change model	17
• Initiation	17
• Planning	22
• Implementation	25
• Mainstreaming	26
3.5 Summary	27
<b>Chapter 4: Evaluation</b>	<b>29</b>
4.1 Introduction	29
4.2 Why evaluate	29
4.3 Evaluation framework and model	30
4.4 Conclusion	37
<b>Chapter 5: Discussion &amp; Conclusion</b>	<b>38</b>
5.1 Introduction	38
5.2 Organisational impact of the change	38
5.3 Summary	40
<b>References</b>	<b>41</b>
<b>Appendix 1: List of clinical competences in restorative dentistry</b>	<b>45</b>
<b>Appendix 2: Proposal for Divisional meeting</b>	<b>46</b>

<b>Appendix 3:</b> Headings for student clinical credit system	49
<b>Appendix 4:</b> Questions for focus group interview	50
<b>Appendix 5:</b> Email to pilot students	51
<b>Figure 1:</b> Miller’s pyramid	6
<b>Figure 2:</b> H.S.E. Change model	16
<b>Figure 3:</b> McKinsey 7S Framework	21
<b>Figure 4:</b> Jacob’s model of Evaluation	32
<b>Table 1:</b> SWOT analysis	19
<b>Table 2:</b> Stakeholder Analysis	20

## **Chapter 1: Introduction**

### **1.1 Change to be implemented**

The Irish Dental Council requires that clinical competence is established for graduating students in Dental Science (Council, 2005). Currently in this Dental University Hospital undergraduate competence, in clinical restorative dentistry, is assessed by requiring the students to complete and record three clinical experiences of a number of defined clinical disciplines (Appendix 1). The first two clinical experiences are considered to be pre-competences and the third is the final clinical competence. This final clinical competence must be signed off as satisfactory by one of a designated list of fulltime clinical staff members. At the beginning of each clinical year the undergraduates are provided with a list of the required clinical competences and the deadlines for their completion. Failure to complete these competences on time will result in a penalty of ten percent on the end of year final exam results. Failure to complete the competence at all will require the student to repeat the academic year. Therefore the clinical competences are high stakes for dental undergraduates and a source of considerable stress. Currently these competences can be carried out on any patient and each competence is a standalone clinical procedure which makes the process student and faculty centred as the faculty staff have, in the author's view, a perhaps false sense of security that students are clinically competent once the numerical target is reached. The entire process is insufficiently linked to the patients overall care.

The change process will implement a patient centred competence in comprehensive patient care which will be portfolio based. Senior students will be assigned between twenty and twenty-five patients with a variety of clinical treatment needs thus ensuring that undergraduates gain experience in all clinical disciplines. The exercise in

establishing competence will entail providing comprehensive care for all assigned patients and in doing so will therefore allow the students to gather a portfolio of their own completed patient cases on which the students will be required to reflect. This reflective portfolio of patient care will be carefully monitored and graded at the end of each academic term. Failure on a student's part to manage their assigned cases in a competent manner will still be a barrier to progression. However, the assessment of clinical competence will assess far more than reaching a numerical target of completed treatments. Portfolio assessment will encompass the evaluation of the entire approach to professional care provided over time for each assigned patient. Competence assessment will become more behaviour orientated than task orientated. While the complexity, variety and quality clinical procedures carried out will still be hugely significant, the professional approach to providing care and even the reflection on the holistic experience will also form part of the assessment of clinical competence. At a later point in our curriculum development this portfolio of treated cases will form part of a planned electronic student portfolio and the presentation of this entire portfolio could form part of the final exit examination, replacing the presentation of an individual patient in the current examination format. This final step will not form part of the change process for this project but will lay a platform for its introduction at a later date.

## **1.2 Rationale for selecting the change**

Currently the pressure on students to achieve all the numerical requirements for clinical competences can result in student self selection of specifically suited patients on whom the required competences can be attained. Once this competence is completed there is little incentive for the student to complete the patient's care.

Patients are, on occasions, being passed between students in order to allow fellow students complete a competence. This occurs if the student to whom the patient is assigned has already attained competence in the treatments that patient requires. This is not patient centred care and in no way reflects the reality of general practice for which we are supposed to be preparing students. This self selection and swapping of patients, to attain the clinical procedural targets, has even been identified as a clinical risk in the organisation's annual risk assessment register as continuity of care could be compromised.

The change to holistic patient care will reduce the stress for undergraduates to complete specified numbers of individual clinical procedures and in doing so make care more specifically patient- centred. If students are individually responsible for their assigned patient's complete care it will enhance the clinician-patient relationship and reflect, in a real way, the situation the graduating student will face in clinical practice. This care system will also enable the students to experience inter-professional care and teamwork while maintaining personal responsibility for treatment outcomes. In the event of a patient being referred for specialist or supportive care once that care is provided the patient will return for continuing care to the assigned student. The students will always maintain responsibility for the patient to ensure the patient receives an appropriate and timely standard of care during referral and then returns to the individual student for continuing treatment, just as in general dental practice. The assessment of clinical competence must accompany assessment in student attitudes and professionalism (Cowpe et al., 2009). The current system could be seen to support an unprofessional approach to patient care and could be accused of being faculty and student centred. The numerical target system is faculty centred because it places the

onus on the student to find patients for achievement of these treatment targets and allows the assessors to assume that once the required number of clinical procedures is completed the student must be competent. Unfortunately this may well not be the case as there is much more to professional competence than a numerical target system can establish. The portfolio of completed cases for all undergraduates will give students a sense of ownership as all the work carried out will be their own. During a recent accreditation visit Belfast Dental School was criticised for not having such a portfolio of clinical cases (GDC, 2011). Also in a recent code of practice guide, to general dental practitioners, on professional behaviour and ethical conduct, item 4.7 states that “if you accept a patient for treatment, you must complete the agreed course of treatment safely and to a satisfactory standard”(Council, 2012). It would appear obvious that a teaching institution should follow the same guidelines.

### **1.3 Summary**

The author fully accepts a close involvement in setting up the numerical target system for establishment of dental clinical competence a number of years ago. However, having been closely involved in clinical supervision and assessment over the last number of years the flaws inherent in this process have become apparent. It has become abundantly clear these numerical targets are driving the students to think in terms of the clinical procedure and not the patient on whom the treatment is being carried out or indeed the clinical outcome. Despite the best intentions of the undergraduates they are being driven by the competence system to move on to other patients in order to reach clinical targets. In some cases this results in an overload of patients with which the student cannot cope. The resulting stress for the student can be very damaging and patient care could be diminished. Most of the negative patient

feedback received by the patient services relates to continuity of care and the numerical target competence system may well be the root of the problem. While matters relating to patient complaints may be referred to in this dissertation, no detail can be provided as all such records are strictly confidential and are stored onsite. The following literature review will establish that clinical competence can best be established while providing comprehensive patient care and the numbers of clinical procedures carried out under this care system often exceeds that of a numerical target system. The review will also verify that a comprehensive care philosophy develops a more professional and reflective practitioner. The use of a portfolio in medical education and assessment is also supported by current research. The author will use the HSE model for change (Executive, 2008) to guide the change process and the Jacob method of evaluation (Jacob, 2000) to evaluate the success of the innovation. Full implementation of the change will follow.

## Chapter 2: Literature Review

The principal source for this review was Pub Med from the year 1990 to the current date.

### 2.1 Introduction

Perhaps before it is possible to consider how clinical competence can best be assessed in dental education it is necessary to first attempt to define what competence is. There is no agreed definition and a dictionary definition can be as simplistic as sufficient or suitable. Other definitions are more far reaching “the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values and reflection in daily practice for the benefit of the individual and community being served” (Epstein and Hundert, 2002). Dental competence is assessed in many ways as outlined in the dental assessment toolbox (Kramer et al., 2009) but as students progress through the undergraduate course this assessment should also progress to measure action rather than knowledge.

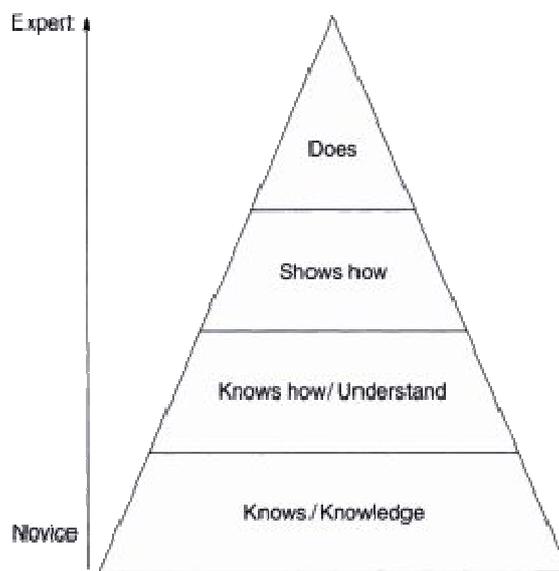


Figure 1: Miller's Pyramid

The figure above shows Miller's pyramid of professional competence (Miller, 1990). As dental undergraduates progress toward graduation competence assessment should be in the higher domains of this pyramid. While it may be acceptable to test factual recognition through tests such as multiple choice exams in the early undergraduate years, more senior students should be assessed by direct observation, portfolios and

follow up reviews (Albino et al., 2008). In 2010 the Association of Dental Education in Europe (ADEE) published an update of the profile of the competence domains for a graduating European dentist (Cowpe et al., 2009).

- I. Professionalism
- II. Interpersonal, Communication and Social Skills
- III. Knowledge Base, Information and Information literacy
- IV. Clinical information gathering
- V. Diagnosis and Treatment Planning
- VI. Therapy: Establishing and Maintaining Oral Health
- VII. Prevention and Health Promotion.

More recently the American Dental Education Association (ADEA) declared that as well as being able to practice evidence based dentistry dental competence must involve demonstration of professional and ethical behaviour (ADEA, 2012). This concept of including behaviour in the assessment is critical to the concept behind this change project dissertation. The ADEA then went on to define the individual domains of competence.

- Critical Thinking
- Professionalism
- Communication and Interpersonal Skills
- Health Promotion
- Practice Management and Informatics
- Patient care
  - A. Assessment, Diagnosis and Treatment Planning
  - B. Establishment and Maintenance of Oral Health

When either version of the domains of competence is examined it becomes very clear that modern concepts of competence focus largely on behaviour, attitude and professionalism. Therefore it becomes impossible to establish or assess competence by asking students to simply carry out a specified number of clinical procedures. This process can only serve to measure technical competence, is entirely task orientated

and as the literature will show may even promote unprofessional behaviour and could diminish patient care.

## **2.2 Supporting literature for a portfolio of comprehensive care**

Constructive alignment (Biggs, 1996) is now a feature of the modern dental curriculum and ensures that curriculum delivery and assessment are aligned and closely integrated. Much effort has also been spent ensuring that the modern dental curriculum is vertically and horizontally integrated (Manogue et al., 2010). Many dental schools now deliver the programme through a hybrid curriculum where problem based learning is combined with lectures to promote a life-long learning graduate (Schmidt, 2006). The current literature now also supports the move to assessing competence through a comprehensive care model.

The professional and regulatory bodies have, as we noted earlier, set out the domains for assessing competence and this has been published as recently as 2011 by the A.D.E.A. This literature review will investigate how the current evidence supports the portfolio of comprehensive care model in the promotion of these domains.

### Critical thinking

Critical thinking has been defined as “the art of analysing and evaluating thinking with a view to improving it” (Paul, 2006). It has been suggested that it is only through repeated professional interactions and reflection on these events that a dental student’s critical thinking ability will develop (Johnsen et al., 2009). For this reason the portfolio of patients for whom the individual student has complete responsibility is far more likely to measure and develop critical thinking skills. The simple completion of individual clinical procedures in order to reach an assigned target will in no way promote the critical thought process. Reflection is closely linked to critical thought. It is only through requiring students to complete individual patient care and reflect on both the process and outcome of that care that we can assess a student’s critical thought process. It is also only through the educational process of requiring students to analyse that educators can develop problem-solving, critical thinking and self-directed learning (Hendricson et al., 2006). Critical thought will also help graduates to evaluate emerging trends in dental care. After qualification every dental supply company will persistently

offer the “latest and greatest” dental material or treatment modality. It is only through careful evaluation of research evidence that a new graduate can ensure continuing evidence-based dental practice. Developing critical thinking and assessing it as part of overall competence assessment will impart this ability to our graduates and prepare them for the reality of independent practice.

### Professionalism

Because admission to most dental schools is based on academic success we have little or no measure of the professionalism of our entrants. Some non-traditional entrants are assessed by interview, which may include personality assessments, but this is by far the minority. However, there is little consensus around the definition of the word professionalism. The General Dental Council (Council, 2005) in their “Standards for Dental Professionals” included the following aspects:

- Putting patient’s interests first and acting to protect them
- Respecting patient’s dignity and choices

The following themes are included in the literature describing professionalism (Zijlstra-Shaw et al., 2012). Altruism, accountability, autonomy, compassion, honesty and integrity, reflection, respect, social responsibility, trustworthiness and self-motivation with respect to lifelong learning. In the words of William Sullivan “Professional education is above all the shaping of the person” (Sullivan, 2005). It is difficult to imagine that requiring students to carry out isolated individual clinical treatments on various patients could in any way promote any of the above mentioned themes of professionalism. A comprehensive care model will encourage the student to embrace all these attitudes and in doing so make the efforts toward the assessment of professionalism possible and meaningful. In the current difficult economic situation professionalism can be overcome by the market environment and financial pressures can lead graduates into unprofessional behaviour for monetary gain (Masella, 2007). The author has found that the setting of numerical targets for assessment of competence has the similar effect of promoting unprofessional and unethical care in order to progress through the course. It becomes clear during the focus group interview of the evaluation phase that this phenomenon is a clear theme of the

evaluation. Professionalism is not a once off way of providing care but truly a whole-life project (Bertolami, 2004)

### Communication and Interpersonal Skills

The medical profession is often criticised by patients in this domain of competence. However, our graduates are only likely to become practiced in the area of communication if educators promote communication through teaching and learning. If educators promote feedback and communication in both teaching and patient treatment our graduates are more likely to follow suit. All too often teachers values and practices diverge (Manogue et al., 2001). The assessment of clinical competence through numerical targets is one such example. We require students to develop communication and interpersonal skills but we set a target that in no way encourages this skill. The target system simply requires a student to find a patient, complete a clinical task and move on to the next patient. If undergraduate dental students are prohibited from exchanging and co-treating patients with their colleagues, unless through appropriate referral, it will become vital that they establish a good professional relationship with all of their assigned patients. Only a comprehensive care model will promote these communication and interpersonal skills. This was another clear theme from the focus group interview during pilot evaluation. Because the pilot students knew they would have to continue treating all assigned patients they realised that any possible conflict or miscommunication with these patients needed to be resolved as they could not be transferred. This is entirely appropriate as conflict resolution is a reality in all patient or community care and to develop this skill is a core part of clinical competence which our graduates will call upon through their practicing career.

### Health Promotion

Graduates must be competent to prescribe and provide prevention, intervention and educational strategies (ADEA, 2011). Prevention and education are often the "best form of cure". But there is no competence in any of these areas in a numerical target system. Patient attitudes and behaviours are often the core problems of proper health promotion. Comprehensive patient care shifts the educational emphasis from student-centred care to patient-centred care and to deliver this form of care the student must

consider the biological, psychological and social needs of the patient (Douglass, 2002). A comprehensive diagnosis and treatment plan will encompass all of these aspects of health promotion. Any clinical task orientated educational experience will fail to promote patient or community health. In professional dental care the practitioner does not treat the tooth they treat the patient. Clinical competence assessment must embrace this concept.

### Practice Management and informatics

The National Strategy for the Higher Education Authority in Ireland (HEA, 2011) requires that undergraduate education explicitly address the skills required for effective engagement in society and the workplace. Many dental graduates in Ireland go directly to general dental practice as there is no graduate vocational scheme as there is in the United Kingdom. Irish dental graduates often practice independently from graduation and for this reason dental education must prepare our graduates for this unfortunate reality. Comprehensive care is the general dental practice model so clearly it should be the educational model also. Dental education and assessment must move with the direction of the accrediting professional bodies but more importantly with the needs of our graduates (Pyle, 2012). Some American dental schools have modelled their curriculum on the private practice model with significant success (Pousson and McDonald, 2004). Not only did clinical productivity increase but graduates also felt better prepared for general dental practice. Managing patient information and ethical issues around patient confidentiality and consent are all better served and practiced in a holistic care model. Ownership of the responsibility for every patient's care and treatment outcome will only be nurtured and developed by such a care model.

### Patient Care

Dental educators must graduate dentists that are fit for practice and therefore clinically competent (Cowpe et al., 2009). But clinical competence relates directly to patient care, the quality of treatment provided, treatment outcomes and above all the patient's experience. Clinical competence therefore should recognise the patient before the dental treatment to be provided. In order to achieve this, dental schools must adopt assessment strategies that develop integrated learning outcomes such as

the comprehensive care model (Nulty et al., 2010). Griffith University in Queensland Australia have adopted such a model and the comprehensive care of patients is assessed under the following headings.

- Demonstration of care and compassion
- Maintained the integrity and confidentiality of patient records
- Records were thorough and accurate
- Explained the procedures and kept patients informed
- Provided appropriate postoperative advice
- Interacted with staff in a professional manner
- Punctual
- Appropriate dress
- Willingness to learn and accept advice
- Time management and appropriate treatment well planned
- Well prepared and understood procedures
- Infection control

Perhaps to make this assessment complete some reflection on the experience should be considered. The important issue is that there is no reference to quantity of clinical procedures. The focus on clinical competence is not based on repetition or quantity and this fact is borne out by a twenty two year retrospective study (Spector et al., 2008). In the University Of Iowa clinical competence in comprehensive care is judged by considering the students;

1. Demonstration of sound clinical skills in the treatment of patients
2. Demonstration of sound clinical judgement in the treatment of patients
3. Demonstration of preparedness to perform the procedure indicated in patient treatment and proper record keeping
4. Demonstration of sound patient management
5. Demonstration of competent self-evaluation skills and independence needed for the practice of dentistry

This model of assessment will encompass the issues of patient care and yet ensure clinical procedural competence at the same time. One of the possible concerns about a comprehensive care approach is that although it is patient-centered it may

reduce student clinical activity. If clinical competence is no longer linked to numerical targets will students do less clinical work? The literature again does not support this theory and it would appear that, in fact, the opposite is the case. In the University of Colorado School of Dentistry (Holmes et al., 2000) a comparison was made between student productivity under a numerical target competence assessment and a comprehensive care model and students were found to be seven percent more productive with the comprehensive care model. In this case study students were required to carry out “recommended core clinical experiences” which ensured that each student has clinical exposure to a full range of clinical treatments. This concept is also part of the authors proposal as clinical competence across a full range of procedures is still a component of overall graduate competence. Other literature reports (Evangelidis-Sakellson, 1999) showed insignificant differences between either competence models. This study defined comprehensive care as “a system of clinical instruction and operation which permits students to provide or be responsible for all aspects of a given patient’s treatment needs in a manner that closely resembles the way a student will provide care in a private practice subsequent to graduation”. Some dental schools have even taken the further step to develop dental school clinics as patient care delivery centres (Formicola et al., 2006). The comprehensive care model fits well with this innovation and as costs of running dental school clinics increase this model may become a reality for other institutions. However, it would be critical that the other realms of competence mentioned above were closely monitored. If patient care is to be at the core of dental education the completion of care should be a core requirement. The Irish Dental Council recently issued a code of practice relating to Professional Behaviour and Ethical Conduct (Council, 2012) where it states that if treatment is initiated for a patient it should be completed to a satisfactory standard. In a numerical target competence system once a clinical procedure is carried there is no incentive for the student to complete care (Park et al., 2011).

### **2.3 Summary**

The continuation with clinical numerical procedural targets as a means of assessing clinical competence or so-called “inauthentic evaluation” (Licari and Chambers, 2008) has little support from either the current literature or indeed the

professional or governing bodies. Some of the resistance to eliminating the system may come from the reluctance of faculty assessors to have to defend decisions made on professional judgement rather than numerical counts. However, once it is accepted that the modern definition of professional competence has its basis in attitude and behaviour it becomes unacceptable not to support a move to comprehensive patient care. This system places the patient at the centre of clinical care and best ensures treatment will be completed in a holistic and appropriate manner. It is difficult to establish that patients would prefer this type of care and the literature is inconclusive as some studies have shown the patients have no particular preference (Mascarenhas, 2001) so perhaps it will be left to the accrediting bodies to ensure that a portfolio of patient care is at the core of clinical competence . As mentioned earlier the Belfast school was recently criticised by the General Dental Council for not having a portfolio of care (G.D.C, 2011). Eliminating the focus from numerical requirements to comprehensive patient care will increase productivity, enhance on-time graduation rates and provide a much more accurate assessment of student performance (Licari and Knight, 2003).

## **Chapter 3: The Change Method**

### **3.1 Introduction**

In this chapter the management of the change process will be outlined and followed to the point where the change process is complete. If change is not managed, it fails (Kotter, 1996). This thought must remain foremost in mind when considering any change project. In order to manage or lead change it is vital to follow a defined change method or process. For this change project the Health Service Executive model of change was chosen (H.S.E, 2008). This chapter will outline why the change model was chosen and follow the stages of this process from initiation on to planning through to implementation and finally mainstreaming the process. In conclusion it will be shown how following this evidenced based change method provided the strategy for change.

### **3.2 The change process**

Having been a key instigator of the numerical requirement for clinical competence in 2005 the author knew it was going to be difficult to lead the change from that system of assessing competence. It is also recognised that change is difficult to bring about in academic institutions as senior academics feel they have academic autonomy and are reluctant to go along with change unless they are in full agreement with the proposal for change. Having watched the effect the numerical target system had on both student behaviour and patient care the author was convinced the change was needed and was convinced an organised process was the only way to ensure it would come to fruition.

The evidence from the literature in support of the new model, as is clear from the previous chapter, and establishing the support from accrediting and professional bodies in dental education for a comprehensive care model would together form a sound basis for this change innovation. The process was never going to be straightforward and following a well planned strategy would be essential to ensure success. There are many models for change but the HSE model was chosen

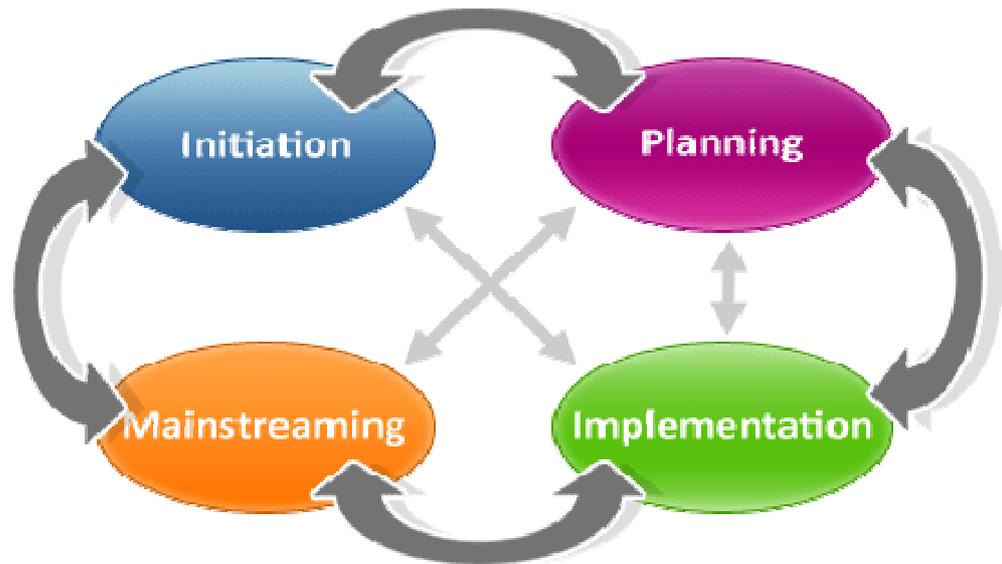


Figure 2: The HSE change model

### 3.3 Why the HSE Model?

Organisational change is never linear and usually fraught with unforeseen circumstances. Some change models seem to propose that you follow linear steps and progression is inevitable. Kotter's eight step change model (Kotter, 2002) was recently used to change the assessment method in a dental school in Puerto Rico (Guzman et al., 2011). The author felt that this approach was too linear and can fail to allow for the complexity of change. The HSE model is process centred and dynamic. It is specifically adopted for organisational development and places a strong focus on the people involved in the aspects of change. The focus on people and the cultural aspects of change in an academic institution will prove vital to this process. The dynamic nature of the HSE change model provides the opportunity to go back to any stage and re-negotiate. Although there were unarguable drivers for this change some resistance was inevitable and the change model would have to incorporate this fact by providing this dynamic ability to re-cover ground and go back to earlier steps. With the less versatile linear models of change if strong resistance is met at any stage of the change process there is greater risk of losing momentum. This is a risk not worth taking as in a educational institution with a complex hierarchy resistance must be anticipated and planned for. Sustainability of the change is also key for this project and the final stage of the HSE model

ensures mainstreaming and improved organisational effectiveness. This model is also built on the principles of collaboration and as there are many stakeholders in dental education, promotion of collaboration in change is vital.

### **3.4 The Change Model**

#### **Initiation**

##### Preparing to lead the change

The initiation phase will lay the foundation for change and developing a sound strategy for change will help ensure success. The author must assume the responsibility for leading the change and in this case authentic leadership will guide the process. Authentic leadership (Avolio et al., 2009) is “a pattern of transparent and ethical leader behaviour that encourages openness in sharing information needed to make decisions while accepting follower’s inputs”. This leadership style along with a process centred flexible change model will guide the process.

In order to initiate the change process one must first establish a need for change and the degree of choice about whether to change, or not, must be addressed. There must be clarity around the current state and a clear definition of the desired future state. The clear steps outlined by the HSE model serve to guide this process. As already mentioned the author was closely involved in the setting up of the numerical requirement for competence. I joined the hospital in 2005 at a time when students had to complete a single treatment from a list of required competences in order to pass as clinically competent. Along with others I argued the idea that a student could not be deemed competent after a single experience. This argument led to a change in the competence system where numerical requirements were increased to at least three experiences of each clinical procedure. The result of this change was that the numerical target to pass as competent was increased considerably. I incorrectly, as I now know, thought that this would go to ensure greater clinical competence of our graduates but was unprepared for the effect it would have on the patient and student experience.

Over the next six years of assessing competence by numerical targets the flaws in the system became apparent. Exposing these flaws and establishing the effect they were having on patient care and student behaviour became the focus for identifying the need to change. I observed students in the clinical environment experiencing enormous stress endeavouring to reach the targets set by the faculty. Patients were clinically examined, by students, in the hope that their treatment would include procedures from the competence list. Some students would be lucky and find suitable patients quickly, others got delayed from reaching the targets providing valuable and necessary care for patients but not carrying out the prescribed list of treatments. This often led to enormous stress for students and all academic staff have had the experience of dealing with a seriously distressed undergraduate for whom the numerical target was not being achieved. The task driven nature of the system was a serious flaw and well intentioned dental undergraduates were being driven, by the faculty requirements, to provide clinical task- orientated treatments and not patient-centred care. Of course the faculty would ensure that all patients received proper care and this led to a mammoth task at the end of each year to ensure that each student managed their patients in an appropriate manner. Patients that had been transferred between students in order to achieve the competence targets had to be accounted for by patient services and each student had to carry out a patient management competence to demonstrate proper care. The possibility of relieving patient services of this annual task became another driver for change.

As is clear from the literature review the profession as a whole and the governing bodies were all coming to the view that dental clinical competence was not related to the number of tasks carried out but much more appropriately assessed by looking at professionalism and student behaviour. Peer recognition of “best practice” assessment would be another driver to drive the change. The Irish Dental Council is the accrediting body for Irish dental schools and during the change process there was an accreditation visit planned. This was identified as a key opportunity to have the governing body assist in ensuring the change happened. This would turn out to be a critical leverage point (Meadows, 1999) as the council’s

recommendation for implementation was to prove instrumental in increasing the urgency for the change.

A SWOT analysis is a strategic planning tool used to identify the Strengths, Weaknesses, Threats and Opportunities involved in a venture or business plan. This analysis below is strategic in establishing the need and value of the proposed project of change.

<p><u>Strengths</u></p> <ul style="list-style-type: none"> <li>• A vibrant and enthusiastic student population</li> <li>• Good patient cohort</li> <li>• A dynamic, involved faculty</li> <li>• Approachable senior academics</li> <li>• Strong proactive patient services team</li> </ul>	<p><u>Weaknesses</u></p> <ul style="list-style-type: none"> <li>• Faculty and student centred patient care</li> <li>• “Tick box” competence assessment</li> <li>• Poor professional behaviour assessment</li> <li>• Waste of staff time tracking patients</li> </ul>
<p><u>Threats</u></p> <ul style="list-style-type: none"> <li>• Accrediting bodies</li> <li>• Academic reputation of school</li> <li>• Patient complaints (hospital risk register)</li> </ul>	<p><u>Opportunities</u></p> <ul style="list-style-type: none"> <li>• Reputation of School/ centre of excellence</li> <li>• Student satisfaction</li> <li>• Improved patient and student experience</li> </ul>

Table 1: SWOT Analysis

Clarifying the leadership roles and identifying the key influencers and stakeholders was the next step in the initiation phase. A stakeholder analysis was carried out to identify the key individuals involved in the change and their relative involvement and importance to the process. This process has particular importance for the leadership process in higher education. Bryman (2007) clearly showed how failure in leadership in higher education occurs when he pointed out some of the ways not to lead:

- Failing to consult
- Not respecting others values
- Actions that undermine collegiality
- Not promoting the interests of others
- Undermining autonomy

None of the above could be allowed to happen during the process so a careful stakeholder analysis was carried out.

<p><b>High Importance/High Influence</b></p> <p>Dean of school</p> <p>Director of teaching and Learning</p> <p>Head of division</p> <p>Senior academics</p> <p>Patient services manager</p>	<p><b>High Importance/ Low influence</b></p> <p>Dental students</p> <p>Patients</p> <p>Part-time clinical teachers</p>
<p><b>Low Importance/ High Influence</b></p> <p>Hospital board</p> <p>Dental council</p>	<p><b>Low Importance/ Low influence</b></p> <p>Hospital staff not directly involved in student affairs</p>

Table 2: Stakeholder Analysis

This analysis helps to identify the people whom the change will affect or involve. It provides a clear identification of the high importance high, influence individuals whose resistance to the change could be insurmountable. In order to assess readiness for change I set up meetings initially with the key individuals and presented my SWOT analysis. It was important not to forget or fail to recognise the importance of all stakeholders as resistance from any involved stakeholder needs to be given full consideration. Having first presented my proposal for change to the senior staff I proceeded to meet with student bodies and staff from patient services. I had initially planned to involve patients but to involve individuals outside the organisation, particularly a vulnerable group like patients, would require ethical approval and that would prove impossible in the timeframe presented. Reluctance for change was not a problem I encountered in any of my initial meetings. On the contrary, all stakeholders

showed a keen interest and expressed strong support for the project change proposal. Careful consideration was given to the order in which I approached individuals as organisational politics is an important consideration in academic institutions. With this in mind I approached the Dean, as head of school, to be my project sponsor.

Donnella (Meadows, 1999) described the concept of leverage points as places to intervene in a system to ensure change happens. As already discussed the Irish Dental Council's accreditation visit was one such opportunity and as the co-ordinator of the fourth dental academic year I asked the head of school if I could make a presentation to the visitors on my proposal. Also, as a member of the Dental Hospital Board I ensured that my initiative was made known to all members. When presenting my initiative for change I used the McKinsey 7S framework as a basis of how I felt the change would impact the hospital (Pascale, 1981).

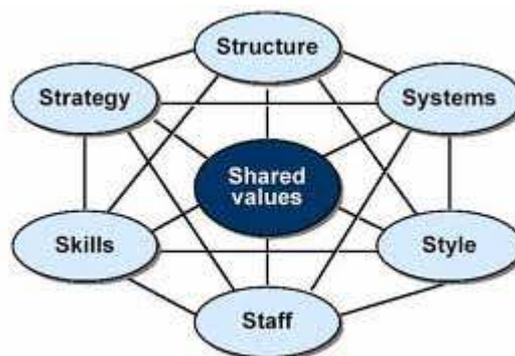


Figure 3: 7S Framework

This was a useful tool to present a type of project impact statement showing a before and after under the above headings as an initial assessment of how the change would impact the hospital.

In the current economic situation a resource neutral project or even a project with cost benefits would be far more likely to be supported. This change would have insignificant effects on hospital costs and did provide the possibility for possible re-deployment of staff as students would have a greater role in the management of their own patient cohort. There would be requirement for a technological resource if students were to build and store a portfolio of patients. Because of patient confidentiality issues it was decided all patient records and matters relating would be

stored on the hospital's electronic dental record which is secure and already in existence. As Trinity College moves toward using a standardised student electronic interface platform there may be an opportunity in the future to integrate some of the student elements of their portfolio with the Trinity system.

## **Planning**

### Building commitment/ determining the detail of the change/developing the implementation plan.

Follow up meetings were held with the Dean and Director of Teaching and Learning and the information regarding the support from the initial meeting with other stakeholders was communicated. I was asked to draw up a proposal to present to our monthly divisional meeting in the Division of Restorative Dentistry and Periodontology (Appendix 2). This division is responsible for the numerical procedural student requirements. I met with a group of recently graduated non consultant hospital doctors and discussed my proposal with them. Having recently qualified through the numerical requirement system they were all very supportive of the proposal but raised the concern that some, less motivated students, may miss out on individual treatment procedures and may do less overall clinical work. This was a concern that was raised again later when I presented to my academic colleagues. Clearly this concept became a possible resistor for the change and needed to be addressed in more detail in my implementation phase. I also made initial representations to the president of the Irish Dental Council and agreed I would provide detail at a presentation during the accreditation visit. I used this opportunity to highlight the recent criticism of the Belfast school, for not having a student portfolio, during a General Dental Council visit.

The detail of the change was then drawn up and the key features would be

- Removal of multiple numerical requirements for clinical procedures to assess competence
- Some core clinical experiences would be still be required to ensure a broad clinical exposure for all students

- Each student would be assigned between 15 and 25 patients, depending on complexity, during the senior clinical years for whom they would be required to provide holistic and comprehensive care
- Swopping of patients would be prohibited
- Students would use their patient cohort to develop a portfolio of patient care and most cases should be completed
- This portfolio would not only contain patient treatment information but also a reflection on the treatment experience and treatment outcome
- Each portfolio would be monitored and assessed by a senior academic staff at the end of each academic term (three terms each year)
- Any evidence of lack of clinical activity at assessment would result in the assignment of further patient cases
- Failure to provide patient- centred comprehensive care would result in referral to the Director of Teaching and Learning and ultimately the Dean of school for sanction.

The development of a network of supporters (Uzzi and Dunlap, 2005) for the proposal was crucial to implementation success. Although the key stakeholders were in full support it was important to communicate the proposal throughout the institution to build a network of support. The concern raised by the non consultant hospital doctors was addressed in the detail of the proposal and the regular monitoring of activity in the portfolio would ensure any underperformance was addressed at an early stage. The retention of “core clinical experiences” was another means of ensuring students experienced the full range of procedures.

#### Resistance and the part-time teacher’s role

The hospital employs a large number of part-time clinical supervisors and these teachers are closely involved in grading the student’s performance for each clinic. Communication of the change would be important for this body of teachers. Since the greatest resistor to date had been the possibility of less clinical work being done I saw this group as having a real role in further ensuring this would not occur. The students are graded for each clinical session under a number of headings and one of these headings is clinical productivity (Appendix 3). Since achieving a

sufficient level of satisfactory clinical credits is a requirement for each student in order to progress with their year, this was another ideal opportunity to combat the prospect of underperformance. I used the opportunity of one of the annual part-time teacher meetings to address the group and explain the upcoming change in competence assessment. Since almost all of this group were in general dental practice they were in full agreement with the concept of providing comprehensive care from one individual. I voiced the concern that had been raised about the possibility of reduced productivity and asked that they would be particularly mindful of the heading of clinical productivity when applying the credits at the end of the clinical session. I felt the group felt empowered at the end of the discussion as not all the teachers realised the importance of their credit allocation before the meeting.

Educational issues should take priority in a teaching university hospital but the possibility of using this innovation to increase hospital income could not be ignored. The hospital does charge a much reduced fee for student treatment and this revenue source is very important in the current difficult times as the cost of providing a dental clinical education increases. With the hospital budget being reduced each year, and the promise of further reductions to come, any possibility of increase in revenue would be a positive driver. During my literature review it became clear that an increase in productivity was the common effect of a comprehensive care model. When students are forced by a numerical requirement to be selective about the treatments they carry out, they waste a lot of clinical time looking for competence related treatments. Also the literature supported the concept that once competence targets are reached the students will avoid this particular clinical procedure in the future as it has no competence value. The prospect of treating according to patient need held the likely outcome of not only better care but greater numbers of clinical procedures as well with a resulting increase in income.

#### Progression to Reflective Portfolio

The earlier outlined flexibility of the HSE change model became important as one key change to the detail of the innovation occurred during the process. Having

spent time initiating and planning the change the only alteration I initially proposed was the move to assessing clinical competence through comprehensive care. It became clear during discussions with the most senior stakeholders that in order to ensure maximum support I needed to take this process a step further and include the development of a reflective student portfolio of care. It was an obvious progression but was not initially anticipated. This addition necessitated returning to the planning stage and broadening the scope of the change proposal to include a reflective portfolio implementation. When students progress through the clinical years to become directly involved in the provision of patient care the problems they encounter, in the real life setting of clinical care, become more ambiguous. This change in the learning environment requires the development of reflective thinking (Boyd, 2008). Two types of reflection were described in Boyd's paper *reflection in action* and *reflection on action*. Both these concepts would be included in my updated portfolio implementation. The use of portfolios in assessment in medical education is not a new idea and has been proposed for many years (Friedman Ben David et al., 2001). Dundee Medical school has, for some time, used portfolio assessment in their final medical examination (Davis et al., 2001). The reflective aspect of the portfolio is a major step in making the process more valid and reliable (Kardos et al., 2009) when being used as an assessment tool. My initial concern, when faced with the prospect of having to expand my implementation, was quickly overcome when I realised the value of a reflective portfolio and the support in both the literature and from the professional bodies for this form of assessment. Critical self evaluation is integral in a reflective portfolio and can help measure how the student judges the quality of his or her own performance and how they learned from the clinical experience. This depth of assessment is what allows the assessor to authentically measure professionalism, attitude and behaviour.

## **Implementation**

### Pilot Scheme

A pilot scheme is a small scale preliminary study carried out to assess the feasibility and possible adverse effects of a change or innovation. Due to the critical nature of

clinical competence assessment in any medical education and the requirement from the accrediting body to ensure that a graduating student is clinically competent I decided to run a pilot of the new process with a limited number of students. This pilot served a number of purposes. First of all it would prove that the new process was capable of assessing competence. This was critical as overall course accreditation could be placed at risk if the process was seen not to work. In the SWOT analysis, carried out earlier, this threat ranked at the highest level. I was confident I could manage the pilot scheme myself which would provide the opportunity to prepare others for portfolio assessment for an entire year after full implementation. Finally, I would have the opportunity to properly carry out an action evaluation of the pilot and I was confident the results would provide the basis for mainstreaming the change having learned from looking at the impact of the change. The final stage of the planning phase was to outline the implementation of the pilot. I met with the Director of Teaching and Learning and randomly chose one student from each of the five modules in the fourth dental year. Each dental year has five modules of eight students giving a total of 40 students in total in each year. I negotiated permission from the Dean and Director of Teaching and Learning to exempt these five students from the numerical competence requirement for that year. It was agreed that this pilot group of five students would have their competence assessed by assessing a reflective portfolio of comprehensive patient care for all their patients in the fourth academic year. I would take responsibility for the assessment and the evaluation of the process.

### **Mainstreaming**

#### Making it the way we do business/ Evaluating and learning

I first of all had to meet with the five chosen students for the pilot to give them the option to participate. The problems with insider research are evident (Robson, 2002) but in this situation the students needed the confidence of knowing my position in the hierarchy of the dental school to have trust in my promise to exempt them from the normal numerical requirement. It was not surprising that they all agreed to participate in the pilot and it was agreed that the existence of the pilot would not be communicated to other students for fear it would

compromise the pilot group among their peers. Their enthusiasm for this new approach was evident from the start and I explained the detail as laid out in the planning phase. It was agreed that each student would present a reflective portfolio on the patients for whom they had provided holistic care at the end of each academic term. There are three academic terms in each academic year. It was at this stage I made an error I was later to regret and will learn from this mistake for full implementation. At one of my regular meetings with the pilot group I noticed they were all extremely clinically productive and it appeared to me they would all reach the previous numerical targets while providing comprehensive care. I mentioned to the group that it would be ideal if they all managed to achieve this without realising the effect this would have. At a follow up meeting two of the pilot group expressed a concern that they may not achieve the numerical target but had provided many other valuable treatments that were not included in the assigned procedures. It was then it became clear that an inadvertent remark had the effect of resetting the numerical target that had the potential of defeating the entire purpose of the pilot.

A critical point in the mainstreaming phase came when I presented my proposal for the change project to the accreditation visitors from the Irish Dental Council along with external visitors from Wales, Canada and Australia. Once the three day visit was completed the hospital was given a verbal synopsis of what would follow in a full report. The introduction of the reflective portfolio for clinical competence assessment was one of the very few initiatives to be singled out by the visitors and its implementation was declared highly desirable. The final stage of mainstreaming will be the inclusion of the detail described earlier regarding portfolio assessment in the student yearbook for all students of the coming fourth dental Year.

### **3.5 Summary**

This chapter traced the change process and the detail around how the change project was modified during implementation. The support from the current literature was a powerful driver for the initiative and was helpful in persuading the less convinced in the early stages. The key factor in driving the change was the identification of the high importance, high influence stakeholders and ensuring

their support from the outset. Care was taken, however, not to use the support of senior staff as a bludgeon in bringing about the change. The micro politics of an institution in higher education can result in the improper use of power having a negative effect. From the author's experience formal authority can be fragile, incomplete or unavailable in academic institutions. With the help of the HSE model the change process was brought about using the four C's of persuasion

- Credibility - making expertise vivid, use of informal networks
- Common ground - making issues apparent, meaningful
- Compelling evidence – evidence based assessment
- Connect – emotional tuning, resonance

It was difficult to oppose the momentum once best practice in patient and student assessment was established. Once any resistance was met it was taken seriously and steps were immediately taken to address the concern. The opportunity from the accreditation visit was very instrumental and full advantage was provided and taken from their support. The next chapter will consider the detail of the evaluation of the change which was unequivocal in its support of the project.

## **Chapter 4: Evaluation**

### **4.1 Introduction**

The evaluation of the pilot project for the change would form the basis for the permanent introduction for all future dental senior clinical years. I had first planned to evaluate the change to comprehensive care on the pilot students, hospital staff and patients. However, to interview patients, as pointed out earlier, would require seeking ethical approval from the Trinity ethics committee and the timeframe involved would not allow for this. The focus of the evaluation then turned to the pilot group and since I had a close involvement with these students I took the opportunity to concentrate on a qualitative evaluation as will be developed throughout this evaluation chapter.

Qualitative evaluation is primarily involved with words and their meanings whereas numbers and their significance is the focus of quantitative evaluation (Edmunds and Brown, 2012) . Feedback from clinical teachers for the pilot group of students would also prove significant and information from patient services in the hospital regarding patient feedback.

### **4.2 Why Evaluate**

The World Health Organisation (WHO, 1998) described evaluation as “the systematic examination and assessment of the features of an initiative and its effects, in order to produce information that can be used by those who have an interest in its improvement or effectiveness”. This definition defines the purpose of a comprehensive and complete evaluation of the pilot scheme prior to full implementation of the change for all future senior students. Failure to carry out such an evaluation could prove problematic for future programme accreditation. Both formative and summative evaluations are to be carried out during and after the pilot. Formative evaluation is also known as process evaluation and is carried out during the implementation of the pilot scheme. Formative evaluation provides information on how the pilot is running and if the change process is being carried out as planned. It should highlight any problems at an early stage of the pilot and allow time to react to the issues that arise. One such problem was outlined in chapter 3 when I asked the pilot group to try to reach the numerical targets set for others. This type of assessment

is specifically designed for programmes that are in development and ensures the programme is based on stakeholders needs and is using effective and appropriate methods (Van Marris, 2007). Summative assessment is carried out once a programme has been implemented and will examine the overall impact and effectiveness of the piloted change in hospital. Summative assessment can sometimes be called outcome assessment as it makes a judgement on whether or not a project met its stated goals and outcome objectives. The critical nature of the qualification of clinically competent undergraduates required that the pilot change was subjected to both formative and summative evaluation. It will be on the evidence of this evaluation that the comprehensive care model will go on to be implemented throughout the dental school and be kept under ongoing review.

### **4.3 Evaluation Framework and Model**

As for any project, good leadership will entail the use of a recognised strategy to maximise the project outcomes. Therefore, in order to ensure a successful evaluation of the change project in the DDUH a suitable evaluation model or framework should be employed and followed. Key questions should be addressed by this evaluation framework. (Thackwray, 1998)

- How is evaluation defined?
- What are the functions of evaluation?
- What are the objects of the evaluation?
- What kinds of information should be collected regarding each object?
- What criteria should be used to judge the merit of the evaluation object?
- Who should be served by the evaluation?
- What is the process of doing an evaluation?
- What methods of enquiry should be used?
- Who should do the evaluation?
- By what standards should the evaluation be judged?
- How and when should the results be presented?

Many different models and frameworks have been proposed to address the process of evaluation and attempt to answer the above questions in a strategic way. Some

evaluation models are outcome centred, Kirkpatrick's model (Kirkpatrick, 1994), and are specifically goal based. This model is more orientated towards evaluating quantitative data like questionnaires on knowledge and attitudes. The evaluation of qualitative data such as data gathered from focus groups interviews and reflections will be important for the evaluation of this change project. The change to a comprehensive care approach should alter both the student and patient experience. It will be important to evaluate changes to student's professionalism and responsibility for entire treatment plan outcomes. Any alteration to clinical stress for dental undergraduates as a consequence of the removal of numerical targets of clinical procedures will need to be measured. Therefore an evaluation tool that is suited to both quantitative and qualitative data will be employed. For the evaluation of this change project in the hospital a process centred model will be more appropriate. Jacob's model of evaluation is such an example and is an appropriate model for the evaluation of both types of data with a particular emphasis on stakeholder involvement (McNamarra, 2010). This model is also widely used in evaluation where the emphasis is focused on personal and professional development rather than skills acquisition (Jacob, 2000). This is a ten stage process centred evaluation model with stakeholder involvement and collaborative and negotiated understandings around context and policy.

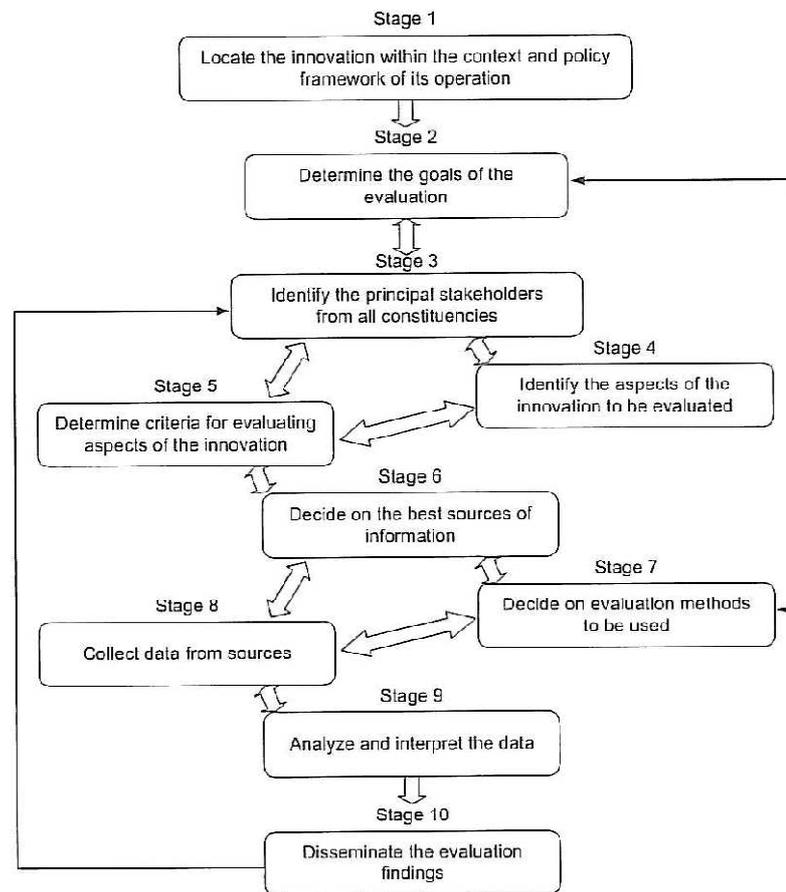


Figure 4: Jacob’s model of evaluation

The ability to move backwards and forwards between stages gives this evaluation model added flexibility. The first three stages of the Jacob model involve the description of the innovation or proposed intervention within the context and policy framework of its operation. Then the goals of the evaluation are determined followed by identification of the principal stakeholders with whom consultation will be required.

The next four stages, stages four to seven inclusive, are concerned with defining the evaluation purposes, criteria and the elements of the change project that are to be evaluated along with the information sources to be availed of. Stage eight is concerned with data collection and stage nine the analysis and interpretation of the collected data. Stage ten is critical in that it disseminates the findings to the relevant stakeholders identified at the start of the process. This invokes the possibility of making the process an action evaluation as stakeholders can act and react based on the evaluation findings or results.

## Jacob's evaluation model and data collection

*Stage 1: Locate the innovation within the context and policy framework of its operation.* The innovation has been summarised in some detail in the change project introduction.

*Stage 2: Determine the goals of the evaluation.* The goals of this evaluation are to compare and contrast specific aspects of the way care is provided for patients and also the way undergraduate dental students are assessed as clinically competent in the hospital. This comparison will be carried during and after the project change is implemented as outlined for the pilot group.

*Stage 3: Identify the principal stakeholders from all constituencies.* The main stakeholders in this evaluation will be the undergraduate dental students and their patients. Other stakeholders will be the senior staff involved in student assessment, the hospital staff from the central medical records department who assign and appoint the patients for the students. The patient services manager who deals with all patient complaints regarding their treatment. The Irish Dental Council and Trinity College as the accrediting and governing bodies for the dental science course will also be stakeholders.

*Stage 4: Identify the aspects of the innovation to be evaluated.* In order for the change project to prove viable many areas will require evaluation. These aspects can be considered under the heading of stakeholder considerations.

### Student aspects

The change in stress levels experienced by dental undergraduates after implementation of the innovation.

The change in professional relationship between students and their patients.

The levels of clinical activity and variety of clinical procedures before and after the innovation is implemented.

### Patient aspects

The improvement in the student/patient experience in the hospital afforded by the innovation.

### Senior staff

The reduction in concerns for completion of patient care by assigning this responsibility to one individual and the elimination of patient transfers between students.

The more professional ethos of assessment of comprehensive patient care as a measure of clinical competence.

### Central Medical Records Staff

The improved patient flow through the DDUH by appointing patients to an individual undergraduate.

### Patient services manager

The level of negative patient feedback regarding treatment flow and completion before, during and after the innovation.

The effect on workload of elimination the patient transfer between students.

### The Irish Dental Council

The attitude of the council toward the innovation of assessing competence using the comprehensive care approach and the introduction of a student portfolio of completed cases.

*Stage 5: Determine the criteria for evaluating aspects of the innovation.* The criteria for evaluation will be the use of both quantitative and qualitative data collection methods before, during and after the change is implemented for the pilot group and compare the findings. The interests to be served will be to use the analysis of the data to establish improved patient care practices in the hospital, a less stressful and more

professional approach to patient care from the undergraduate perspective. A better patient care experience in the undergraduate primary and secondary care programme. Demonstration of improved workload and work satisfaction for hospital staff. Finally, acknowledgement from the Dental Council that our changed practices around competence are concurrent with current best practice in dental education.

Stage 6: Decide on the best sources of information. The best sources of information will be the stakeholders identified in stage three.

Stage 7: Decide on the evaluation methods to be used. As outlined earlier both quantitative and qualitative data collection methods will be used. However, since this evaluation is process centred and is evaluating such aspects as student stress levels, attitudes and relationships with patients the evaluation will rely mainly on qualitative data such as in-depth focus group interviews and student reflections. A focus group interview” is an in-depth group interview with a group selected because they are a purposive sample of a specific population, this group being focused on a given topic” (Thomas, 1995). The advantage of this focus group evaluation method is that the process can elicit information regarding specific ideas and feelings individuals have relating to particular issues while at the same time highlight differences in perspective between individual groups (Rabiee, 2004). Further qualitative data will be evaluated from a report from the clinical teachers of the pilot group students. The evaluation will employ quantitative data collection from patient services regarding patient feedback and patient flow through student clinics.

Stage 8: Collect data from sources:

### **Focus Group Interview**

The principal data collected was from a focus group interview held with the pilot group on March 20<sup>th</sup> 2012. Having first advised the five students of the purpose of the interview we met as a group on the above date at 3.30pm in room S23 in the dental hospital. No prior coaching was given to the group and they were simply advised that a number of open questions would be posed concerning their experience on the pilot (Appendix 4). For review purposes the students were advised the interview would be recorded. The questions asked at the interview are outlined in Appendix 5.

## **Student progress Meeting**

The author attended a student progress meeting with the part-time clinical teachers for the entire student body. The group were unaware that a pilot was being conducted. As the group contemplated the progress of each student I noted the specific comments of the teachers about the pilot students and reactions regarding their overall progress.

## **Patient services**

I met with the patient services manager and posed specific questions regarding patient transfers for the pilot group and requested information regarding patient feedback or complaints.

## Stage 9: Analyse and interpret data:

Content analysis of the process of the focus group interview (Kitzinger, 1995) involves developing themes from the interview. As I had recorded the process I listened to the recording and re-listened. Clear themes were evident from the discussion and these themes were verified with the student group for validation.

## **Themes from focus group interview relating to portfolio process:**

- Reduced stress for students
- More motivating student experience
- Improved quality and appropriateness of patient care
- Better preparation for practice
- More treatment variety
- Improved patient operator relationship

## Quotes from interview

“I can’t imagine how this could not be a better way to establish competence”

“I watched my colleagues rushing through basic patient care to try to get onto the competence treatments”

“Providing all a patients care reflects the way we will work as dentists”

## **Student Progress meeting findings**

Despite the teachers having no knowledge of the pilot all the five students received very favourable reports. Some comments specific to the group were

- “Very motivated student”
- “Definitely best in group”
- “Very busy and productive clinically”
- “Great attitude”
- “Gets on very well with patients”

## **Meeting Patient Services Manager**

The patient services manager confirmed no patient transfers were carried out by the pilot group and there were no patient complaints regarding any member of the pilot group

### *Stage 10: Disseminate the evaluation findings.*

Once the clarity of the findings of, in particular, the focus group interview was apparent I presented my findings to both our divisional meeting and separately to senior management.

## **4.4 Conclusion**

According to Kells (1992) institutions can be strengthened considerably by rigorous and continuous evaluation. It is only through careful evaluation that this innovation of change can be assured as a better way to assess our dental undergraduates as clinically competent. It is likely that the stress of trying to reach numerical targets for clinical treatments may well be detrimental to student performance and in turn diminish the professional and comprehensive care of patients. The rich and varied data and themes gained from the focus group interview was an uplifting experience for me as the instigator of the change. I never anticipated such a level of confirmation of anticipated behavioural changes. Such a validation of the innovation made the process so rewarding. It is only through an evaluation outcome of such strength that a change to this paradigm is possible to justify on permanent school-wide basis.

## **Chapter 5 Discussion and Conclusion**

### 5.1 Introduction

Having seen the effect the numerical clinical requirements were having on the student approach to patient care it was not difficult to establish the change was required. Once it became clear that the current literature supported a more professional, patient-centred and holistic approach to assessing undergraduate clinical competence the foundation was laid for the need for change. The final driver for change was the reviewing of how the professional and accrediting bodies, in dentistry, defined competence. The concept of clinical numerical requirements is not mentioned in any current definition. What is considered critical is the concept of being prepared for independent general dental practice and also the demonstration of a professional patient-centred approach to the provision of dental care. Therefore clinical competence can no longer be measured by task orientated numerical procedural requirements. Modern best practice in academic dental assessment is to develop critical thinking and a professional attitude as a major component of clinical competence. The reflective portfolio is an assessment process that is likely to encourage and measure these attributes in our senior dental students. In a centre of excellence to continue with an assessment system that does not promote or require appropriate attitude to, or provision of, patient care is unacceptable. Therefore the case for the change in paradigm to a reflective portfolio of comprehensive care is proven.

### **5.2 Organisation impact of the change**

#### Behavioural

Since implementation of the change many of the behavioural aspects around how the pilot group provided patient care have improved dramatically. Themes from the focus group interview demonstrated critical differences in how student behaviour changed with the comprehensive care model. Providing the appropriate treatment in a patient-centred non task orientated manner is the new paradigm of care. Focussing on treatment quality rather than quantity is a far more professional approach to patient care. The increased motivation and reduced stress levels experienced by

undergraduates will result in improved behavioural attitudes. Having a sense of ownership of the care provided and individual responsibility for treatment outcomes were both feelings described by the pilot group students, this is surely a positive behavioural change. Critically the students also described their new behaviour in providing care as being “much more like it will be in general practice”. Considering this is a required aim of the course this has to be a beneficial change.

### Structural

Patient services have indicated a much improved structure to how we manage our undergraduate patient care provision. The management of patient assignment is far simpler when transfer of patients between students is not permitted. Patient assignment for student care is less complex as students will no longer need to match patient treatment needs with clinical competence requirements. Once the change is implemented for all senior students patient services anticipate a greatly reduced number of patient complaints regarding continuity of care. The assessment of clinical competence, by senior clinical staff, will be a far more reliable and valid process. Assessment of a reflective portfolio of care for many patients will be a more managed and valuable assessment than visiting a clinic to see the result of a single treatment provision, as is the current practice.

### Personal

I will continue to co-ordinate the undergraduate programme in restorative dentistry but I will be a lot more confident in the process of clinical competence assessment. Having been aware for some time that the attitude and behavioural aspects of competence were largely absent in our system of competence assessment I am confident that the changed model will provide far greater validity and reliability. For assessment to be valid it must address what is supposed to be assessed and, as was clear from the literature review, behaviour and professionalism should both be integral parts of clinical competence assessment.

## Cultural

Procedure and beliefs make up the culture of an organisation. Procedures and beliefs in the university hospital must have patient care as the shared value at the core of treatment provision and clinical assessment. The change to the new model of care will move the institution in this direction to significant extent.

### **5.3 Summary**

The realisation of the need to change was initially apparent from the everyday experience of working with students under the numerical requirement system. Support from the current literature was a significant factor in establishing the need to change. The use of a dynamic model for managing the change process helped to prevent the process from stalling. The expansion of the change process from clinical competence only to development of a reflective portfolio was managed by the change process to become a driver for change rather than a resistor. The value of a process centred evaluation which focused mainly on qualitative data evaluation provided a depth and quality of information that could never have been provided by quantitative data collection. The hospital can move forward with a process for assessing undergraduate clinical competence that has peer recognition, complies with the professional regulatory body's direction and has a professional attitude to providing patient care as its core requirement. The final indicator of success of my change project was the decision of the hospital board to remove, from the hospital risk register, the risk of patient's treatment not being completed as a direct result of the implementation of comprehensive patient care.

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## **Appendix 1**

### **List of clinical numerical requirements in restorative dentistry:**

- (Crown restoration on a vital tooth) x3
- (Crown restoration on a non-vital tooth) x3
- (Competence in complete dentures) x2
- (Competence in removable partial dentures) x3
- (Root canal treatment in a multi-rooted tooth) X3
- (Periodontal surgery) x2

## Appendix 2

### Proposal for divisional meeting:

**Proposal to introduce an undergraduate reflective portfolio of patients as a means of assessing clinical competence, in restorative dentistry, for senior undergraduates. Students will provide comprehensive care for a variety of assigned patients with a much reduced emphasis on numerical targets for individual clinical treatments.**

The Irish Dental Council's states the aim of undergraduate teaching and learning in Dental Science should be "to produce a caring, knowledgeable, competent and skilful dentist who is able, on graduation, to accept professional responsibility for the effective and safe care for patients" (Council, 2005c)

Currently in order to establish clinical competence in the DDUH we require students to achieve numerical targets for designated individual clinical treatments in the senior cycle of the 4<sup>th</sup> and 5<sup>th</sup> years. These individual treatments can be carried out on any number of different patients and once the target is reached competence is considered to be established. A total of 17 clinical procedures are required to reach the restorative numerical target. However, this system falls a long way short of fulfilling the aim of the Irish Dental Council stated above.

### Proposed change

The proposed change is to assign each student in the senior cycle between 20 and 25 patients, over the course of the two years, with varied treatment needs. The students would then develop a portfolio of patients for whom they have provided comprehensive dental care and in many cases treatment would be completed. In order to ensure no clinical procedure was omitted the students would have to establish that at least one of each of the current clinical competences ("core clinical experiences") was included in their portfolio. The portfolio content would have to be closely monitored and graded at the end of each term. Along with a spreadsheet of completed treatments for each patient in the student's portfolio, the students would also include a reflection on the planning and progress of the treatment plan for each individual patient. Failure to achieve a satisfactory grade for the portfolio in two of the three terms would be a barrier to progression.

### Rationale for the change

To make the care provided by our undergraduates holistic and patient centred.

The most recent domains for competence published by the American Dental Education Association (ADEA, 2010) are

- Critical Thinking
- Professionalism
- Communication and interpersonal skills
- Health promotion
- Practice management and informatics
- Patient care: assessment, diagnosis, treatment planning. Establishment and maintenance of oral health

Very few of the above are tested by the numerical system we currently employ. Students have very little focus on the patients care and tend to concentrate on the clinical procedure required by the numerical target. Once the numerical target is reached there is no incentive for the student to complete the patients care (Eriksen et al., 2008). There is a self-interest created by a numerical system which is the antithesis of professional care (Masella, 2007).

One of the greatest sources of patient complaints is the lack of continuity of treatment and the lack of focus on completed comprehensive care is likely to be responsible for this (Mascarenhas, 2001).

Undergraduates, as we have all experienced, see their patients as a means to achieving a target and all too often the patients care is secondary. Treatments for which there is no competence requirement are avoided even though that treatment may be the appropriate care. Inlays, onlays and single arch complete dentures are examples of such treatments. Also once a student has achieved competence in a particular treatment they no longer want to carry out this treatment again. Should one of their assigned patients require such a treatment the student will want to transfer this patient to another student. Treatment continuity is broken and often treatment for these patients is delayed. The Hunt Report (HEA, 2010) requires that third level teaching should prepare students for the reality of postgraduate life in professional care and for this reason we should teach the model of holistic care.

The current literature also suggests that student productivity increases under the comprehensive care model (Holmes et al., 2000), (Park et al., 2011). The undergraduate can potentially waste a lot of clinical time “cherry picking” patients for suitable clinical procedures to reach the targets. This process can also be very stressful for the student which is not a desirable outcome. Some American universities such as Maryland, Columbia and Louisville have developed their undergraduate clinics into comprehensive patient care delivery centres (Formicola et al., 2006). This general practice type environment prepares the undergraduates for the reality of postgraduate life.

Universities have a responsibility to graduate students who can demonstrate fitness to practice because clinical competence relates directly to the quality of patient care (Nulty et al., 2010). With constructive alignment of the curriculum dental education should adopt teaching, learning and assessment strategies that develop integrated learning outcomes consistent with a comprehensive care model.

There is also the potential to develop this portfolio into an e-portfolio which the students could present at finals in place of seen patient. This e-portfolio could be provided at interviews for career progression. Belfast dental school was recently criticised by the General Dental Council for not having such a portfolio.

The portfolio management will be critical and each group of about ten to twelve student should be assigned to a senior tutor for regular assessment of their portfolio. Student reflection on the care they have provided will provide a new insight into critical thinking and professionalism. Students will be subject to unannounced spot-checks in clinics to monitor patient management. The practice of swapping patients will be forbidden and premature termination of patient care will be apparent when the portfolio is assessed. This should greatly reduce patient complaints and eliminate a risk which has been identified by the DDUH board.

Five fourth year students have piloted this care system in the current year and initial feedback is very positive and treatment spreadsheets for these students are very productive. I will evaluate the entire process over the coming weeks and provide feedback.

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## Appendix 3

### Headings for student clinical credit system:

#### **Preparedness**

Student is aware and knowledgeable of procedure to be undertaken. Records and relevant materials should be available. The student must be punctual, as well as appropriately dressed and groomed.

#### **Cross Infection Control**

There should be no breach of cross infection control and full adherence to the Cross Infection Control protocol.

#### **Technical Skill**

This is directly related to the procedure being carried out and the stage of the undergraduate programme. A student at the beginning of the year should not be expected to have attained the same level of skill as at the end of the year.

#### **Clinical Productivity**

The student demonstrates an efficient use of clinical time (volume of work, range of procedures etc) appropriate to the stage of the undergraduate programme. A reduced volume or range of clinical work may justify a *Just Acceptable* grade. A student who provides no patient care (patient did not turn up) but who assists others may be given an *No Patient Treatment* grade provided they stay for the full session and use the opportunity to learn by assisting others or engaging in other educational activities.

#### **Patient Management, Communications Skills and Professional Behaviour**

This heading is intended to cover important elements of professional behaviour such as demonstrating a caring approach to patients, the ability to interact with and manage patients in professional manner, giving adequate notice of appointments, keeping patients informed about of delays or other issues. Students who have clear difficulties for the stage of development in these areas should be graded as *Unsatisfactory* or *Unacceptable* so that these issues can be resolved.

#### **Interaction with peers and colleagues**

The student demonstrates a willingness to assist other students in the bay/clinic and to co-operate with the nurses and floor managers.

#### **Initiative and resourcefulness**

The student demonstrates a willingness to take the initiative in overcoming any minor difficulties related to the organisation of patient care.

## Appendix 4

### Email to pilot Students:

Dear All,

Many thanks for participating in the pilot for assessing undergraduate competence through comprehensive care without numerical requirements. As we near the end of the second academic term I want to evaluate the new initiative through a focus group interview. I appreciate your consent to participate in this process, as explained to you, and would be grateful if we could meet next Tuesday 20<sup>th</sup> March at 3.30am in S23 on the second floor.

Kind regards,

Philip Hardy

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## Appendix 5

### Focus group Interview

**Date:** 20<sup>th</sup> March 2012

**Location:** Room S23 Dental University Hospital

**Time:** 3.30pm

#### **Purpose:**

Focus group interview with the 5 students taking part in the pilot scheme to assess the use of comprehensive patient care, without numerical requirements for clinical procedures, as a means of assessing clinical competence for dental undergraduates

Questions for interview:

Q1. What was it like being part of the pilot in comprehensive patient care?

What was good about this experience?

What was bad?

Q2. Other students in the class had to reach numerical targets. How would you compare the clinical experience you had the other student?

Was it always better for you?

Was there any aspect that was better for others?

Q3. You all have established competence in the past using numerical targets. What was different about this experience?

Was the comprehensive care model always better?

Was it less good in any way?

Q4. Do you feel you got the opportunity to experience a full range of clinical procedures?

You are aware of the clinical procedures that are included in the numerical targets. Did you carry out one of each?

Q5. Did the comprehensive care model affect your relationship with your patients?

Always in a good way?

Any negative effects?

Q6. Do you feel you are progressing towards clinical competence under the comprehensive care model?

Do you have any concerns?

Q7. The undergraduate dental course is often described as being stressful in comparison the other university courses. Did the model of comprehensive care have any effect on the level of stress you experienced?

Always positive effects?

Any negative effects?

Q7. Is there anything you would like to add?