REINVESTMENT PROJECT FINAL REPORT

Developing Approaches to use the Virtual Environment for Radiotherapy Training (VERT) for Continuous Professional Development (CPD) and Recruitment Opportunities

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Acknowledgement

The project lead wishes to acknowledge the hard work of the radiotherapy team at UWE, Bristol in engaging with the project aims and supporting the delivery of this novel and innovative project.

The project lead also wishes to thank Vertual Ltd for their engagement and support with the project and particularly for the work in the development of collaborative marketing tools.
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4. Executive Summary

4.1 One of the key constraints in increasing the therapeutic radiography workforce is the difficulty in filling existing training places. HPC registered therapeutic radiographers, radiotherapy physicists and radiotherapy technologists appear on the government’s shortage occupation list. It is predicted by the National Radiotherapy Advisory Group that the radiotherapy service will expand by a further 91% by 2016.

4.2 The Department of Health is continuing to undertake work around potential methods of lowering in-course attrition and increasing capacity, including investing £5,000,000 nationally in facilities for virtual learning for radiotherapy students, attracting mature students through the creation of innovative training routes with the opportunity for enhanced support and the development of existing assistant practitioner staff in addition to these initiatives.

4.3 UWE, Bristol is the regional education provider for assistant practice, pre-registration and post-registration radiotherapy education provision. Radiotherapy is currently the only subject in the school of health and social care course portfolio for which UWE, Bristol supply regional provision.

4.4 A CPD audit of all courses attended by radiotherapy practitioners across the South West region was undertaken covering the period 2007-2009. A total of 109 modules were attended by practitioners from across the region working out as approximately 0.14 modules per practitioner, per year. 167 short courses were attended by practitioners from across the region during the period, approximately 0.21 courses per practitioner, per year (based on information submitted to this audit and 2009 regional staffing levels).

4.5 Courses were attended from a range of providers with the regional provider accounting for 37% of module provision and 1% of short courses accessed by practitioners.
4.6 This audit highlighted the fact that the majority of CPD provision was being sourced outside of the regional provider, with the regional provider accounting for 21% of provision when teaching and assessment modules are excluded from the data.

4.7 As part of the CPD audit, radiotherapy centres were asked to highlight their future CPD requirements/needs in order to meet strategic service development requirements. Image guided radiotherapy; 3D Anatomy and Intensity modulated radiotherapy were highlighted as key regional priorities in terms of the educational development courses required.

4.8 VERT was successfully embedded into the educational delivery of a number of radiography and multi-disciplinary CPD modules as part of this project. Feedback from learners indicates that VERT provides an interactive an engaging method of highlighting the role and rationale of radiotherapy in the management of cancer.

4.9 One of the key constraints in increasing the therapeutic radiography workforce is the difficulty in filling existing training places (in 2007 only about 75% of training places were filled; available data from 2008 suggests a similar ratio). Some courses nationally also have very high attrition rates.

4.10 A portable VERT system has been effectively utilised in a range of locally targeted recruitment and careers awareness events. This has been combined with a close partnership with the manufacturer of the VERT software in producing marketing materials which can be utilised in the road-show and which showcase how VERT is being utilised by UWE, Bristol. Student applications data for February 2010 shows that applications like for like compared to 2009 were up 54% which exceeded any increase seen in other Allied Health Professional courses.

4.11 Work undertaken within the scope of this project highlighted the potential for a pre-registration post-graduate route leading to professional registration as a therapeutic radiographer. The data collected from the work undertaken within this project was used
to provide evidence for a successful business case to the SW SHA for the development of such a route to begin in 2010/11.

4.12 In developing a strategy to implement VERT effectively at all levels and maximizing of opportunities in recruitment and CPD provision UWE Bristol has gained a national profile in this field and consequently were asked to host and to facilitate the First International VERT Users meeting on behalf of the VERT manufacturer (Vertual Ltd) in March 2010. This event brought together experts in the field of virtual learning from around the world to discuss a research strategy and highlight good practices in the field.

4.13 Key Recommendations:
1. It is essential that as the radiotherapy teaching team develop interactive sessions delivered with the HVE the implementation is formally evaluated. (8.1)
2. The reasons for practitioners not accessing local provision requires consideration. It is recommended that module leaders for the modules highlighted investigate and gain further feedback from the radiotherapy workforce. (8.7)
3. It is a recommendation of this project that a regional listing of all CPD course provision in the SW region (incorporating all providers) is collated by the SW SHA and distributed to service leads. This will allow for greater awareness of availability of courses locally and highlight key areas for strategic development need. (8.10)
4. In order to ensure that the development needs of radiotherapy service continue to be met it is important that a forum for review of delivery and development of education provision for new areas of priority and development is created. (8.13)
5. This project highlights some limitations to developing new courses to meet specific service or workforce development needs and highlights the need to adopt a flexible and responsive approach to educational provision through effective market appraisal. It is recommended that the CPD audit should be repeated on an annual basis to highlight strategic development need and any developments in education provision required at a regional level. (8.17)
5. Background

5.1 Within Radiotherapy in recent years there has been a radical development and expansion of patient treatment services as part of the NHS Cancer Plan (2000). As a result, education providers nationally have seen undergraduate therapeutic radiographer training commission numbers increase by 167% between 1997 and 2005 (National Radiotherapy Advisory Group [NRAG], 2007). Furthermore this increase has continued since 2005 and it is predicted by NRAG that radiotherapy service will expand by a further 91% by 2016. This demonstrates a key need to develop radiotherapy training provision in order to meet the workforce requirements associated with this expansion whilst supporting practitioners educationally with a robust professional development course portfolio.

5.2 HPC registered therapeutic radiographers, radiotherapy physicists and radiotherapy technologists appear on the government’s shortage occupation list, as recommended by the Migration Advisory Committee. The Cancer Reform Strategy (Department of Health, December 2007) pledged to expand the capacity and effectiveness of radiotherapy services.

5.3 Within the strategy the 31-day waiting time standard was introduced for subsequent radiotherapy treatment and is to be implemented by December 2010. This is expected to result in a significant increased demand for therapeutic radiographers and the radiotherapy physics and engineering workforce, in particular the workforce with skills in radiotherapy treatment planning (dosimetry). The dosimetry workforce comes from practitioners whose background is either in therapeutic radiography or healthcare science physics.

5.4 One of the key constraints in increasing the therapeutic radiography workforce is the difficulty in filling existing training places (in 2007 only about 75% of training places were filled; available data from 2008 suggests a similar ratio). Some courses also have very high attrition rates.
5.5 The Department of Health is continuing to undertake work around potential methods of lowering in-course attrition and increasing capacity, including investing £5,000,000 nationally in facilities for virtual learning for radiotherapy students, attracting mature students through the creation of innovative training routes with the opportunity for enhanced support and the development of existing assistant practitioner staff in addition to these initiatives.

5.6 UWE, Bristol is the regional education provider for assistant practice, pre-registration and post-registration radiotherapy education provision. Radiotherapy is currently the only subject in the school of health and social care course portfolio for which UWE, Bristol supply regional provision.

5.7 This expansion of the radiotherapy service has produced some challenges for education providers. Clinical workload pressure is now resulting in access to radiotherapy equipment for the purposes of education and training being severely and detrimentally limited (NRAG, 2007).

5.8 The radiotherapy workforce is relatively small with 267 Therapeutic Radiographers employed in the South West region (SWSHA Stats, 2009), making it one of the smallest professional groups in the region. Anecdotally service leads report that the educational framework needs to support service delivery, redesign and advanced practices are often lost in the larger forums considering these needs due to the small staff numbers involved.

6. Project aims and scope

6.1 The aims of the project were to undertake an audit to outline current stakeholder usage of CPD within radiotherapy across the SW region by undertaking a data collection exercise from all radiotherapy centres in the South West region. Based on these findings and outcomes, a further aim was to identify opportunities and begin the process
of negotiation and design of new CPD opportunities/modules to bridge any gap between stakeholder expectation.

6.2 Other aims of the project were to:
- Undertake a validation review to identify the best practice use of VERT in educational practice.
- Identify key existing UWE CPD modules where VERT could be integrated into the delivery and consequent implementation.
- Identify opportunities for using VERT in recruitment opportunities and raising the profile of radiotherapy as a healthcare profession in terms of training recruitment.
- Develop a portable radiotherapy ‘recruitment road-show’. This involved working with Vertual Ltd to develop a portable VERT system.

Project team: Benjamin Roe, Radiotherapy Academic team – UWE, Bristol
Project date: March 2009 – January 2010

7. Project outcomes and key findings

7.1 CPD Usage Audit

7.1.1 An audit was undertaken to collect all CPD usage in the SW region by the radiotherapy workforce. Data was collected electronically from service/education leads and collated. An example of the data sheet can be found in appendix 1.

7.1.2 A large proportion of CPD activity was identified as having been purchased outside of the region particularly from Sheffield Hallam University and Kingston University. Both of these providers run modules titled with specific radiotherapy advanced practice
responsibilities (e.g. ‘radiotherapy planning for breast cancer’ and ‘Dosimetry and Radiotherapy Planning’). These have been designed collaboratively with service to ensure that they meet the requirements of service managers locally. These courses also lead to radiotherapy specific awards such as MSc in Radiotherapy and Oncology.

A breakdown of data from the CPD audit is available in appendix 2.

7.1.3 Due to issues with the power of a small professional group in influencing CPD development activities in a wider forum, it may be that there needs to be consideration of designated provision for Radiotherapy CPD and master classes based local requirements. It is acknowledged that this will require resourcing from the SHA or national pools and access would be open to all and may include local delivery provision to better facilitate this.

7.1.4 In order to ensure that the development needs of radiotherapy service continue to be met it is important that a forum for review of delivery and development of education provision for new areas of priority and development is created. Due to the small
numbers of service representatives for radiotherapy in the region the needs and views of radiotherapy is often not represented in wider healthcare CPD review mechanisms. This could be effectively achieved with the development of closer working between service providers and education providers through the formation of SHA lead Cancer Workforce Group which HEI will be invited to when Radiotherapy is discussed.

7.1.5 The key strategic aims for future provision are ranked by how frequently the course topic was highlighted by service leads in the region:

<table>
<thead>
<tr>
<th>Title</th>
<th>Regional Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging / Image Guided RT / Interpretation of Images</td>
<td>1</td>
</tr>
<tr>
<td>3D Anatomy for CT</td>
<td>2</td>
</tr>
<tr>
<td>Intensity Modulated Radiotherapy (IMRT)</td>
<td>2</td>
</tr>
<tr>
<td>Intravenous Cannulation / Contrast Delivery</td>
<td>3</td>
</tr>
<tr>
<td>Brachytherapy</td>
<td>4</td>
</tr>
<tr>
<td>Advanced Practice (non-specific)</td>
<td>5</td>
</tr>
<tr>
<td>Teaching/Assessing in Practice</td>
<td>5</td>
</tr>
<tr>
<td>Palliative RT</td>
<td>6</td>
</tr>
<tr>
<td>Breast RT</td>
<td>6</td>
</tr>
<tr>
<td>CT</td>
<td>6</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>6</td>
</tr>
<tr>
<td>Patient Review</td>
<td>6</td>
</tr>
</tbody>
</table>

A more detailed analysis and breakdown of strategic priorities are presented in appendix 3.
7.1.6 Data was also collected around the reasons why the regional provider was not used when accessing each course (if this was the case). This provided some interesting information.

7.1.7 The majority of reasons were that the course was not provided by UWE, Bristol which was confirmed with the CPD course listing. This appears to result in a number of individuals beginning a MSc route with another provider and consequently a frequent reason for not utilizing local provision was that the individual was already on another academic route.

7.1.8 For ‘advanced practice’ courses 80% of managers reported that there was no provision available at UWE, Bristol. This is despite an MSc Advanced Practice route. Whilst it was not within the remit of this project to consider this more deeply it suggests that the radiotherapy profession’s advanced practice needs are not currently being met by the MSc Advanced Practice route and this may require further investigation.

7.1.9 There were two further areas identified where there is regional provision, but the audit reported back that this was not available; these areas were cancer therapies and Psychological care / communication / counselling. It should be acknowledged that this provision may not have been running at the time of attempted access, cancelled due to low numbers or may have been oversubscribed and consequently unavailable, the collection of further information was not within the remit of this project but again may merit further investigation from module and programme teams. It is likely that marketing may also be a feature which is important to practitioner awareness of the regional portfolio (from all providers) of education provision.

7.1.10 Quality issues were reported by service leads in two areas; research methodology and cancer therapies. The reasons for this perceived poor quality was not investigated further and it should be noted that this may result from the appropriateness of the course in terms of meeting workforce and service development needs rather than academic quality standards. There is a potential miss-match between individual
students feedback from modules and that of service leads in terms of meeting strategic priorities.

7.2 Best Practice – Use of a Virtual Learning Environment – Validation Review.
A literature review was undertaken to consider best educational practice when implementing novel virtual learning environments. This review was used to inform the integration of VERT into existing and new CPD modules. The validation review can be found in appendix 4

7.3 Integration of VERT into CPD Provision

**Head and Neck Master-classes**

7.3.1 The Head and Neck Master-classes were developed by UWE, Bristol and were run for the first time in 2009. These pioneering master classes have been especially designed for experienced professionals in this field and provide an exciting opportunity for practitioners to gain an insight into latest developments in the treatment and management of head and neck cancers.

7.3.2 The VERT system was successfully integrated into the radiotherapy management block of the programme and was used to provide a detailed insight into the role and technical application of radiotherapy in the treatment of head and neck cancers to the multidisciplinary audience.

7.3.3 Feedback from practitioners who attended the master-classes was excellent and a summary is provided below:

‘Brilliant teaching methods and worked well with previous lectures’
‘Very impressed with the 3D images, made it all seem real’
‘Excellent 3D programme, engaging teachers’
‘Yet again excellent- the 3D effect made it much easier to understand’
‘Excellent loved the VERT ‘
**CT Course (PG Cert Specialist Practice (CT))**

7.3.4 A new programme has been developed by UWE, Bristol in order to meet the needs of clinical practitioners working in diagnostic imaging and radiotherapy, in providing the educational background to facilitate the development of specialist skills in computerised tomography (CT). This award consists of three modules which look at the technology of CT, the clinical protocols associated with the use of CT and the analysis and interpretation of three dimensional anatomical features within CT data.

7.3.5 VERT technology has been considered in the design of the module and it appears that VERT will have a key function the 3-D anatomy module in allowing learners to interact with the CT dataset and visualise the anatomical features within the CT dataset.

7.3.6 The CT course will run over 2010 and feedback from the integration of VERT will be reviewed outside of this project to facilitate ongoing curriculum development.

**Nuclear Medicine Module**

7.3.7 The MSc Nuclear Medicine programme run by UWE, Bristol is a route that allows the development of the knowledge and skills required to practice as a nuclear medicine technologist.

7.3.8 A key module within the programme was identified as having a potential opportunity for the integration of VERT to aid learning of the role of radiotherapy in the management of the diseases that would be identified utilising nuclear medicine studies.

7.3.9 VERT was successfully embedded into the module delivery to provide an interactive and practical session outlining the role of radiotherapy in the management of cancers.
**Patient pathway Series**

7.3.10 The patient pathway series of short courses were developed by UWE, Bristol in 2009, with the objective of providing delegates with an understanding of the current practices undertaken in the imaging and treatment of a range of conditions (the area of focus changes for each series).

7.3.11 The likely impact for future practice is also being discussed to utilise the VERT system and TeleHERMES image viewing platform. This pathway series is of particular interest to anyone who is involved in the diagnosis, treatment and/ or management of oesophageal cancers and anyone who wishes to widen their understanding and appreciation of the patient pathway including Radiographers; Nuclear Medicine / PET/CT Practitioners; Clinical Scientists; Specialist Nurses (Chemotherapy); Medical Technologists.

7.3.12 The initial series was very well attended by practitioners from across the UK and VERT was very well received as an excellent platform for demonstrating current radiotherapy practices. Building on the success of the first Patient Pathway Study Day, a number of pathway series study days are planned for 2010.

**7.4 Recruitment Events.**

7.4.1 The VERT technology has been successfully utilised at UWE, Bristol in order to widen the awareness of radiotherapy as a professional career and in supporting the recruitment to the radiotherapy training courses. After working with the manufacturer of VERT (Vertual Ltd) to develop a portable VERT system, a successful business case for a portable VERT system was put forward to the university as an outcome result of this project (see appendix 5). Work was then undertaken to identify recruitment events across the SW region with the aim of working collaboratively with clinical colleagues and existing careers, recruitment and hospital open day events. This development of a portable road-show has allowed for approaches utilising VERT to be widened and to
support a more regional approach to marketing and recruiting to the radiotherapy programme.

7.4.2 As part of this phase of the project a flier was sent out through the SW SHA Allied Health Professional network (see Appendix 6). The flyer highlighted the need to identify careers events and open days where the portable VERT system could be utilised.

7.4.3 The response to the flyer was generally poor, however the radiotherapy centre in Truro identified a hospital open day that they were running for patients and those interested in a career in radiotherapy. It is unclear as to whether the poor response was due to a lack of engagement or whether there are limited recruitment events that are being supported within the region.

7.4.4 Obtaining funding for recruitment materials was challenging in a difficult financial climate, however through discussion with the manufacturer of VERT and as a result of the close work undertaken with Vertual Ltd a marketing flyer was created within the remit of this project and funded by Vertual Ltd with permission for use in recruitment activities. UWE, Bristol supplied images of students engaging with VERT and comment and student perspectives. This flyer was used on the Vertual trade stand at the international meeting of the American Society for Therapeutic Radiology and Oncology (ASTRO) in Chicago demonstrating UWE’s role in virtual learning internationally (see appendix 7).

**Aim Higher Days**

7.4.5 A number of events are run through UWE, Bristol by the Aim Higher organisation. Aim Higher supports the aim that the healthcare professions should better reflect the wider population through widening participation. The opportunity to enter Higher Education for the healthcare professions should be open to anyone who has the potential, regardless of their background.
7.4.6 VERT provides an interactive and engaging approach to highlighting the opportunity that a career in radiotherapy presents whilst giving learners an insight into the role of the therapeutic radiographer.

7.4.7 Feedback collected from a number of Aim Higher events which have utilised VERT since its installation in 2008 have highlighted that this is seen as a very positive element of the Aim Higher experience.

7.4.8 In March 2009, 41 year 9 school students attended the Aim Higher Science in Health from 3 different schools. For the evaluation question of ‘What did you find most enjoyable/useful?’ over 25% of (11/41) said radiotherapy and the VERT demonstration.

7.4.9 For this event the VERT session was the best evaluated session and in fact when asked ‘If there was anything else they would have liked to have done today?’ some students said that they ‘wanted more time in the Radiography session’. Overall, at the end of the event, 80% said that the day have influenced their decision about going to higher education and doing a healthcare course.

**Truro Hospital Open Day**

7.4.10 Representatives from UWE, Bristol took a stand and the portable VERT system to Truro to pilot a VERT road-show. Two radiotherapy student ambassadors attended the open day in order to support the event and provide insight into the student perspective of training as a therapeutic radiographer.

7.4.11 The open day was very well organised by a team of radiographers in Truro and was supported with the local radio station and newspapers.

7.4.12 The event was very well attended, largely due to the good press coverage and the excellent planning that had been undertaken by the radiotherapy centre.
7.4.13 A mail shot to all schools in the local area and to science specialist schools and colleges, inviting interested students to the open day was arranged by UWE, Bristol and a database of these key school and college contacts was created as part of this project.

7.4.14 There was good interest in VERT and a number of individuals (14) expressed an interest in training as a therapeutic radiographer. Many of these individuals were from the Truro area and were unaware that UWE, Bristol was the education provider for radiotherapy in Cornwall.

Press coverage as a result of this open day may be viewed in appendix 8.

7.4.15 In terms of resources and public engagement this was an excellent opportunity. It is the finding of this project that recruitment events work most effectively when developed and planned with clinical centres as often the draw in terms of marketing is much stronger.

**Graduate Careers**

7.4.16 In collaboration with other SHA Reinvestment projects the portable VERT system was taken to the UWE, Bristol graduate futures fair to showcase the potential career opportunities available to graduates. This event was used to highlight the profession of radiography and also to establish the market for a MSc Radiotherapy 7 Oncology (pre-registration) route for radiotherapy.

7.4.17 Feedback from this event and a planned event in Plymouth (which will feature the VERT road-show) will be reported fully in the project ‘Supporting Access into NHS roles from science graduates’ (Rita Phillips).

**Local Colleges / Schools**

7.4.18 The portable VERT system has also been utilised in providing sessions to specific schools and colleges for the purposes of recruitment and career awareness.
Whilst resources in terms of staffing the road-show are limited, these events when carefully considered offer the opportunity of accessing key student groups and raising the profile of the profession.

8. Recommendations and next steps

8.1 It is essential that as the radiotherapy teaching team develop interactive sessions delivered with the HVE the implementation is formally evaluated. Research considering the impact of this technology and the methodology of delivery of the educational aims will be fundamental to facilitate continued development and improvement of the radiotherapy programme. Evidence may be seen by clinical appraisers whilst students are in placement and this must be captured to allow a full three-dimensional evaluation of the project. It will be challenging to produce quantifiable reliable data, but this will be fundamental; rather than simply assuming that practical interactive teaching must be affective, which is a general trend in the literature supporting such PBL approaches.

8.2 A fundamental challenge to be overcome will be in creating a 'joined-up' and intertwined curriculum embracing VE and clinical skills in the frameworks of a compartmented modular system for CPD. It may be advantageous to design these objective such that they are flexible and wide reaching, in order that the content of individual sessions may be developed specifically to meet with individual students needs. The system itself offers tremendous opportunities to allow advancement of understanding of learning processes when using very different methods of conceptualisation and may allow learning theories to be actively tested.

8.3 It is likely that given the significant investment from government to overcome the specific challenges of radiotherapy education that future provision in terms of quality, output and attrition will become even stronger key performance indicators for pre-registration routes. The VERT system has the added value benefit that it can be effectively used to support CPD delivery and developing learning within the wider professions. The integration of CPD through the VE project will cause challenges to radiotherapy education providers in terms of developing a pedagogy to support this
contemporary way of teaching and learning; however this project has demonstrated that this can be overcome with careful planning and consideration.

8.4 Currently UWE, Bristol provides wide and diverse healthcare CPD provision and specifically a number of cancer specific modules. These individual modules allow students to progress to the award of ‘MSc in Specialist Practice’ or ‘MSc in Advanced Practice’. Feedback from regional service managers suggests that this broad programme to encompass all professional groups does not meet the specific training needs of service in terms of advanced and specialist practice moving towards consultant practice. There is also reluctance within the profession to undertake a non profession-specific award.

8.5 These factors have resulted in a large proportion of CPD activity having been purchased outside of the region particularly from Sheffield Hallam University (47%) and Kingston University (16%). Both of these providers run modules titled with specific radiotherapy advanced practice responsibilities (e.g. ‘radiotherapy planning for breast cancer’ and ‘Dosimetry and Radiotherapy Planning’). These courses have been designed collaboratively with service to ensure that they meet the requirements of service managers locally, and there are numerous examples where teaching delivery is undertaken by clinical practitioners supported by academic colleagues. These courses also lead to radiotherapy specific awards such as MSc in Radiotherapy and Oncology which has been highlighted as desirable by service leads.

8.6 Similar courses have been proposed at UWE, Bristol and work is currently being undertaken to develop a brachytherapy course which will draw on regional expertise and the expert knowledge from a consultant radiographer in brachytherapy. Often however, due to the small numbers of therapy radiographers in the region these have not been seen to be commercially viable, with development costs potentially not being recouped from attendee fees. From the CPD usage audit it is clear that there is a strong market in the area of non-credit bearing short courses. This is an area that universities may have traditionally failed to embrace, however the regional education provider for radiotherapy
is responding with a range of shorter courses and study days which reflect clinical needs without academic credit, but with the endorsement of the relevant professional body.

8.7 The reasons for practitioners not accessing local provision requires consideration. Modules relating to cancer therapies and research methodology have been identified by this project as being of poor quality by a significant proportion of service leads in radiotherapy. It is unclear as to whether this quality relates to academic delivery or the appropriateness and focus of these modules to clinical strategic needs. It is recommended that module leaders for the modules highlighted investigate and gain further feedback from the radiotherapy workforce. The project also highlights that the marketing of some CPD courses may be limited within this professional group, with a number of courses available at UWE, Bristol being reported as not provided by practitioners (Psychological care / communication / counselling, advanced practice, & cancer therapies).

8.8 The availability of these courses will be fundamental to the achievement of the ‘Modernising AHP Careers’ agenda and ensuring that the future Cancer Reform Strategy targets are achieved as this relies of the full four-tier model of service delivery. With investment from the Department of Health in the VERT system and UWE, Bristol’s investment in a radiotherapy dosimetry planning computer suite there are countless opportunities to deliver targeted high quality CPD modules and master classes based on clinical needs.

8.9 Due to issues with the power of a small professional group in influencing CPD development activities in a wider forum, it may be that there needs to be consideration of designated provision for Radiotherapy CPD and master classes based local requirements. It is acknowledged that this will require resourcing from the SHA or national pools and access would be open to all and may include local delivery provision.

8.10 It is a recommendation of this project that a regional listing of all CPD course provision in the SW region (incorporating all providers) is collated by the SW SHA and
distributed to service leads. This will allow for greater awareness of availability of courses locally and highlight key areas for strategic development need.

8.11 Currently the UWE, Bristol actively targets its marketing for pre-registration courses and for CPD courses to the traditional Avon, Gloucester & Wiltshire region. For subject fields where UWE, Bristol is the regional provider (as for radiotherapy) this has made targeting particularly the peninsula region restricted and may result in clinical centers not considering that there are courses available that they can access.

8.12 In terms of current activities the portable VERT has been utilized in working with organizations such as ‘Aim Higher’, in taster days and Trust open days. This has allowed the captivating appeal of the VE in promoting radiotherapy as a career and this has also helped in raising the profession’s profile with careers advice services. In having a portable VERT system this has allowed recruitment and promotional activities to be widened to represent the recruitment commitment to the entire south west region.

8.13 In order to ensure that the development needs of radiotherapy service continue to be met it is important that a forum for review of delivery and development of education provision for new areas of priority and development is created. Due to the small numbers of service representatives for radiotherapy in the region the needs and views of radiotherapy are often not represented in wider healthcare CPD review mechanisms. This could be effectively achieved with the development of closer working between service providers and education providers through the formation of SHA lead Cancer Workforce Group which HEI will be invited to when Radiotherapy is discussed.

8.14 In widening undergraduate course marketing to the whole south west region the needs of students recruited from across the region must be considered to support access education components of the programme while accessing placements locally. This may involve local delivery, distance learning techniques and a range of pathway routes to practitioner level to capitalize on available funding streams and student markets. The Department of Health, in their publication ‘A High Quality Workforce-The next stage review’ (2008) recognise that delivering high quality education is essential in
the quest to deliver high quality patient care and that this education provision should be sensitive to trainees personal needs and be flexible to give professionals breadth and depth of expertise. It also recognises the need to have good quality clinical placements to ensure that AHP’s are fit for practice as well as fit for purpose. As a result of the findings from recruitment events undertaken as part of this project and in order to meet the workforce agenda a business case for a MSc Radiotherapy & Oncology (pre-registration) route has been developed and submitted for consideration. (See appendix 9).

8.15 The development of a VERT recruitment road-show allows the integration of the advantages of the VE in terms of increased engagement and a novel practical approach to healthcare profession recruitment. This is available to support any other project objectives in terms of careers events and profession awareness.

8.16 As an aside to this project a post graduate (pre-registration) radiotherapy programme has been developed. This will open new opportunities for career progression and allow for a recruitment advantage in widening the pool of applicants to the radiotherapy profession. It is vital that projects mapping training routes and post-graduate entry into the NHS include this new pathway. This new pathway may also stand as a pilot for other healthcare courses at post graduate level. There is also an opportunity that the work of the re-investment projects may be involved in some of the key marketing for this new programme and inform the strategy for this new programme.

8.17 This project highlights some limitations to developing new courses to meet specific service or workforce development needs and highlights the need to adopt a flexible and responsive approach to educational provision through effective market appraisal. Many of the findings for the CPD audit undertaken within this project may be generalised to other professional groups. This may be useful in identifying trends and in highlighting issues in terms of flexibility and responsiveness of the CPD portfolio in meeting workforce redesign and development. It is recommended that the CPD audit should be repeated on an annual basis to highlight strategic development need and any developments in education provision required at a regional level. This is good practice
in terms of stock-taking of provision and also in gaining feedback from service leads in terms of provision quality and how courses have met strategic need. Current student module review processes are unlikely to capture this information.

8.18 In terms of career awareness and recruitment to healthcare training, hospital open days and similar NHS based event offer huge opportunities in terms of reaching a target audience with the support of practitioners in the field. This forum does require funding both from the host trust and in terms of support from external organizations. This funding will be essential in maintaining a supply of interested individuals to maintain and build on workforce demands.

9. Considerations for other re-investment projects

9.1 The development of a VERT recruitment road-show allows the integration of the advantages of the VE in terms of increased engagement and a novel practical approach to healthcare profession recruitment. This technology is available to support any other project objectives in terms of careers events and profession awareness. (Supporting Access into NHS Roles from Science – Rita Phillips; Developing Early Recruitment to NHS Careers – Lynn Denning; Developing Widening Access into HEIs – Gail Born; Developing IP Learning in Practice).

9.2 This project identifies the specific needs of a small professional group in terms of CPD resources and recruitment. It has highlighted some of the ways in which smaller professional groups may be under-represented in the current stakeholder engagement processes and stands as a reminder of the risks of overlooking a professional group that may be critical in terms of achieving wider policy aims. (Supporting Access into NHS Roles from Science – Rita Phillips; Developing Early Recruitment to NHS Careers – Lynn Denning; Developing Widening Access into HEIs – Gail Born; Developing IP Learning in Practice; Modernising AHP Careers – Jim Petter/Anne Johnson/Viv Gibbs).
9.3 As a side to this project a post graduate (pre-registration) radiotherapy programme has been developed. This will open new opportunities for career progression and allow for a recruitment advantage in widening the pool of applicants to the radiotherapy profession. It is vital that projects mapping training routes and post-graduate entry into the NHS include this new pathway. This new pathway may also stand as a pilot for other healthcare courses at post graduate level. There is also an opportunity that the work of the re-investment projects may be involved in some of the key marketing for this new programme and inform the strategy for this new programme.

(Supporting Access into NHS Roles from Science – Rita Phillips; Developing Early Recruitment to NHS Careers – Lynn Denning; Developing Widening Access into HEIs – Gail Born; Developing IP Learning in Practice; Modernising AHP Careers – Jim Petter/Anne Johnson/Viv Gibbs).

9.4 Many of the findings for the CPD audit undertaken within this project may be generalised to other professional groups. This may be useful in identifying trends and in highlighting issues in terms of flexibility and responsiveness of the CPD portfolio in meeting workforce redesign and development.


9.5 In terms of career awareness and recruitment to healthcare training, hospital open days and similar NHS based events offer huge opportunities in terms of reaching a target audience with the support of practitioners in the field. More work is needed to identify whether the lack of engagement with this project in terms of identifying recruitment opportunities is due to these events not taking place or some other reason/s.

(Supporting Access into NHS Roles from Science – Rita Phillips; Developing Early Recruitment to NHS Careers – Lynn Denning; Developing Widening Access into HEIs – Gail Born; Developing IP Learning in Practice; Modernising AHP Careers – Jim Petter/Anne Johnson/Viv Gibbs).
9.6 It is also worth noting that the VERT technology may be utilized into Interprofessional learning effectively in terms of providing insight into professional roles within radiotherapy.

(Developing IP Learning in Practice – Ian Fletcher)
10. Appendix

Appendix 1


Box 1
Department Name

Box 2
Workforce
Whole time equivalent Radiographers currently employed
Whole time equivalent Assistant Practitioners currently employed

Box 3
Key Strategic Priorities for staff development / training / CPD over the next 2 years:
(Please ensure that this data reflects service development needs rather than the personal aspirations of individual staff members – this should be completed in discussion with Radiotherapy Service Managers / Leads)

Please enter details of CPD activity into the appropriate table below (see separate guidance notes for more information):

Box 4
MODULES / COURSES (ACADEMIC CREDIT BEARING)

<table>
<thead>
<tr>
<th>Course</th>
<th>Provider</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>Cost</th>
<th>Impact on Service</th>
<th>Why not UWE</th>
</tr>
</thead>
</table>

Box 5
SHORT COURSES / STUDY DAYS (NON ACADEMIC CREDIT BEARING)

<table>
<thead>
<tr>
<th>Course</th>
<th>Provider</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>Cost</th>
<th>Impact on Service</th>
<th>Why not UWE</th>
</tr>
</thead>
</table>

Reason not UWE Codes: R = Not provided; Q = Quality of UWE provision considered poor; P = Attendee on award pathway and requires credit from a particular provider...
South West Strategic health Authority – Radiotherapy CPD and Recruitment Project

This project is funded by the SW Strategic Health Authority under the reinvestment projects board, and is independent of UWE, Bristol (I have been seconded from UWE, Bristol to be the Project Lead). The project is monitored by the reinvestment project advisory board.

The key aims of the project are:-

Provide a summary of CPD usage within radiotherapy across the SW region over the past 3 years, identifying where CPD provision is being purchased outside of region and a limited identification for why UWE provision (and the SHA CPD contract) is not being utilised.

Identification (and development where appropriate) of a portfolio of CPD modules which effectively utilise VERT technology within their delivery and reflect the outcomes of the work highlighted above.

Development of a strategy for raising the profile of the radiotherapy programme delivered regionally utilising VERT technology to encompass the whole of the South West region.

This project was initially funded for 6 months and started in April 2009. The outcomes from the initial strands of the project will then be presented in a formal report to the SHA for consideration and possible adoption of strategies identified.

CPD Usage Data Collection

CPD usage data collection is considered as an audit of the current SW SHA CPD contract and associated contracting practices, and as such does not require ethical approval for data collection.

Data will be reviewed to identify key strategic priorities within the region and also to identify whether the current CPD contract is supporting the radiotherapy workforce effectively. It is envisaged that the data collected may help to influence future contracting practices as well as to evidence any future CPD course developments as part of the contract.
Notes on Completing Data Collection Sheet for Radiotherapy CPD Usage.

General Points

Data is requested from the calendar years 2007, 2008 & 2009; consequently anything already agreed or likely to be agreed for the rest of 2009 may be included in the data collection sheet.

It is important to capture all CPD activity over the time period, so please extend the form as is necessary.

Box 1

Please enter the name of your department / trust in the box provided.

Box 2

Please enter the total number of whole time equivalent radiographers currently employed in your department.

Please enter the number of whole time equivalent assistant practitioners currently employed in your department.

Please note: workforce information will be used to provide a crude estimate of numbers of individuals represented in the data collected and also to provide a potential estimate of the CPD market for the radiotherapy workforce.

Box 3

In the box provided, please identify your key strategic priorities in terms of CPD and training needs over the next two years. It is important that this information reflects service development needs rather than the personal aspirations of individual staff members. Consequently this information should be completed in discussion with Radiotherapy Service Managers / Leads.

Boxes 4 & 5

Any CPD module undertaken should be entered into the spreadsheet in the appropriate section (either ‘MODULES / COURSES (ACADEMIC CREDIT BEARING)’ or ‘SHORT COURSES / STUDY DAYS (NON ACADEMIC CREDIT BEARING)’).

Please only include modules which are considered as CPD post qualification (either qualification as a radiographer or assistant practitioner) and not any courses that make up the assistant practitioner training routes.
Please include the following information in the boxes provided:

- Title of the module / course - as fully as possible.
- Provider – The university or organisation that delivers the course / module.
- In the relevant boxes (07, 08, 09) please enter the number of individuals that have been sent from your organisation in the appropriate year.
- In the cost section, please include the cost per individual for the CPD activity.
- In the ‘Impact to service’ please indicate the strategic motivation in sending individuals to this CPD activity, examples may include;
  - Supplementary prescribing course may be justified by:
    *Cancer Reform Strategy -- extended scope of practice for radiographers to undertake supplementary prescribing and also under PGD’s to improve delivery of care to the patient in the most appropriate and convenient setting for the management of side-effects of treatment.*
  - Radiographer-led simulation may be justified by:
    *NRAG and Cancer Reform Strategy – improve cancer waiting times by improving throughput of patients on pre-treatment by radiographer led palliative treatment planning and breast planning.*

  [Examples extracted from UH Bristol data]

- Finally please indicate if UWE Bristol, (CPD education providers for the strategic health authority), were not used to deliver this activity why that was. You may state your own reason, but common reasons have been coded below to ease your data entry:
  - NP = Not provided by UWE, Bristol
  - Q = Quality of UWE, Bristol provision considered poor
  - P = Attendee / individual on award pathway and requires academic credit from a particular provider

You may wish to include multiple codes, however if ‘NP’ is entered, other reasons will be excluded from the data.
Support

If you require any further information or guidance, please contact the project lead:

Benjamin Roe
Principal Lecturer & Project Lead: VERT CPD & Recruitment Project

Department of Allied Health Professions
School of Health and Social Care
Faculty of Health and Life Science
The University of the West of England
Glenside Campus
Room 2K07
Blackberry Hill
Stapleton
Bristol BS16 1DD

+44 (0) 117 328 8650
benjamin.roe@uwe.ac.uk

Please return your completed data collection spreadsheet electronically directly to Benjamin.Roe@uwe.ac.uk

Many thanks for your support in providing this data
Appendix 2

Audit of stakeholder usage of CPD provision

In order to maximise the integration of VERT into CPD provision it was opportune to undertake a review of stakeholder usage of courses. With the support of radiotherapy service managers from across the south west region an audit of courses accessed by practitioners from 2007 - 2009 was undertaken.

Credit bearing modules were considered separately to short course events and the rationale in terms of service delivery and development was also collated.

Information was also collected where the regional education provider (UWE, Bristol) was not used to inform the development of future CPD provision. See appendix III for examples of the audit data collection sheet and instructions sent to radiotherapy service managers/leads.

Modules

A total of 109 modules were attended by practitioners from across the region working out as approximately 0.14 modules per practitioner, per year (based on information submitted to this audit and 2009 regional staffing levels)

Modules were attended from a range of providers with the regional provider accounting for 37% of this provision.
If the teaching and learning in practice modules (or equivalent) are excluded from the data a clearer picture of educational provision more closely focused to service delivery is achieved.

This demonstrates that the regional provider accounts for 21% of clinically focused modules attended.
Chart 2: Education provider breakdown for modules excluding teaching and assessing modules (or equivalent) from all providers accessed 2007-2009.

The breakdown of subject fields for the modules attended have been grouped to demonstrate the core clinical skills developed and to overcome differences in education provider nomenclature.
Chart 3: Breakdown of modules attended 2007-2009 grouped into module themes
Analysis of the modules and reasons for not utilising local provision (if available) were also reviewed. These reasons have been collated and shown as a percentage of the total number of modules in the grouping in the table below. The ranking is provided based on the frequency that the course topic was accessed:

<table>
<thead>
<tr>
<th>Title</th>
<th>Rank</th>
<th>Available from UWE, Bristol</th>
<th>Reason for not using UWE, Bristol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Practice (non-specific)</td>
<td>1</td>
<td>yes</td>
<td>Not provided 80%, staff member on another provider award / pathway (16%), not distance learning (4%)</td>
</tr>
<tr>
<td>Teaching and Assessing in Clinical Practice / FLAP</td>
<td>2</td>
<td>yes</td>
<td>Staff member on another provider award / pathway (10%)</td>
</tr>
<tr>
<td>Imaging / Image Guided RT / Interpretation of Images</td>
<td>3</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>4</td>
<td>yes</td>
<td>Staff member on another provider award / pathway (15%)</td>
</tr>
<tr>
<td>Dissertation</td>
<td>5</td>
<td>yes</td>
<td>Staff member on another provider award / pathway (100%)</td>
</tr>
<tr>
<td>Psychological Care (Communication, Counselling)</td>
<td>5</td>
<td>yes</td>
<td>Not provided (28%)</td>
</tr>
<tr>
<td>Non-medical Prescribing</td>
<td>5</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Research Methodology</td>
<td>5</td>
<td>yes</td>
<td>Staff member on another provider award / pathway (60%), Quality (40%)</td>
</tr>
<tr>
<td>Cancer Therapies</td>
<td>6</td>
<td>yes</td>
<td>Not provided 40%, staff member on another provider award / pathway (20%), Quality (20%)</td>
</tr>
<tr>
<td>Service</td>
<td>Count</td>
<td>Provided</td>
<td>Provisional Details</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Pre-treatment Process</td>
<td>6</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Breast RT / Mark-up</td>
<td>6</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Head and Neck Cancer / RT</td>
<td>6</td>
<td>yes</td>
<td></td>
</tr>
<tr>
<td>Intravenous Cannulation / Contrast Delivery</td>
<td>6</td>
<td>yes from 2009</td>
<td></td>
</tr>
<tr>
<td>CPD (meeting requirements of)</td>
<td>7</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Computerised Tomography (CT)</td>
<td>7</td>
<td>yes from 2010</td>
<td>Not provided (50%)</td>
</tr>
<tr>
<td>Patient Consenting Process</td>
<td>7</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Intensity Modulated Radiotherapy (IMRT)</td>
<td>8</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>Palliative RT</td>
<td>8</td>
<td>no</td>
<td>Not provided (100%)</td>
</tr>
<tr>
<td>3D Anatomy for CT</td>
<td>8</td>
<td>yes from 2010</td>
<td>Not provided (100%)</td>
</tr>
</tbody>
</table>

**Short Courses**

A total of 167 short courses were attended by practitioners from across the region during the period 2007-2009, working out as approximately 0.21 courses per practitioner, per year (based on information submitted to this audit and 2009 regional staffing levels).

Modules were attended from a range of providers with the regional provider accounting for 1% of this provision.
Chart 4: Education provider breakdown for all short courses accessed 2007-2009
Chart 5: Subject content of short courses accessed between 2007-2009
The table below shows the relative ranking of short grouped short courses and the reasons for not using the local provider have been collated and shown as a percentage of the total number of course events in the grouping. The ranking is provided based on the frequency that the course topic was accessed:

<table>
<thead>
<tr>
<th>Title</th>
<th>Rank</th>
<th>Available from UWE, Bristol</th>
<th>Reason for not using UWE, Bristol</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Practice (non-specific)</td>
<td>1</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>3D Anatomy for CT</td>
<td>1</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>Management/Leadership</td>
<td>2</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>Psychological Care (Communication, Counselling)</td>
<td>3</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>Imaging / Image Guided RT / Interpretation of Images</td>
<td>4</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Intravenous Cannulation / Contrast Delivery</td>
<td>4</td>
<td>Yes, from 2009</td>
<td>(40% not, provided)</td>
</tr>
<tr>
<td>Service development (auditing / review of processes)</td>
<td>5</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Pre-treatment Process</td>
<td>6</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Cancer Therapies</td>
<td>7</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Radiation Protection</td>
<td>7</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>CPD (meeting requirements of)</td>
<td>8</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Breast RT / Mark-up</td>
<td>9</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Neurological cancers</td>
<td>9</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Brachytherapy</td>
<td>9</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Application</td>
<td>Grade</td>
<td>Provided</td>
<td>Notes</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Applications training</td>
<td>9</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Superficial RT</td>
<td>10</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Computerised Tomography (CT)</td>
<td>10</td>
<td>Yes, from 2010</td>
<td>Not provided (as short course) at time of audit</td>
</tr>
<tr>
<td>Teaching and Assessing in Clinical Practice / FLAP</td>
<td>10</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>Stereotactic Radiotherapy</td>
<td>10</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Paediatric Care</td>
<td>10</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Safety/Errors</td>
<td>10</td>
<td>Yes from 2010</td>
<td>Not provided (as short course) at time of audit</td>
</tr>
<tr>
<td>Head and Neck Cancer / RT</td>
<td>11</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Patient Consenting Process</td>
<td>11</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Mesothelioma</td>
<td>11</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Non-medical Prescribing</td>
<td>11</td>
<td>No</td>
<td>Not provided (as short course)</td>
</tr>
<tr>
<td>Intensity Modulated Radiotherapy (IMRT)</td>
<td>11</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Tomotherapy</td>
<td>11</td>
<td>No</td>
<td>Not provided</td>
</tr>
<tr>
<td>Industrial relations</td>
<td>11</td>
<td>No</td>
<td>Not provided</td>
</tr>
</tbody>
</table>
Appendix 3

Identification of strategic radiotherapy service development CPD Priorities

As part of the CPD audit, radiotherapy centres were asked to highlight their future CPD requirements/needs in order to meet strategic service development requirements. It was important that this information was produced in discussion with service managers/leads in order to ensure that the needs of service rather than individuals learning needs were recorded.

The table below shows information collated from all 9 of the regional radiotherapy centres to produce a ranked list of overall priorities for the region.

<table>
<thead>
<tr>
<th>Title</th>
<th>Regional Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging / Image Guided RT / Interpretation of Images</td>
<td>1</td>
</tr>
<tr>
<td>3D Anatomy for CT</td>
<td>2</td>
</tr>
<tr>
<td>Intensity Modulated Radiotherapy (IMRT)</td>
<td>2</td>
</tr>
<tr>
<td>Intravenous Cannulation / Contrast Delivery</td>
<td>3</td>
</tr>
<tr>
<td>Brachytherapy</td>
<td>4</td>
</tr>
<tr>
<td>Advanced Practice (non-specific)</td>
<td>5</td>
</tr>
<tr>
<td>Teaching/Assessing in Practice</td>
<td>5</td>
</tr>
<tr>
<td>Palliative RT</td>
<td>6</td>
</tr>
<tr>
<td>Breast RT</td>
<td>6</td>
</tr>
<tr>
<td>CT</td>
<td>6</td>
</tr>
<tr>
<td>Research Methodology</td>
<td>6</td>
</tr>
<tr>
<td>Patient Review</td>
<td>6</td>
</tr>
<tr>
<td>Pre-Treatment Process</td>
<td>7</td>
</tr>
<tr>
<td>Superficial RT</td>
<td>7</td>
</tr>
<tr>
<td>Patient Consent Process</td>
<td>7</td>
</tr>
<tr>
<td>Management &amp; Leadership</td>
<td>7</td>
</tr>
<tr>
<td>Non-Medical Prescribing</td>
<td>7</td>
</tr>
<tr>
<td>Stereotactic Radiotherapy</td>
<td>7</td>
</tr>
<tr>
<td>Respiratory Gating</td>
<td>7</td>
</tr>
</tbody>
</table>
Chart 6: shows the breakdown of this information in terms of the number of centres with similar strategic priorities.

The rationale and impact on service for modules and short courses was also reviewed as part of this audit. It was clear that the rationale for over 90% of the CPD events was
linked to meeting the needs of the cancer reform strategy and the recommendations of the national radiotherapy advisory group (NRAG). Only 10% of events did not have a rationale given, however it should be noted that for all of these events there was a clear correlation to content that was clinically relevant.

It should be noted that as a result of the provisional information collected in this audit, work is ongoing in developing courses which reflect the needs identified by service. The following table identifies progress with providing courses which meet the identified regional service development priorities.

The table below shows information collated from all of the regional radiotherapy centres to produce a ranked list of overall priorities and strategic fit for service development and expansion as indicated by service leads.

<table>
<thead>
<tr>
<th>Title</th>
<th>Regional Rank</th>
<th>UWE Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imaging / Image Guided RT / Interpretation of Images</td>
<td>1</td>
<td>Course in planning stages and subject to funding</td>
</tr>
<tr>
<td>Strategic fit: The National Radiotherapy Advisory Group &amp; Cancer Reform Strategy recommend use of image guided 4D adaptive radiotherapy to target tumours more accurately. This requires the up-skilling of radiographers with knowledge &amp; skills to use equipment safely &amp; effectively.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3D Anatomy for CT</td>
<td>2</td>
<td>Module developed and due to run in 2010 as part of the PG Cert (CT), but may be accessed as a stand alone module.</td>
</tr>
<tr>
<td>Strategic fit: The National Radiotherapy Advisory Group &amp; Cancer Reform Strategy recommend use of image guided 4D adaptive radiotherapy to target tumours more accurately. This requires the up-skilling of radiographers with knowledge and advanced interpretation skills to interpret and use this technology effectively.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intensity Modulated Radiotherapy (IMRT)</td>
<td>2</td>
<td>The National Cancer Action Team is</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Strategic fit: Recommendation in ‘Delivering World Class Radiotherapy – Guide for Commissioners’ that IMRT is available in all networks by 2012. This requires the development of technological skills in radiotherapy and physicist/Dosimetry workforce.</th>
<th>currently in the process of commissioning a national training course utilising clinical expertise in this specialist field. There are currently no plans to develop a regional course as it is envisaged that practitioners will access the national programme.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intravenous Cannulation / Contrast Delivery</td>
<td>3</td>
</tr>
<tr>
<td>Strategic fit: Four tier system to extended scope of practice for radiographers and the NRAG and Cancer Reform Strategy to improve cancer waiting times by improving throughput of patients.</td>
<td>This short course (accredited by the College of Radiographers) ran in 2009 for the first time and will be running in 2010.</td>
</tr>
<tr>
<td>Brachytherapy</td>
<td>4</td>
</tr>
<tr>
<td>Strategic fit: Four tier system to extended scope of practice for radiographers and Cancer Reform Strategy – ensure patients have fast access to high quality treatment. Nice guidelines recommend Brachytherapy for prostate cancer and there has been a resultant increase in referrals for Brachytherapy and associated new service provision. This requires the development of technological skills in radiotherapy and physicist/Dosimetry workforce.</td>
<td>Work is underway to develop a module / short course drawing on regional expertise and consultant practice in this field. This module will be run by The Bristol Haematology and Oncology Centre with educational development expertise provided by UWE, Bristol to produce a</td>
</tr>
<tr>
<td>Module</td>
<td>Strategic fit</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Advanced Practice (non-specific)</strong></td>
<td><em>Cancer Reform Strategy &amp; HPC - For Continuing Professional Development and to promote opportunities to develop a highly educated and motivated workforce.</em></td>
</tr>
<tr>
<td></td>
<td>A new series of ‘Patient Pathway’ days have been created to look at the pathway in terms of imaging and oncological management for a range of sites. The first in the series ran in late 2009, with the second part scheduled for March 2010.</td>
</tr>
<tr>
<td><strong>Teaching/Assessing in Practice</strong></td>
<td><em>National Radiotherapy Advisory Group Report (NRAG) recommendation for increased training commissions to meet capacity demands in future. Requires clinical appraisers for both undergraduates and assistants for positive training experience.</em></td>
</tr>
<tr>
<td></td>
<td>This course is part of the CPD portfolio of modules offered by UWE, Bristol.</td>
</tr>
<tr>
<td><strong>Palliative RT</strong></td>
<td><em>NRAG and Cancer Reform Strategy – improve cancer waiting times by improving throughput of patients on pre-treatment by radiographer led palliative treatment planning.</em></td>
</tr>
<tr>
<td></td>
<td>There are no specific plans to offer this topic area as a short course or module, however it will be considered in the patient pathway events detailed above.</td>
</tr>
<tr>
<td><strong>Breast RT</strong></td>
<td><em>NRAG and Cancer Reform Strategy – improve cancer waiting times by improving throughput of patients on pre-treatment by</em></td>
</tr>
<tr>
<td></td>
<td>There are no specific plans to offer this topic area as a short course or module, however it will</td>
</tr>
<tr>
<td>Strategic Area</td>
<td>Specific Information</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Radiographer led breast treatment planning.</td>
<td>be considered in the patient pathway events detailed above.</td>
</tr>
<tr>
<td><strong>Computerised Tomography (CT)</strong></td>
<td>The PG Dip Specialist Practice (CT) which comprises of three 20 credit modules will run in 2010. A short two day course in CT has also been developed which is non credit bearing and this ran in January 2010.</td>
</tr>
<tr>
<td><strong>Research Methodology</strong></td>
<td>This course is part of the CPD portfolio of modules offered by UWE, Bristol.</td>
</tr>
<tr>
<td><strong>Patient Review</strong></td>
<td>This course is part of the CPD portfolio of modules offered by UWE, Bristol. A pathway flier has been produced to highlight to practitioners how they access the modules that develop the skills necessary for this advanced practice route (see appendix II).</td>
</tr>
<tr>
<td><strong>Pre-Treatment Process</strong></td>
<td>There are no specific plans to offer this topic area as a short course or module, however it will</td>
</tr>
<tr>
<td>Topic</td>
<td>7</td>
</tr>
<tr>
<td>--------------------------------------------</td>
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</tr>
<tr>
<td><strong>radiographer led treatment planning.</strong></td>
<td></td>
</tr>
<tr>
<td>be considered in the patient pathway events detailed above.</td>
<td></td>
</tr>
<tr>
<td><strong>Superficial RT</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic fit: NRAG and Cancer Reform Strategy – improve cancer waiting times by improving throughput of patients for superficial radiotherapy by radiographer led treatment planning and delivery.</td>
<td></td>
</tr>
<tr>
<td><strong>Patient Consent Process</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic fit: NRAG recommend four tier skills model to be implemented in all departments to drive efficiency, reduce waiting times and refocus radiotherapy services around needs of patient. Cancer Reform Strategy aims to support workforce development &amp; training to meet this recommendation.</td>
<td></td>
</tr>
<tr>
<td><strong>Management &amp; Leadership</strong></td>
<td></td>
</tr>
<tr>
<td>Strategic fit: NRAG recommend four tier skills model to be implemented in all departments to drive efficiency, reduce waiting times and refocus radiotherapy services around needs of patient. Cancer Reform Strategy aims to support workforce development &amp; training to meet this recommendation. Cancer Reform Strategy &amp; Health Professions Council advocate the Continuing Professional Development and to promote opportunities to develop a highly educated and motivated workforce.</td>
<td></td>
</tr>
<tr>
<td><strong>Non-Medical Prescribing</strong></td>
<td></td>
</tr>
<tr>
<td>Subject</td>
<td>Strategic fit: Four tier system to extended scope of practice for radiographers and the NRAG and Cancer Reform Strategy to improve cancer waiting times by improving throughput of patients.</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Stereotactic Radiotherapy</td>
<td>Strategic fit: Four tier system to extended scope of practice for radiographers and Cancer Reform Strategy – ensure patients have fast access to high quality treatment. Development and patient access to this specialist radiotherapy technique requires the development of technological skills in radiotherapy and physicist/Dosimetry workforce.</td>
</tr>
<tr>
<td>Respiratory Gating</td>
<td>Strategic fit: Four tier system to extended scope of practice for radiographers and Cancer Reform Strategy – ensure patients have fast access to high quality treatment. Development and patient access to this specialist radiotherapy technique requires the development of technological skills in radiotherapy and physicist/Dosimetry workforce.</td>
</tr>
<tr>
<td>CPD (Meeting requirements of)</td>
<td>Strategic fit: HPC requirement for meeting the requirements of professional registration.</td>
</tr>
<tr>
<td>Radiation Protection</td>
<td>Strategic fit: Meeting the legal requirements of Ionising Radiations (Medical Exposures) Regulations and the need to meet patient safety and high quality service agendas.</td>
</tr>
<tr>
<td>Scientific careers agenda there may be an short course developed in the future.</td>
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</tr>
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<td></td>
</tr>
<tr>
<td><strong>Safer Working / Error management</strong></td>
<td></td>
</tr>
<tr>
<td><em>Strategic fit: Meeting the legal requirements of Ionising Radiations (Medical Exposures) Regulations and the need to meet patient safety and high quality service agendas. Responds to the findings of the Beatson incident and peer review measures for radiotherapy.</em></td>
<td></td>
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<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>A short course / module is planned for delivery in the summer of 2010</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4

Validation review of virtual learning

Strengths

Simulations, either virtual or otherwise allow students to try out a real situation in a safe setting; this can heighten attention and clinical relevance as well as facilitating feedback on their experiences (Steinert & Snell, 1999; Morgan, 2006; Kneebone et al, 2002; Boulay & Medway, 1999). It is desirable both in terms of learners’ feelings of preparedness and in terms of safety that individuals are allowed to experience and practice the skills necessary for clinical practice (Morgan, 2006) and indeed advanced practices. This is important in bridging the divide between academic theories and clinical procedure and practice. Within clinical practice there are often conflicts between the learning needs the individual and the clinical and management needs of the patients, something which concerns many learners themselves. The conflict of this usually lies in safeguarding patient safety and patient experience whilst providing a learner with an experience of practice (Boulay & Medway, 1999).

The virtual environment (VE) has a number of scenarios loaded into it which enables the teacher to select and guide students through the processes involved with delivering a curriculum focussed towards clinical skill acquisition (Bridge et al, 2007). This essentially extends the opportunity for problem based learning (PBL) within the lecture room. PBL offers many opportunities and advantages in medical education as it enables good group dynamics, similar to those needed in clinical practice to develop, it also give the students the occasional opportunity to experience personality clashes or other dysfunctional behaviour. (Wood, 2003). It also offers the opportunity for those outside a field of expertise to experience in a practical way the delivery of radiotherapy treatment and the associated considerations.

Within simulation based learning there is the opportunity and flexibility to create an environment with a range of sophistication and simplicity, allowing a simple procedure
through to a very complex procedure to be demonstrated through active learning (Bradley & Postlethwaite, 2003). An added advantage of a VE is that the labour resources required to set up physical scenarios (particularly those that are more complex) are greatly reduced, and a whole new scenario can be created at the click of a mouse.

Even when using a novel technology to support student learning, sound educational principles are still applicable, and although the approach may be new to a teacher, the educational principles that underpin the learning will be consistent with more traditional approaches. Consequently a wide range of learning methods can be employed to support student teaching (Bradley & Postlethwaite, 2003). It may be possible for the teacher to adopt a coaching role and to facilitate rather than direct student learning. Scott Tilley et al (2007) advocates the use of scaffolded learning in achieving competence in new graduates and in producing an independent learner who is capable of critical thinking and decision making, all of which are key elements to effective clinical practice and perhaps skills which may be under-developed in traditional academic teaching.

Through PBL students had better knowledge retention from the creation of a more stimulating and challenging educational environment (Wood, 2003). Gulpinar & Yegen (2005) and Steinert & Snell (1999) supported this view by suggesting that because learning is an active process, students who are actively involved with learning, will learn more than those who are merely recipients of knowledge. The importance of maintaining attention is reinforced by students who welcome any active measures that break even a relatively short lecture (50-75 minutes) to permit reflection and knowledge retention during the session (Lacoss & Chylack, 1998).

Gulikers et al (2008) looked at introducing an assessment of practical skills intertwined with a competency-based curriculum for vocational based education. They found that students’ perceived this assessment as more authentic than traditional assessment methods. Students reported that they studied more deeply and developed greater professional skills through this method of study. The VE presents the opportunity to
assess practitioners in a practical setting whilst maintaining the controls and consistency of a traditional assessment. Anecdotally this assessment may even be more useful to students and more applicable to their clinical practice role.

Bridge et al (2007) conducted a study using the radiotherapy VE in an interactive teaching session with a group of students. It was demonstrated that a 20% improvement in students’ confidence in technical skills and in understanding could be achieved, with students reporting that they enjoyed using the application. Through careful planning and development it is likely that the unplanned and perhaps adhoc nature of clinical placement experience can be factored into the learning experience in preparing learners for a practice role. This may result in the failure of serendipity between academic learning and practical skills being effectively overcome (Bradley & Postlethwaite, 2003).

Education and practice partnerships may be strengthened and the practice theory gap may be bridged whilst reducing some of the burden on clinical mentors from increasing student numbers and changing health agendas (Hilton & Pollard, 2005).

Weaknesses

It is essential that to provide effective skills development that teaching sessions are supervised and resourced (Boulay & Medway, 1999). Additional preparation and delivery time will be necessary in designing scenarios and by virtue of the fact that PBL generally works most effectively in smaller groups (Gulpinar & Yegen, 2005; Steinert & Snell, 1999 & Wood 2003).

In order to be effective the sessions using the VE must be fully integrated into the curriculum or short course, and it is important that the sessions are not seen as an optional add-on, but integral to the curriculum delivery (Boulay & Medway, 1999).
Opportunities

The knowledge basis to support any interactive task must also be considered and the students must have the opportunity to gain this knowledge, this must be taken into consideration in the design and implementation of an interactive lecture to ensure that learning processes and objectives are achieved in the interactive session. (Gulpinar & Yegen, 2005).

Clinical skills sessions allow a consistent and standardised approach to be adopted. Within clinical practice placements, with pressures like staff shortages and high patient workloads, practices and procedures may be demonstrated differently to that in the education environment (Morgan, 2006). This may cause confusion amongst students, but this disparity does present the opportunity to identify and appraise differing methods, and may indeed be fundamental in creating a truly reflective practice environment (Kneebone et al, 2002). It is even possible that this process may occur in a self directed or group working environment which may enhance the activation of prior knowledge and its application to alternative contexts (Boulay & Medway, 1999).

There is an opportunity to embed VE learning into almost every element of radiotherapy education, both at undergraduate and postgraduate levels. This is important to avoid the VE from being seen as an optional add on and to ensure that investment in the system is fully utilised. In this process of embedment it is possible that a wider sense of ownership can be created, from both students and the wider clinical community (Bradley & Postlethwaite, 2003). Indeed experiences can be drawn from a range of backgrounds to develop a robust and well considered programme of education. It may be the case that clinical colleagues may be most effective and best placed to fulfil the role of demonstrator in a seconded role, which may further the bridging of the practice theory gap (Hilton & Pollard, 2005).

It is also worth noting that active learning involves a multiple of approaches and it is important to vary these approaches to ensure that students remain motivated. Whilst the VE provides us with a platform to achieve active learning it will need careful planning
to ensure that learning is truly achieved. It is likely that strategies such as problem-solving, cooperative learning, class discussions, role-playing and independent supportive study could be used to support and enhance the experience of using the virtual model (Keyser, 2000).

There will be some staff development and training necessary in order to achieve effective active learning in this environment. Delivery of PBL sessions will require a very different teaching style, compared to the traditional lecture and some teachers may find this difficult and frustrating to achieve (Wood, 2003).

**Threats**

Perhaps the greatest threat is that VE may be seen as a replacement for clinical experience and clinical placement. Real clinical experience, and the diversity and unexpectedness of this experience has, and will always be at the centre of healthcare education. It is impossible to capture the full complexity of the dynamic conditions that make up clinical education, and consequently VE can only ever act as an adjunct to carefully supported clinical experience (Boulay & Medway, 1999).

It is possible that the students have an enthusiasm for the technology itself rather than the learning that is being undertaken. Letterie (2003) warns of this effect and suggests that in spite of enthusiastic endorsement by both teachers and students, there have been few studies of good design that can clearly demonstrate an improvement in medical education over and above what can be achieved with traditional modalities.

Inevitably there will be staffing needs, in the initial introduction, these needs will be greater to support staff learning and development (Bradley & Postlethwaite, 2003). It will be fundamental that this process is carefully and considerately supported with appropriate staffing in order to fulfil the objectives of the implementation of this technology.
References


Appendix 5

Business Case

Portable Virtual Environment for Radiotherapy Training (VERT).

Background

Within Radiotherapy in recent years there has been a radical development and expansion of patient treatment services (Cancer Plan, 2000; Cancer Reform Strategy, 2004). As a result we as education providers have seen a 267% increase nationally in cohort numbers since 1997, and our commissioned student numbers have been increased by the NHS demonstrating the commitment to investing and expanding the NHS workforce of Therapy Radiographers (NRAG, 2007). We have seen a steady increase in the number of non-traditional entry students and mature students demonstrating an interest in studying radiotherapy, and also an increase in the number of students applying from outside of the south west region.

UWE, Bristol is the regional education provider for assistant practice, pre-registration and post-registration radiotherapy courses. Radiotherapy is currently the only subject in the school of health and social care course portfolio for which UWE, Bristol supply regional provision.

These recruitment figures appear to be in line with the national picture on radiotherapy recruitment however this may be compounded by the geographic spread and remoteness of clinical placements in the south west. In 2007/8, 69% of BSc (Hons) Radiotherapy programmes did not meet their commissioned numbers (CoR 2009). Early indications suggest that there will be a shortfall in recruitment for September 2009 based on current application numbers received (which is in line with last year’s levels).

Possible Solution

Currently the university actively targets its course marketing to the historical Avon, Gloucester & Wiltshire region, which has made increasing applications, by particularly targeting the peninsula region restricted. Current activities working with organizations such as ‘Aim Higher’, taster days, open days and raising the course and profession profile with careers advice services need to be widened to represent the recruitment commitment to the entire south west region.

The SW SHA have funded a number of projects within UWE, Bristol to develop ways of increasing recruitment to radiotherapy and broadening the routes into the programme. Being able to demonstrate radiotherapy remotely and benefiting from the benefits we currently see from using VERT in marketing on campus will facilitate the widening of programme promotion and also provide a contingency backup to our main VERT system in the event of failure or room booking for other purposes.
Radiotherapy Training
Recruitment Strategy
South West SHA Funded Project

The Virtual Environment for Radiotherapy Training (VERT) is the latest technology to help radiotherapy radiographers to train to deliver doses of radiotherapy to tumours. UWE was the first university in the UK to install this version and the only university in the South West to house this resource. UWE has recently acquired a portable version which forms part of a recruitment road show.

Project Aims:

Identification of opportunities for using the Virtual Environment for Radiotherapy Training (VERT) in recruitment opportunities and raising the profile of radiotherapy as a healthcare profession. As UWE, Bristol is the regional provider of radiotherapy education this will cover the whole of the South West.

Development of a strategy for raising the profile of the radiotherapy programme provided by UWE, Bristol utilising VERT technology.

We are looking for a number of events across the South West to provide a radiotherapy recruitment road show utilising our new portable VERT system. I would be grateful if you could identify any such event that we may be able to support (e.g. schools conferences, careers events, AHP Careers etc).

Please contact: Benjamin Roe
VERT CPD & Recruitment Project Lead
benjamin.roe@uwe.ac.uk
Appendix 7

Immersive VERT™
Case Study from University of the West of England

VERT™ is a virtual environment of a radiation therapy treatment room. VERT™ was installed in a large lecture theatre at the University of the West of England in February 2008. Having a member of the team on the VERT™ steering group for England enabled the team at UWE to realise the potential of VERT™ early on. The team were keen to have VERT™ installed and to subsequently start embedding VERT™ based sessions into the scheme of work used to teach the radiotherapy students.

System Description
The University’s Immersive VERT™ system has a screen of over 4 metres width in a room that can seat 80 students. The system is a dual channel, active 3D stereoscopic rear projection system with a 1:1 scale giving a life size virtual linac. Models of Siemens, Varian and Elekta linacs are available with corresponding hand pendant controls.

VERT™ for radiation therapy fundamentals
Students receive orientation on the VERT™ system prior to going into the clinic. Becoming familiar with the components of the linac, driving the virtual machine with the real hand pendant and developing basic psycho-motor skills really helps students prepare for their clinical placements.

VERT™ - Student Experience
“VERT™ is quite simply stunning and has proved to be a good teaching aid, as it back up what has been discussed. For example, one technique requires the linac head to be parallel to the contour of the patient’s skin and we were able to practice this in VERT™ first before trying it on an actual patient. The 3D element has the real wow factor, as it gives the sensation of being able to walk through the body. Having used VERT™ to revise techniques, I feel certain that I will come back to work on the system after qualification as part of my continuing professional development.”

Dawn Bowers,
2nd year student, 2009

Virtual plus real world simulation equals enhanced learning
Besides practising patient set-up using VERT™, students also set each other up using a couch and lasers as a simulation of real world techniques. This combination of virtual and real world further enhances the learning process.
Customer Comment

“VERT™ is helping us bridge the gap between practice and education,” explained Ben. “As we acquire data, we are increasingly able to teach from real life cases, making our work up to date and closely linked to clinical practice.”

Ben Roe, Senior Lecturer, University of the West of England

Portable VERT™ as an aid to student recruitment

UWE are the first University to also purchase a Portable VERT™ system to help them reach out to the community and raise awareness of radiotherapy as a career. Ben Roe at UWE has a secondment to approach communities with lower than average higher education attainment and to advise those considering applying for radiotherapy as a career.

VERT™ for Anatomy Training

VERT™ is used to teach anatomy relating to the technique of the body site being studied. Particularly, relational anatomy to make students aware of organs at risk and why complex plans may be required.

VERT™ for training of allied health professionals

“Our Head and Neck Masterclasses have brought VERT™ to nurse specialists, speech and language therapists, dieticians, occupational therapists and physiotherapists. The reaction has been overwhelmingly positive because we are able to study anatomy in 3D, making it far more interactive than a standard conference.” said Ben Roe, Senior lecturer at the University.

After teaching a head and neck study day the UWE team received comments such as ‘very impressed with the 3D images, made it all seem real’, ‘excellent, loved the VERT™’ and ‘Excellent 3D program, engaging teachers’.

VERT™ for teaching basic through to advanced techniques

Students have VERT™ sessions that illustrate technique and planning concepts relating to the body treatment sites being taught. VERT™ helps in the appreciation of how theory and concepts apply to practise whilst reinforcing classroom learning. The effects of patient misalignment are also investigated.

All images courtesy of the University of the West of England, Bristol

Vertual Ltd +44 (0)1482 347 572 sales@vertual.co.uk www.vertual.co.uk
‘VERT™ is quite simply stunning and has proved to be a good teaching aid...The 3D element has the real wow factor, as it gives the sensation of being able to walk through the body. Having used VERT to revise techniques, I feel certain that I will come back to work on the system after qualification as part of my continuing professional development.’

Dawn Bowers,
Student at the University of the West of England, Bristol

Photograph of the Vertual Ltd stand which featured the UWE, Bristol experience of utilising VERT in educational design at the American Society for Therapeutic Radiology and Oncology (ASTRO) in Chicago November 2009.

Image courtesy of Vertual Ltd.
Press Release from Vertalis Group:

The University of the West of England Brings VERT to non Radiotherapy Health Professionals

CURIOSUS to find out more about a Virtual Reality (VR) project highlighted by National Radiotherapy Advisory Group, Ben Roe, senior lecturer in radiotherapy at the University of the West of England (UWE), decided to meet the system’s inventors. Prof. Roger Phillips and James Ward from the University of Hull and Prof. Andy Beavis of the Hull & East Yorkshire Hospitals NHS Trust, the developers of Virtual Environment Radiotherapy Training (VERT), were happy to demonstrate it to Ben.

“I was amazed by what I saw”, said Ben. “I could see that VERT would have a great impact on radiotherapy education.” As a result of that meeting, Ben sat on the relevant steering group for the Department of Health that presided over the 2008 national roll out of VERT to 10 universities and dozens of cancer centres all over England. However, it wasn’t just the functionality of the VERT software that impressed Ben. “Never having seen VR, I was completely bowled over by the power of this technology. Even our more technologically savvy students admit to being excited by the immersive element of VERT.”

VERT is award winning, specialist software designed to offer training for radiotherapy students, nurses and existing staff. Now VERT is being developed and supplied by a spin out company from the University of Hull called Vertual Limited. However, for the software to give the level of realism it was designed to provide, it needs a VR stereoscopic 3D visualisation system. Virtalis, Europe’s leading VR Company, is Vertual’s supplier of the visualisation equipment for VERT. Virtalis installed and provided training for its StereoWorks ActiveWall tracked system at UWE, the first “Immersive VERT” system in the world at the time. It includes a rear-projected pair of
Christie Mirage S+6k active stereoscopic projectors, an Intersense IS-900 tracking system and Virtalis integration software and expertise.

The team at UWE, comprising seven staff members and 30 students in each year, decided that from the start VERT had to be fully integrated in all aspects of the three-year course. Initially, Ben and his team realised that in order to get the most from the system it had to be a learning process on both sides. “Now we’ve had the system up and running for an entire academic year, we are reviewing the whole degree and redesigning modules to incorporate more VERT experience. We are also looking into how we can facilitate our students’ desire to have greater VERT accessibility and more self directed use.”

UWE’s team has also been using VERT to share radiotherapy knowledge with other medical professionals in a drive to increase the integration of care for cancer patients. “Our Head and Neck Masterclasses have brought VERT to nurse specialists, speech and language therapists, dieticians, occupational therapists and physiotherapists. The reaction has been overwhelmingly positive because we are able to study anatomy in 3D, making it far more interactive than a standard conference.”
UWE’s main VERT installation is in such demand now that the University has invested in an additional portable system, which is primarily used for road shows and for student recruitment. Ben and his team believe their second VERT system will help raise awareness of a profession that incorporates both science and caring. They also hope that their use of VERT will highlight their innovative approach to learning. “VERT is helping us bridge the gap between practice and education,” explained Ben. “As we acquire data, we are increasingly able to teach from real life cases, making our work up to date and closely linked to clinical practice.” Use of VERT has encouraged the UWE team to take part in research in strategies for using IT in Education and they recently attended the IT in Education International Conference.

Dawn Bowers, a current second year student at UWE, commented: “VERT is quite simply stunning and has proved to be a good teaching aid, as it backs up what has been discussed. For example, one technique requires the linac head to be parallel to the contour of the patient’s skin and we were able to practice this in VERT first before trying it on an actual patient. The 3D element has the real wow factor, as it gives the sensation of being able to walk through the body. Having used VERT to revise techniques, I feel certain that I will come back to work on the system after qualification as part of my continuing professional development.”

Watch a video of how UWE uses VERT:  www.uwe.ac.uk/hsc/radiography

Vertual Web Site:  www.vertual.co.uk
'Sunrise takes away the stress'

By KIMBERLY MIDDLETON

‘As long as the children were happy I was happy’ she said. ‘I was so happy when I was in bed after one of my chemotherapy sessions, and said to Simon ‘I’m going to die’’. ‘I hugged him and said I didn’t have time to die because I was too busy freaking after him and Emi’.

‘My son said it was worse watching his daughter battle cancer than it was for his mum, and I love my mum but I know she would have done anything to make me better. After months of radiotherapy and chemotherapy, Mrs Stephenson, 45, was determined to make the most of her time. She has a great sense of humor and her children have been a great support.’

‘I’m really grateful for the support of the Sunrise Centre. The staff and volunteers have been amazing. They have been there for me every step of the way. I’m really grateful for all their help and support. ’

-runners Simon

is full of praise

SIMON O’Callaghan was full of praise for the Sunrise Centre.

When asked what he thought of the centre, he said: ‘It’s been brilliant. It’s been a great support for me and my family.’

‘The staff have been fantastic and have always been there for me whenever I needed them. They have been great at listening and helping me through the difficult times.’

‘I’ve been going to the centre for six months and it has been a great support for me. I’ve met some really great people there and it has been a great help.’

‘The centre has been really good for me and my family. It has been a great help and I couldn’t have done it without them.’

‘I’ve been going to the centre for three months and it has been a great help. I’ve met some really great people there and it has been a great support for me.’

‘The centre has been really good for me and my family. It has been a great help and I couldn’t have done it without them.’
Sunrise Centre, which has treated thousands of cancer patients from all over Cornwall, is opening its doors to the public with a ‘thank you’.

**Open day at Sunrise Centre is a ‘thank you’**

**By COLIN GREGORY**

Thursdays are busy days at the Sunrise Centre. Nurses, doctors, therapists and support staff are on hand to talk about the centre's activities and the work it supports.

The centre was opened last year by the Duchess of Cornwall, and today it is being opened to the public with a thank-you event. The day will feature talks, workshops and a tour of the centre.

The centre is one of several in the region that are working to improve cancer care for patients in Cornwall. It offers a range of services, including radiation therapy, chemotherapy and support for patients and their families.

The centre's success is a result of the hard work of the staff and volunteers, who work tirelessly to provide the best possible care for patients.

At the forefront of cancer treatment and Sunrise Appeal continues

Some facts about the Sunrise Centre:
- It has treated thousands of cancer patients from all over Cornwall.
- It offers radiotherapy and chemotherapy to treat cancer.
- The centre is located in Truro, in Cornwall, UK.
- It is a charity organisation, meaning it relies on donations to fund its operations.
- It provides a range of services, including radiation therapy, chemotherapy, and support for patients and their families.

Sunrise’s key services include:
- Radiation therapy: This type of treatment involves the use of high-energy radiation to kill cancer cells.
- Chemotherapy: This involves the use of medication to kill or slow the growth of cancer cells.
- Support services: These include counseling, emotional support, and resources for patients and their families.

The centre is part of a network of cancer care centres in the region, and it works closely with other organisations to provide a comprehensive range of services to patients.

The Sunrise Appeal continues to fund the centre and its services. Donations can be made online or by contacting the centre directly.
Appendix 9

Regional Radiotherapy Education Provision

Business Case: MSc Radiotherapy & Oncology

The University of the West of England, Bristol

Background

Within Radiotherapy in recent years there has been a radical development and expansion of patient treatment services (Cancer Plan, 2000; Cancer Reform Strategy, 2004). As a result we have seen a 267% increase nationally in cohort numbers since 1997, and our commissioned student numbers have been increased by the NHS demonstrating the commitment to investing and expanding the NHS workforce of Therapy Radiographers (NRAG, 2007). Locally we have seen a steady increase in the number of non-traditional entry students and mature students demonstrating an interest in studying radiotherapy, and also an increase in the number of students applying from outside of the south west region.

However HPC registered therapeutic radiographers, radiotherapy physicists and radiotherapy technologists appear on the government’s shortage occupation list, as recommended by the Migration Advisory Committee.

The Cancer Reform Strategy (Department of Health, December 2007) pledged to expand the capacity and effectiveness of radiotherapy services. Within the strategy the 31-day waiting time standard was introduced for subsequent radiotherapy treatment and is to be implemented by December 2010. This is expected to result in a significant increased demand for therapeutic radiographers and the radiotherapy physics and engineering workforce, in particular the workforce with skills in radiotherapy treatment planning (dosimetry). The dosimetry workforce comes from practitioners whose background is either in therapeutic radiography or healthcare science physics.

One of the key constraints in increasing the therapeutic radiography workforce is the difficulty in filling existing training places (in 2007 only about 75% of training places were filled; available data from 2008 suggests a similar ratio). Some courses also have very high attrition rates (approximately 50%, UWE consistently and significantly over performs in student attrition rates).

DH is continuing to undertake work around potential methods of lowering in-course attrition and increasing capacity, including investing £5,000,000 in facilities for virtual learning for radiotherapy students, attracting mature students through the creation of innovative training...
routes with the opportunity for enhanced support and the development of existing assistant practitioner staff in addition to these initiatives. UWE has taken the lead both regionally and nationally in the application and development of many of these strategies. In *The Assessment of Workforce Strategies – 2009/10* (NHS Workforce Review Team, 2009) SHAs were asked to consider converting some undergraduate courses to graduate training schemes which are also expected to have lower attrition rates.

*It is becoming increasingly evident that science graduates are seeking to use their first degree as a stepping stone to a professional qualification within the healthcare environment.*

*UWE, Bristol is the regional education provider for assistant practice, pre-registration and post-registration radiotherapy education provision. Radiotherapy is currently the only subject in the school of health and social care course portfolio for which UWE, Bristol supply regional provision.*
MSc Radiotherapy & Oncology Programme Overview

The origins for the development of this MSc programme stem from the Radiotherapy summit in June 2009, where it was highlighted that in order to meet workforce demands a fast track route was required to prepare graduates for not only clinical practice but also to meet the demands of clinical leadership in an expanding service. The aim of the new programme is to develop a route which enables students to develop practitioner standards whilst undertaking the academic development which will provide the preparation for a competent and registrable radiotherapy practitioner with added value in terms of skills related to service improvement, leadership, and increased knowledge to develop rapidly in the future towards advanced and consultant radiotherapy practice (with relevant experience and clinical development/preceptorship).

The new programme has been developed through collaboration with clinical representatives through a series of educational development meetings, and maps across many of the considerations and clinical feedback that has been received by the programme team in the review of the existing BSc Radiotherapy & Oncology programme. The programme has been approved internally within UWE and the modules have been written and are awaiting approval from the internal scrutiny process. The next phase will be to involve service users in the development of a course delivery strategy and in the development of masters level clinical competency frameworks. This will ensure that the programme is not only valid, but meets the continuing needs of all stakeholders. A validation event is booked for May 2010 with the HPC and SCoR in readiness for a September start. It should be noted however that because funding for this training route has not been secured we have been unable to market this course internally or externally, consequently it may be advisable to defer this first programme run until January 2011 in order to ensure that the necessary time is available to be able to recruit high calibre students into this programme.

Marketing

In widening course marketing to the whole south west region the needs of students recruited from across the region must be considered to support access education components of the programme while accessing placements locally. The Department of Health, in their publication ‘A High Quality Workforce-The next stage review’ (2008) recognise that delivering high quality education is essential in the quest to deliver high quality patient care and that this education provision should be sensitive to trainees personal needs and be flexible to give professionals breadth and depth of expertise. It also recognises the need to have good quality clinical placements to ensure that AHP’s are fit for practice as well as fit for purpose.
In the current economic downturn there is a marketing advantage to encouraging individuals to train to become a therapeutic radiographer which may be seen as a stable and secure profession. In specifically targeting science graduates there is an added advantage in that their prior knowledge may be capitalized and radiotherapy specific education delivered over three years at masters level leading to the award of MSc Radiotherapy & Oncology (subject to validation by the HPC).

Currently the university actively targets its marketing to the Avon, Gloucester & Wiltshire region which has made targeting particularly the peninsula region restricted. Current activities working with organizations such as ‘Aim Higher’, taster days and raising the professions profile with careers advice services need to be widened to represent the recruitment commitment to the entire south west region and beyond. In widening course marketing to the whole south west region and beyond the needs of students recruited from across the region must be considered to support access education components of the programme while accessing placements locally. This may involve local delivery, blended and distance learning techniques.

The Department of Health, in their publication ‘A High Quality Workforce-The next stage review’ (2008) recognise that delivering high quality education is essential in the quest to deliver high quality patient care and that this education provision should be sensitive to trainees personal needs and be flexible to give professionals breadth and depth of expertise. It also recognises the need to have good quality clinical placements to ensure that AHP’s are fit for practice as well as fit for purpose. This will be supported by the network of VERT installations across the regions and in those placements which did not take up the funding for VERT from the DH UWE has invested in a portable system which may be utilised.

By sourcing students from the locality of clinical placement, it may follow that these students, once qualified will be more likely to seek employment in this area and so the local workforce market may be better supplied and managed in future.

**Flexibility**

There is potential that this programme to stabilize the recruitment of 30 students and prevent any under-recruitment to the contract of the undergraduate programme and increase the throughput by an addition of 20 students either from a reduction of physiotherapy commissions or the use of attrition money. It is envisaged that the total number of 50 will be split between Undergraduate and the new Masters provision. This increase in the provision of clinical placements has been mapped against the annual audit of radiotherapy placement availability undertaken for the College of Radiographers (see appendix 1 & 2). This audit has highlighted
that due to the recent significant capital investment in radiotherapy clinical capacity, placements are available to support 50 students utilizing the current placement models. It is envisaged that this investment in meeting the requirements of the Cancer Reform Strategy and the predicted increases in radiotherapy demand will result in continued expansion of the service, however student placements could be increased if necessary by applying new approaches to placement (with the support of service leads) and maximizing the availability of student practice placements.

In designing this route it may be possible for the concurrent delivery of some elements of the undergraduate and master’s level modules in order to make efficient use of resources with a separate module assessment for each level. It is also possible that this route may be effectively utilized to provide a ‘return to practice’ route for those re-entering the profession whilst increasing the academic level of qualification and transferable academic skills.

The impact of the ‘Modernising Scientific Careers’ document (Department of Health, 2008) will provide a clear education and training pathway for clinical technologists in the United Kingdom and provide an opportunity to develop a workforce in various areas related to radiotherapy practice. These areas include dosimetry, quality assurance / testing and commissioning, radiotherapy physics and Radiation protection and monitoring. Working alongside the Radiotherapy workforce, the development of ‘Healthcare practitioners’ and ‘Healthcare scientists’ will also form an integral part to the delivery of a high quality cancer reform strategy.

**Funding**

The responsibility for a funding strategy for this new and innovative programme, which demonstrates flexibility in responding to national policy drivers lies with the commissioning organization. However there are advantages and disadvantages to the various funding mechanisms which have been highlighted through stakeholder discussions with service representatives (see table 1). A combination of appropriate funding streams to be utilized to provide flexibility and in order to respond to local workforce needs.
<table>
<thead>
<tr>
<th>Potential Funding Stream</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Means tested bursary</td>
<td>Allows current placement format to be utilized for MSc route (students gain placement in more than one centre).&lt;br&gt;Allows for placement accommodation and travel costs to be met (subject to means testing).&lt;br&gt;Equality across both undergraduate and postgraduate training routes.</td>
<td>Does not strengthen the local recruitment – local supply workforce model, as no trust employment model, placement site focus throughout programme. Block those who have already received an NHS bursary from gaining funding for the programme. Funding levels may not be attractive in marketing to graduates. Provides ongoing funding stream.</td>
</tr>
<tr>
<td>Salary support costs</td>
<td>Strengthens the local recruitment – local supply workforce model, as student would be employed by a host trust who would provide the majority of placements throughout programme.&lt;br&gt;Students’ knowledge and skill base is invested in by host clinical centre and ensures that students develop to meet local service needs.</td>
<td>No guarantee of graduate vacancy at the end of the MSc. Relies on trusts having funding available to support the training programme (typically 30% of salary costs). Experience of this funding model for assistant practitioner training is that this has limited the numbers of students going through the route.</td>
</tr>
<tr>
<td>Matched employer funding</td>
<td>Strengthens the local recruitment – local supply workforce model, as student would be employed by a host trust who would provide the majority of</td>
<td>No guarantee of graduate vacancy at the end of the MSc. Relies on trusts having funding available to support</td>
</tr>
<tr>
<td>SHA funding</td>
<td>Strengthens the local recruitment – local supply workforce model, as student would be employed by a host trust. Students’ knowledge and skill base is invested in by host clinical centre and ensures that students develop to meet local service needs. May be used to meet local needs with specific targeted funding to key trusts/services. Could be applied in combination with any of the other models. Reduced trust budgetary commitment to the programme. Regional approach to meeting workforce development needs.</td>
<td>No guarantee of graduate vacancy at the end of the MSc. Ongoing funding for the programme would need to be considered.</td>
</tr>
</tbody>
</table>
Target

We have seen a steady increase in the number of non-traditional entry students and mature students demonstrating an interest in studying radiotherapy, and also an increase in the number of students applying from outside of the south west region.

UWE, Bristol is the regional education provider for assistant practice, pre-registration and post-registration radiotherapy courses. Radiotherapy is currently the only subject in the school of health and social care course portfolio for which UWE, Bristol supply regional provision.

The current format of the radiotherapy undergraduate degree programme (BSc) requires students to undertake three 14 week clinical practice placements during the programme (1 placement per academic year) and an additional five week pre-qualifying placement. As the south west regional provider of radiotherapy education students can undertake a clinical practice placement at the following departments within the region: Cheltenham, Bristol, Bath, Exeter, Torbay, Plymouth, Poole, Truro and Taunton (from 2010). The new MSc programme will utilise all existing placements and capitalise on the regional expansion of the radiotherapy service. All departments have indicated that they would be willing to place students undertaking the proposed award, and a mapping exercise of placement capacity and availability suggests that a total of 50 placements are available in our region currently (based on current models of placement utilisation). This demonstrates that current student training capacity is being underutilised in the south west region. Please see Appendix 1 for placement mapping undertaken for the College of Radiographers for accreditation and approval of the programmes.

The model proposed has the potential to recruit local applicants with trusts in collaboration with the University recruiting their own students. This would potentially provide an opportunity for Trusts to retain the student if they so wish at the end of the programme.

Recruitment and Retention

From 2008 the university saw a marked decline in the number of students taking up a place to study radiotherapy despite going through the Clearing process, this resolved slightly last year, largely due to the increased pressure for students to find a course in higher education, however it should be noted that in order to fill the commissioned numbers we were reliant on the clearing process which is obviously not desirable.

Table 2: UWE, Bristol recruitment figures for BSc (Hons) Radiotherapy in last 4 years:
Table 2, shows recruitment and retention figures, these appear to be in line with the national picture on radiotherapy recruitment. Figures may however be compounded by the geographic spread and remoteness of clinical placements in the south west. In 2007/8, 69% of BSc (Hons) Radiotherapy programmes did not meet their commissioned numbers (CoR 2009). However a changing market in HEI funding resulted in UWE meeting commissioning numbers for radiotherapy in September 2009. Applications for September 2010 are currently up at this time compared to last year.

Retention data compared to national reports show very favourable levels of retention and completion for the Radiotherapy Programme at UWE compared to national averages of 42% attrition rates for 2008 (CoR 2009). This indicates that students undertaking the degree programme at UWE are more likely than the national average to complete their programme. The quality of the undergraduate radiotherapy provision has been commented upon by many organisations, most notably in 2008 with an undergraduate student being awarded ‘student radiographer of the year’ by the College of Radiographers.

**Impact on CPD Provision**

Currently UWE, Bristol provides wide and diverse healthcare CPD provision and specifically a number of cancer specific modules. These individual modules allow students to progress to the award of ‘MSc in Specialist Practice’ or ‘MSc in Advanced Practice’.

The MSc Radiotherapy & Oncology route will be separate from these CPD programmes and due to the focus being on pre-registration experience it is not envisaged that these modules would
be appropriate for those that are currently registered as therapeutic radiographers. For those whose registration has lapsed, there may be an opportunity to select modules to meet the HPC requirements for reinstatement on the register.

It may be however that these modules are appropriate for other healthcare professionals for CPD development and particularly in meeting the modernizing scientific careers agenda and the training of healthcare technologists where the availability of these courses will be fundamental to the achievement of the ‘Modernising AHP Careers’ agenda and ensuring that the future Cancer Reform Strategy targets are achieved as this relies of the full four-tier model of service delivery. With investment from the Department of Health in the Virtual Environment for Radiotherapy (VERT) and UWE investment in a radiotherapy dosimetry planning computer suite there are countless opportunities to deliver targeted high quality CPD modules and master classes based on these clinical needs and priorities alongside the development of this MSc pathway.

**Return to practice for Radiotherapy programme**

In increasing access and recruitment to radiotherapy education it is important to establish and promote a wide diversity of access routes into practice. Whilst numbers of students accessing a return to work route may be small these individuals will add to the workforce requirement in practice and ultimately add to the achievement of commissioning requirements. Through integration to the existing undergraduate programme this route can potentially be delivered efficiently on an individual basis to meet individual needs or alternatively the MSc route may be utilized which would add value to an individual’s educational development whilst meeting the requirements for re-registration. See figure 1 for potential pathways.

**Modernising Scientific Careers Agenda**

The impact of the ‘Modernising Scientific Careers’ document (Department of Health, 2008) will provide a clear education and training pathway for clinical technologists in the United Kingdom and provide an opportunity to develop a workforce in various areas related to radiotherapy practice. These areas include dosimetry, quality assurance / testing and commissioning, radiotherapy physics and Radiation protection and monitoring. Working alongside the Radiotherapy workforce, the development of ‘Healthcare practitioners’ and ‘Healthcare scientists’ will also form an integral part to the delivery of a high quality cancer reform strategy. This development will require appropriate training and education at HEIs which can offer a healthcare and scientific perspective. It is envisaged that the proposed MSc programme would fit closely into meeting the requirements of this agenda as much of the requirements can be mapped to the BSc and the proposed MSc delivery.
In order to ensure that the development needs of radiotherapy service continue to be met it is important that a forum for review of delivery and development of education provision for new areas of priority and development is created. Due to the small numbers of service representatives for radiotherapy in the region the needs and views of radiotherapy is often not represented in wider healthcare review mechanisms.

Figure 2: MSc Radiotherapy & Oncology Programme Map
MSc Radiotherapy & Oncology Module Overview

The Masters programme offers a number of advantages over and above the undergraduate training provision in terms of adding value and promoting the themes of leadership, service enhancement and service redesign in the context of policy frameworks. The table below provides an outline of each of the modules and highlights the delivery of the themes outlines above.

Table 3 : Overview of MSc Programme Modules.

<table>
<thead>
<tr>
<th>Year 1 Modules</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundamentals of Radiotherapy and Oncology [FRO]</td>
<td>To prepare students with the foundation of academic knowledge with which to build and develop their skills within the clinical environment.</td>
</tr>
<tr>
<td>Clinical Practice (M1)[CP1]</td>
<td>Designed to engage students in the fundamentals of radiotherapy treatment and planning for a range of malignancies. It allows students to engage in clinical practice under supervision, to work towards a series of objectives and clinical practice appraisals designed to ensure competency of practice.</td>
</tr>
<tr>
<td>Radiotherapy and Oncology Practice [RTOP]</td>
<td>Provides a streamlined and synergistic evaluation of disease pathway and treatment technology, with a clear linkage between technology and disease management. At the same time the module will allow the students to foster skills and demonstrate M-level thinking and academic learning and consider cancer management pathway issues.</td>
</tr>
<tr>
<td>Research methodology for Clinical Practice (PSRB pre-registration) [RMCP]</td>
<td>Students gain a critical understanding of a wide breadth of research methodologies delivered in a practical and applied format. Awareness of the management of clinically focused research and audit linked to organisational management and ethical responsibility will be developed in this module and this will link to practice placement experiences.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 2 Modules</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contemporary Radiotherapy and Oncology Studies [CROS]</td>
<td>Develop advanced level critical thinking and application to clinical practice. Recognition of service development and improvement strategies and the management and leadership implications in managing change and responding to national policy agendas.</td>
</tr>
<tr>
<td>Communication skills in Cancer and Palliative care</td>
<td>This module meets the concepts of effective communication and psychosocial mechanisms of care within an oncology setting. The module provides an inter-professional dynamic and fosters an</td>
</tr>
<tr>
<td>[COMM]</td>
<td>advanced level approach to communication skills focused to patient needs and responding to these needs.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td><strong>Clinical Practice (M2) [CP2]</strong></td>
<td>Designed to engage students in the management and advances of radiotherapy treatment and planning for a range of malignancies. It allows students to engage in clinical practice under supervision, to work towards a series of objectives and clinical practice appraisals designed to ensure competency of practice. It is designed to ensure that students will reach the required standard to be eligible for registration with the health Professions Council</td>
</tr>
<tr>
<td><strong>Year 3 Modules</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Dissertation [DISS]</strong></td>
<td>Demonstration of the application of research methodology. Developing independence in tackling and solving problems. The dissertation subject may be in the field of clinical radiotherapy, management and leadership of service, audit of service delivery/national strategy. This module will be run alongside a clinical placement Preceptorship (which will be non-credit bearing) to enable students to collect clinically relevant research and audit information which is focused and relevant to clinical development needs.</td>
</tr>
</tbody>
</table>
Supporting Documentation


Appendix 1: Clinical Placement Capacity Audit BSc (Hons) Radiotherapy & Oncology

THE COLLEGE OF RADIOGRAPHERS

PRACTICE PLACEMENTS

Please submit this form prior to Approval Periodic Review or with a request for approval for an increase in COR approved maximum annual intake and/or new practice placements (details of both existing and proposed new clinical placements should be included).

Education Centre: University of the West of England, Faculty of Health and Life Sciences, Bristol.

Programme: BSc (Hons) Radiotherapy and Oncology

Current College of Radiographers approved maximum annual intake: 27

New Maximum annual intake for which approval is sought: 30

Number of academic radiography staff whose sole or main role is supporting the undergraduate programme: 4.9 VTE

DETAILS OF PRACTICE PLACEMENTS

<table>
<thead>
<tr>
<th>Practice placement/Trust or group of Hospitals, or other provider</th>
<th>Education Provider</th>
<th>Approved maximum number of students per cohort</th>
<th>Approved maximum number of students at any one time</th>
<th>Proposed maximum number of students per cohort</th>
<th>Proposed maximum number of students at any one time</th>
<th>Shared with another Education Facility (Yes or No)</th>
<th>Proposed maximum number of students per placement</th>
<th>Proposed maximum number of placements at any one time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bath Cancer Unit, Royal United Hospital, Bath</td>
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<td>9</td>
<td>18</td>
<td>2</td>
<td>No</td>
<td>3</td>
<td>3</td>
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<tr>
<td>Bristol Haematology and Oncology Centre, University Hospitals, Bristol</td>
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<td>4</td>
<td>4</td>
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<td>7</td>
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<td>Bristol Oncology Centre, Falmouth</td>
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<td>3</td>
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<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Gloucester Oncology Centre, Cheltenham</td>
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<td>3</td>
<td>6</td>
<td>3</td>
<td>No</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Plymouth Oncology Centre, Central East Hospital, Plymouth</td>
<td>112</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>No</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Somerset Centre, Royal Cornwall Hospital, Torre</td>
<td>160</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>No</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Torbay Oncology Unit, Torbay Hospital</td>
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<td>2</td>
<td>2</td>
<td>No</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

*This should include other HEIs providing pre-registration programmes and any provider including practice programme, for those students, radiographers seeking to re-enter practice and overseas radiographers undergoing a period of adaptation.

Signed: .......................... Dated: ..........................
Appendix 2: Clinical Placement Capacity Audit BSc (Hons) Radiotherapy & Oncology

THE COLLEGE OF RADIOGRAPHERS

PRACTICE PLACEMENTS

Please submit this form prior to Approval Periodic Review or with a request for approval for an increase in COR approved maximum annual intake and/or new practice placements (details of both existing and proposed new clinical placements should be included).

Education Centre: University of the West of England, Faculty of Health and Life Sciences, Bristol.
Programme: MSc/Post Grad Dip Radiotherapy and Oncology
Current College of Radiographers approved maximum annual intake: 0
New Maximum annual intake for which approval is sought: 20
Number in WTE of academic radiography staff whose role or main role is supporting the undergraduate programme: 1.9 WTE

DETAILS OF PRACTICE PLACEMENTS

<table>
<thead>
<tr>
<th>Practice placement location</th>
<th>Trustor group of Hospitals</th>
<th>Education Provider</th>
<th>Approved maximum number of students per cohort</th>
<th>Approved maximum number of students at any one time</th>
<th>Proposed maximum number of students per cohort</th>
<th>Proposed maximum number of students at any one time</th>
<th>Signed with another College of Radiographers?</th>
<th>Signed with another Education Provider?</th>
<th>Please give details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southport Hospital, Southport</td>
<td>15</td>
<td>1</td>
<td>2</td>
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<td>2</td>
<td>Yes</td>
<td>Yes</td>
<td>2000.0018</td>
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<tr>
<td>Bristol Haematology and Oncology Centre,</td>
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<td>2</td>
<td>2</td>
<td>Yes</td>
<td>Yes</td>
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</tr>
<tr>
<td>University Hospitals Bristol</td>
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<td></td>
<td></td>
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<td></td>
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<td>2000.0018</td>
</tr>
<tr>
<td>Beacon Centre, Musgrove Park Hospital, Taunton</td>
<td>55</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000.0018</td>
</tr>
<tr>
<td>Cristiano Ronaldo Centre, Huddersfield Royal Infirmary Hospital</td>
<td>80</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000.0018</td>
</tr>
<tr>
<td>Southmead Hospital, Plymouth</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000.0018</td>
</tr>
<tr>
<td>Plymouth Oncology Centre, Southmead Hospital, Plymouth</td>
<td>112</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2000.0018</td>
</tr>
<tr>
<td>Queen's Centre, Royal Cornwall Hospital, Truro</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Torbay Oncology Unit, Torbay Hospital</td>
<td>65</td>
<td>2</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>2000.0018</td>
</tr>
</tbody>
</table>

*This should include other NRES providing pre-registration programmes and any provider, including in-house provision, for frames assistants, radiographers seeking to return to practice and overseas radiographers undergoing a period of assessment.

Signed: ..................................................  Dated: .....................

Approval and Accreditation Department: Society and College of Radiographers 207 Providence Square, Mill Street, London, SE1 2EW Tel: 02077407220 Fax: 02077407233