

THE SCOOP

THE OFFICIAL VIRTUAL NEWSLETTER

December 2021

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Message from the CEO

by Debra Leeves, CEO

2021 has been a rollercoaster of a year for everyone, but amid the pandemic, travel restrictions and finding new ways of working Virtual has gone from strength to strength delivering new products and services to our loyal customers around the world.

In October, we launched VERT 5. User feedback from America to Australia has been tremendous, you have told us what you like about the new features and how you are using the software with your students to inform and teach them in ways you could not do without VERT. A sincere thank you to every reference site who evaluated VERT 5 for us before it was released to you, to ensure it met your needs.

For the second year running we were not able to attend any conferences in person, so we came together virtually in November and had an amazing on-line user meeting where you shared with us, and fellow VERT users, your experiences, and suggestions to get the most from using VERT. The user experiences are always the highlight of the year for me, and it never fails to amaze me the multitude of ways that VERT products are used for teaching. Every year we learn increasingly more from you and what you and your students need.

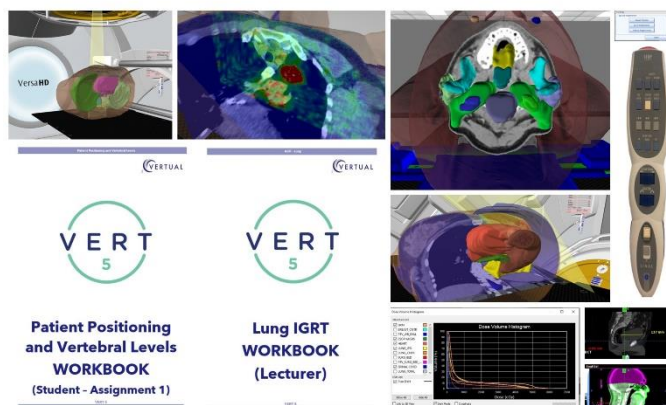
The first Compact VERT systems are now being used at university sites in the USA. This newsletter highlights how one of those systems used at Concord's Community College is helping to educate and train students. More Compact VERT systems have been ordered this year, and soon we will see the first Compact VERT system being used in Scotland.

New colleges and teaching establishments began using VERT for the first-time following installations in Europe, Asia, and North America, and with new distributors partnering with Virtual in South America and Asia we look forward to welcoming new users in the coming year.

I wish you a happy and joyful holiday time with your families and friends, and hope for a healthy New Year for all of us.

VERT 5 update

by Jan Antons, Business Development Manager



Since the VERT 5 release on the 15th of October many customers have upgraded their systems and are using the fantastic new features. VERT 5 email notifications were sent out shortly after the release with detailed instructions how to update. Training sessions took place in late October, and the recording is available.

For ideas and inspiration how to expand your use of VERT, we remind you that recordings of the 2020 student lecture series are available to customers in support on our YouTube channel.

If you would like a copy of the training recording, to progress with the upgrade, or to access the webinars please contact your local representative.

For those customers not in support, please feel free to request the update training video and see what you are missing! If you like what you see and would like to use these latest features, contact us.



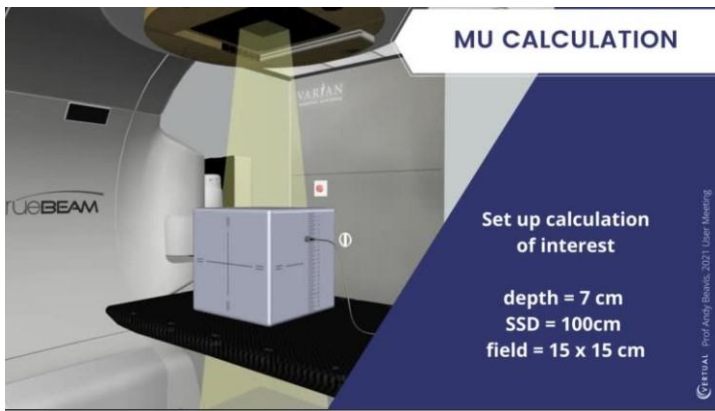
User meeting and MU-Calculator

by Andy Beavis, Chief Scientific Officer

Whilst we hoped to attend ASTRO this year, the remaining travel restrictions 'across the pond' put paid to our plans. This meant, for the second year in the pandemic era, we took the opportunity to host a global on-line user meeting to replace the regional meetings in conference rooms. Personally, I really miss those 'old-fashioned' forums to discuss radiotherapy and how people are putting VERT to great use and hope that we will enjoy them again in the future. However, the Product Specialist Team did a fantastic job in creating and running the meeting and I would like to thank Lindsay, Claire, and Chris for their many hours of work to make it happen.

Having recorded my presentation ahead of schedule, I was able to really enjoy all the presentations and was very appreciative of the information and feedback therein. My presentation was orientated around various 'Physics tool' developments in VERT and I hope it gave some substance to some of the things we have previously spoken about. I would like to thank Lindsay specifically, who did an amazing job editing the material together that we had recorded only the week before.

The support for the IAEA TRS 398 Calibration protocol for MV X-rays and MeV Electron dosimetry is likely of interest to those who have associated training programmes for Physicists, however I wanted to highlight the work we have been doing to make the VERT functionality more transactional in its interactivity. The user interface for this has been the focus of development and we decided to make it comprehensive, adventurous, and rich in functionality. On the basis of making plotting tank measurements, Quality index calculations are made that govern the look up of information/ parameters in the published protocol that are then used to create calibration factors for the ion chambers. The user can make all the required measurements, under all the necessary experimental conditions, including changing ion chamber bias voltages. In general, I intended and hoped it gave a flavour of the software infrastructure we continue to develop for competency practice and assessment in VERT.



The original plotting tank software has been enhanced to allow the plotting of MeV Electron data against the corresponding X-ray and Cobalt data. This has been a popular request for a while and for example now allows the 6MV x-ray depth dose curve to be contrasted with a 6MeV electron curve, as well as the more deeply penetrating higher energy x-ray curves.

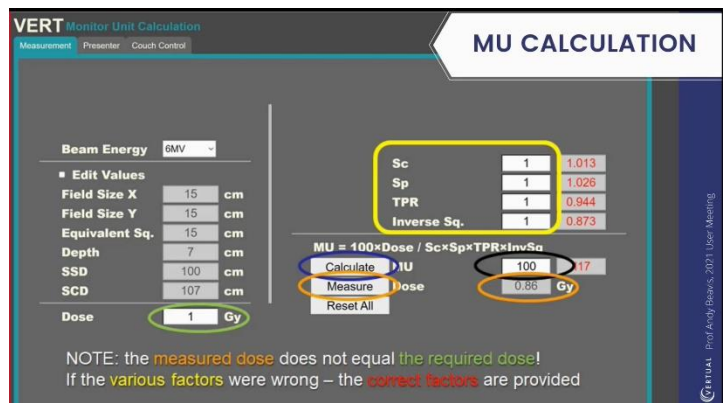
The bulk of the presentation was given to a description of the new MU-Calculator activity which has been added to the 'QA and Dosimetry Module' / original 'Physics' option. To illustrate the above point that we look to use developed infrastructure as much as possible; the basis for this new feature comes from work we did in the illustrated activity. The use and workflow presented at the meeting is summarised here. In the rooms-eye-view a calculation scenario can be set up using the block/ion chamber familiar from the existing 'IonChamber' activity and is intended to be a surrogate for the patient/ prescription point. advanced Physics module around Cobalt exposure calculation errors. The concept came from discussions and my long standing drive to make the 'physics calculations' more accessible and understandable via illustrated activity. The use and workflow presented at the meeting is summarised here. In the rooms-eye-view a calculation scenario can be set up using the block/ion chamber familiar from the existing 'IonChamber' activity and is intended to be a surrogate for the patient/ prescription point. The idea is to explore how many MUs are required to get a specified dose for the chosen irradiation conditions (depth, field size, SSD, and energy), with a visual prompt of the consequences to delivered dose if the calculation is incorrect. The user interface is available via the web browser connection and on its left hand side the 'calculation conditions' are illustrated. Inverse Square factor.

On the right hand side the user enters values for the Collimator/ Phantom Scatter (field size dependent)

factors, the TPR (field size, depth, and energy dependent) and These are used to calculate the number of MUs that they suggest are needed and, via the measure button, the dose delivered to the calculation point is illustrated. If any incorrect values are used then the required and delivered doses will not match, furthermore the correct values are provided and highlighted. These can then be used to help the user confirm the values having relooked them up and therefore reinforcing their confidence that they have understood where/ how to get the values or be used as a tool to carry on learning what they need to do.

The calculational formalism for MU-Calculator is based on a TPR (5cm reference depth) formalism; we welcome your thoughts on this. To support the use of the module, tables of the appropriate scatter factors and TPR values are supplied in the manual in a form that could be printed off and laminated. It would be possible to modify the approach, via internal calculations that would be invisible to the user, to support other formalisms in the future. Likewise, the use of composite 'output factors' could also be supported, and using infrastructure created for the IAEA modules, with appropriate changes to the user interface. As ever we look forward to feedback and news as to how this feature has been adopted into your teaching.

As a long time advocate of the use of VR and Computer Simulation to support and enhance the teaching of (possibly) difficult to learn aspects to promote greater safety and efficiency in clinical practice, I am excited to see how this tool can be used. Of course, we are not done and personally, I very much welcome your thoughts on what tools we can consider adding to VERT to continue to 'demystify the Physics' and make it less daunting to those who struggle and unfortunately often won't admit that to be the case!



Compact VERT USA

Amy VonKadich M. ED, RT(T), Concord's Community College, USA.

After much research and discussion our college made the decision to purchase the Compact VERT system for use in our Radiation Therapy Program. The system arrived in January of this year. Lindsay scheduled a two-day training session for both my Clinical Coordinator and I to begin using the system. Upon training, both of us found the system to be very intuitive and user friendly. With practice I was able to maneuver through the system and immediately incorporate it into the positioning and equipment labs with the students.

With additional support from Lindsay and continuous practice on the system, I am finding more and more uses for the VERT. An integration session onsite allowed me to visualize that VERT can be incorporated into the entire curriculum. This allows the user to supplement theory-based education with hands on experience. With limited access to the hospitals during the COVID pandemic, the VERT system has been a crucial implement to our program, allowing students to work both remotely and in the classroom with the virtual equipment and imaging.

I would say that the biggest advantage to the Compact VERT is the ability to move the system to different rooms for student training. Our program does not have a dedicated classroom and with the Compact VERT we can move the system from the student lab to any classroom that we may be using that day. This brings incredible versatility to the use of the system. I have used the system for both smaller number student classes and larger number student classes and find no difference in presentation ability for either group. I have also been able to accommodate Advisory Board Meetings and college informational sessions in conference rooms throughout the campus.

I have not reached a year of having the Compact VERT system and already find it to be an indispensable part of the didactic portion of our program. I am excited to continue its use in other areas of the curriculum!



Connect with users across the globe...

VERTUAL

LET'S GET CONNECTED

JOIN DISCUSSIONS WITH VERT CUSTOMERS AROUND THE GLOBE

VERT Connect

AVAILABLE NOW

EMAIL INFO@VERTUAL.CO.UK

VERT connect has many discussion threads including general, anatomy, assessments, dosimetry and physics, patient education, tips and tricks, treatment procedures and critical thinking.

Contact us for more information if you want to join.

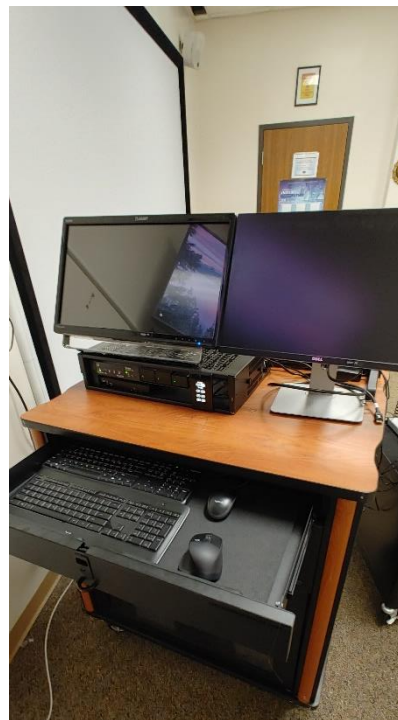
VERT Upgrade Delgado

Robin L. Wegener, M.S., R.T.(R)(T)(ARRT),
Delgado Community College, USA.

When I initially started teaching radiation therapy, I had dreamed of an instrument like VERT to educate my students. I never imagined that it would be so “to scale” and with specific details from each machine vendor. My first VERT simulator was installed at the college in 2012. At the time, we had the third system in the United States, and it was the only seminar VERT with tracking. The system included two desktops, many sets of 3D goggles requiring batteries, an air mouse, and countless wires. After about a year, we added VERT physics and the Varian TrueBeam when it was available. With each new software upgrade, Vertual added new features as requested by its customers. Annually, in conjunction with the ASRT meeting, I would attend the VERT user’s meeting and always learned about newly developed components and even many attributes I had not caught on to yet.

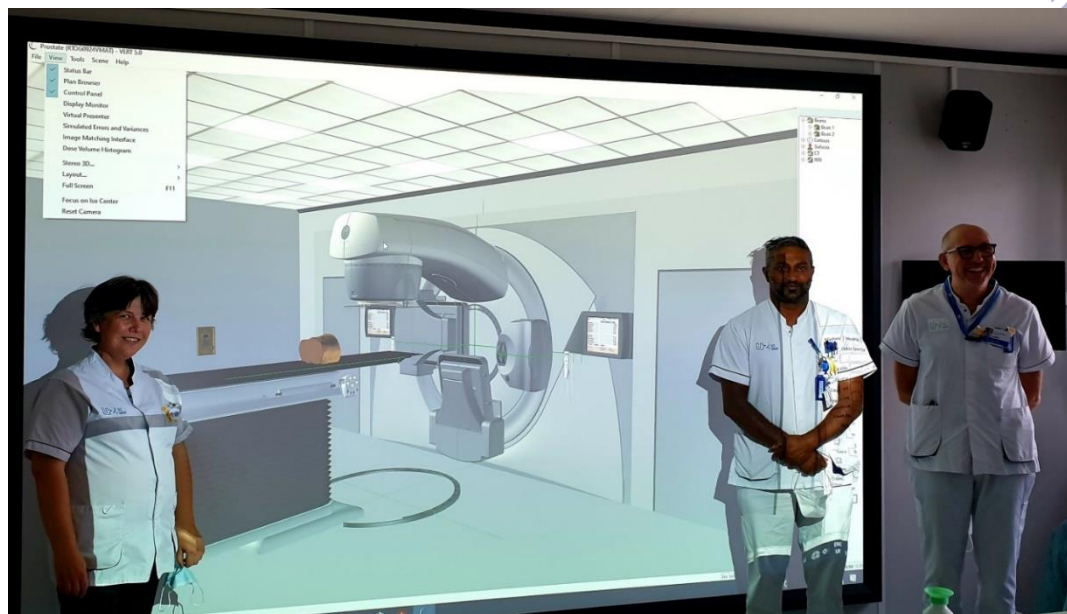
In early 2020, I realized the desktop computers needed to be upgraded. Since we had the system for so long, many technological advancements had been made during that time. So, instead of getting merely two new desktops, the system was upgraded from analog to digital. In August of 2021, our VERT upgrade install was complete with all new components that fit conveniently in a large rolling podium. The 3D goggles came with a charging station so there is no need for batteries and even the air mouse can be charged on the same station. Just this week, our students completed their final clinical project which requires presenting their patient using VERT and discussing all aspects of their treatment.

As part of the preparation, I meet individually with each student once their DICOM plan is imported. I jumped right into the newly downloaded VERT 5 and learned something new with each case study. I was able to demonstrate a breast patient with the new Orfit accessory, I had my first patient with a PET CT fusion, and a DVH demonstration using VERT. I am looking forward to learning more about VERT 5 and using the many expanded features with my new cohort in the spring.



The implementation of VERT in Flanders / Belgium

Caroline De Cleene, Wendy De Vos, Ludwig Van den Berghe and Ramesh Van Geeteruyen.
Ghent, Belgium.



The university hospital of Ghent (Belgium) has invested this year in the purchase of the VERT. We can be proud that we are the first hospital in Flanders/Belgium to have purchased the installed Seminar system.

After an online course in February of this year, we received additional onsite training in the department during the week of November. Many VERT tools could be practiced in a smooth way, and the experience was very useful.

Since the treatment of radiotherapy in Belgium is only administered by nurses or technologists in Medical Imaging/Radiotherapy, training is very crucial. We have been experiencing a major problem for many years in relation to training. Nurses are not trained in radiotherapy during their four-year bachelor's degree. Radiotherapy is taught in the workplace and during working hours. In a context of continuous evolution in techniques and imaging, this is a very complex issue. The principle of train-the trainer is good, but we think basic training in radiotherapy is necessary as a starting point. We do our best to properly train our employees through many additional training courses and teaching packages, but this is a difficult process.

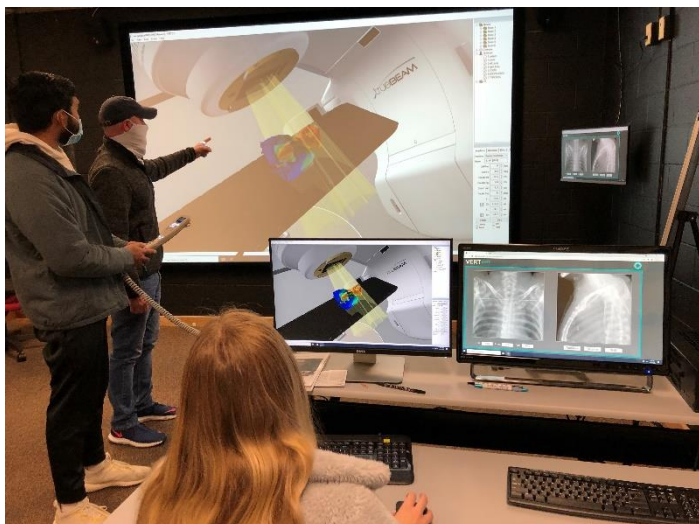
VERT can help us greatly with the educational support of the teaching programs. In the first instance, we drew up a basic program to quickly explain the VERT system and its possibilities to colleagues, patients and interested parties. With the tools we learned last week, we are now able to create separate lesson programs and link them to the different topics within radiotherapy. In our department, four RTTs from the team are working out with their clinical time to establish VERT into our own training program. In the long term, we also want to collaborate with other institutions and schools.

We will also use the virtual environment in the transition that our service will undergo in the coming years. All our linear accelerators are being replaced, which is an immense challenge. VERT will support us in mastering the new tools in a very targeted way by means of teaching packages.

Our heartfelt thanks to the entire VERTICAL team.

VERT 5 at Bellarmine University

Carol Scherbak, M.S.R.S., R.T.(T), Bellarmine University, USA.



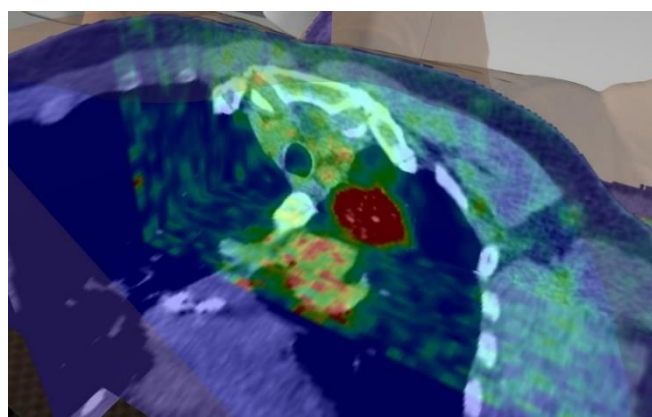
This year, 2021, has been very exciting for the Bellarmine University Radiation Therapy Program since we completed a full hardware upgrade on our nine year old VERT and a VERT 5 software upgrade. Now, we are looking forward to exploring using the VERT for a national board exam review.

We use the VERT across the curriculum, in every course, including student projects such as presentations, case studies and research. Expanding the use of the VERT from what we currently do, to what we want can be a bit challenging mainly due to time constraints. As program director, I teach 4 courses per semester (fall and spring, only one in the summer) besides my other faculty requirements such as service and scholarship, and programmatic accreditation. With such a busy schedule, it is imperative to create a strategic plan to implement the VERT in a logical way over time. I find that by breaking down where I want to go into small pieces makes getting the work completed more attainable.

We currently have a review course for the national board exam but feel it could be greatly improved by incorporating additional VERT material. Students learn in a variety of ways but they all want more time on the VERT! Right now, I am creating VERT games - the memory game, Bingo and Team play.

Patient scenarios can now be developed to further test students' knowledge between set up and internal dose distribution by incorporating the plan comparison, recalculated DVH's and set up variations. Challenging the students' ability to synthesize previously learned material with new scenarios is my goal with the new VERT 5 developments.

We prefer that the students work as a team to mirror clinical practice when completing assignments on the VERT, one runs the console (VERT computer) and the other two work on patient set up. They often will switch roles during the assignment. Right now, I am adding additional treatment planning concepts using the Plan Comparison and recalculated DVH's. I have created scenarios with the virtual presenter, where the patient is misaligned. Students then review the dose distribution, DVH and both plans. This method allows the students to visualize clearly the discrepancies in dose to the target, OAR's and normal tissue and the impact differing treatment techniques can have on dose distribution. Describing treatment QA and how it differs from 4 field box, IMRT, VMAT and SBRT is easy to demonstrate with this technique. Students will troubleshoot the scenario and make corrections as necessary. Afterwards, they debrief each other, with instructor input, to solidify learned concepts and to critically think in a practical clinical manner. The ability for students to see these internal changes with dose is invaluable for their growth as a radiation therapist and it allows to reinforce didactic material from across the curriculum. I look forward to exploring more with VERT 5!





Proton VERT news

by Jan Antons, Business Development Manager

Several exciting features have been added to Proton VERT with the release of VERT 5. These include but are not limited to, pendant presets for the Varian ProBeam machine and support for the in room monitor, and range shifter for IBA Proteus One.

VERT now displays the Nominal Beam Energy in MeV for every Layer of a Proton Beam. The accuracy of the Proton spot depth calculations has been improved. A warning is displayed when the gantry movement is locked due to the snout being extended.

If a beam is undeliverable due to the snout position being outside the valid range for the current treatment machine VERT will highlight the beam to warn it cannot be delivered.

Proton treatment plans are being sought in collaboration with an external partner and we will update further when we have more news. Proton VERT is a purchasable upgrade. To find out more, for a quote, or to book a demonstration, please contact your local representative.



Festive holidays

Vertual's team will be taking a well-deserved break for the Christmas holidays. Our offices will be closed from the 24th of December to the 4th of January.

Vertual is on the move!

Vertual has moved. Our new office address is:

Building No 1 @TheDock
31-38 Queen Street
Hull
HU1 1UU

Our phone number and email addresses remain unchanged.

Phone +44 (0) 1482 22 16 16

support@vertual.co.uk for all support enquiries and
sales@vertual.co.uk for all sales enquiries.

