

Appendix 4

**Detailed
Project Description**

Detailed Project Description

The Project: The proposed development of several core courses for numerous health sciences certificate programs, in partnership with the University of Dayton's School of Education and Health Sciences, is similarly focused on STEM career pathways within the health sciences field. These certificate courses and hands-on lab components are designed to capitalize on students' interests and build on what they already know. This way, students are engaged in the practices of science, technology, engineering and mathematics. This level and type of engagement follows the National Research Council's Framework for K-12 Science Educationⁱ. As well, the proposed certificate programs will be stackable; Title IV eligible; and, following the successful completion of a certificate program, students will complete nationally-accredited certification exams.

During this **first phase** (January through September 2014) of the proposed project, the team will be completing the following tasks:

Task 1: Using the Post-Secondary Education Option (PSEO), option B, to **pilot**, starting in January 2014:

- (a) The online offering of HSS 295 Nutrition and Health and New Course: Dosage Calculations for Healthcare Professionals; and
- (b) The simulation-based medical education (SBME) and Food Sciences mobile classrooms.

Task 2: Develop six additional courses that are core courses in numerous health sciences certificate and degree programs. The proposed courses for development include:

- HSS 226 Computer Applications in Sports Science;
- HSS 111 Introduction to Sports Management;
- HSS 210 Introduction to Foods;
- HSS 210 Lab;
- HSS 250 Principles of Sport Management; and,
- TBD.

All proposed courses will be developed and designed to be certified by Quality Matters. The Quality Matters Rubric (www.qualitymatters.org/rubric) is updated regularly based on the most current research, instructional design principles, and best practices. The courses will also comply with Universal Design principles to facility ADA accessibility. These courses will be offered to PAOH students starting in Fall 2014. All courses will have a built in student assessment system that dis-aggregates student performances across the full spectrum of achievement which allows the team to pinpoint not only where students are struggling but also where students could be challenged more. Each course is embedded in secondary-level coursework and builds the bridge for students to move seamlessly into college level work.

Task 3: Complete the market analysis to determine the best certificate programs to pursue development of for the next phase of this project.

Task 1: Using the Post-Secondary Education Option (PSEO), option B, to pilot, starting in January 2014:

- (a) The online offering of HSS 295 Nutrition and Health and New Course: Dosage Calculations for Healthcare Professionals; and**
- (b) The simulation-based medical education (SBME) and Food Sciences mobile classrooms.**

Prerequisites

PAOH has recruited approximately 75 students for consideration to participate in the pilot. They represent 25 students in the 12th grade; 33 students in the 11th grade; and 18 students in the 10th grade. In order for a student to participate in the pilot, they would need to have a teacher recommendation and have completed Algebra I, and a science class with a passing grade.

(a) The online offering of HSS 295 Nutrition and Health and New Course: Dosage Calculations for Healthcare Professionals

The UD development team will administer pre-tests for content knowledge in the piloted courses and will collect data regarding (i) the level of remediation required for each section of each course via student performances on embedded quizzes and other mini assessments; and (ii) presentation style associated with each section of the course.

Some students may be challenged by these certificate courses and thus require remediation in order to succeed; while, others may not be challenged enough which can cause a student to dis-identify with academics. The certificate courses will include a comprehensive evaluation component for tracking student performance across the entire spectrum of learning from extremely-low to extremely-high performances. This tracking system, built into the University of Dayton's (UD) Learning Management System (LMS) or Sakai as it is commonly referred to, will automatically customize each student's learning experience based on quizzes and other mini-assessments that are embedded in the online course materials and given at regular intervals.

As a result, students' academic performance will not only be tracked but the data collected can be disaggregated along the full learning continuum to inform student instruction and content delivery. Sakai will track the number of remediation attempts students complete before passing each embedded quiz or mini-assessment. For example, if a student does not pass after five attempts they will be notified immediately [by Sakai] that the course instructor will be contacting them to schedule instructor-led remediation. This feature ensures that students performing between mid-level and lower-end of the achievement spectrum access and receive academic support from course instructors based on their individual learning needs.

During the implementation of the two pilot courses, the team will be able to analyze student achievement through progress monitoring for both remediation and acceleration. The project's goal is for 80% of the students to proceed through the courses without the need for instructor-led

remediation. The team is prepared to accept that 1% to 5% of students participating in the classes may require intensive remediation and several may never be successful.

The team will also collect student and course data to pinpoint sections within each course that are either supporting student learning or need revision to increase student learning. The lessons gleaned from the usability testing data from the two pilot courses offered in January 2014, will be used to inform the development of the subsequent six certificate courses. The development team may revise the course materials in response to the student usability data. The course content cannot be made less rigorous so revisions will include changing presentation style to accommodate more learning preferences, different chunking of information, and others. We will provide remediation for students who struggle with the coursework.

The team's approach to course development utilizes the cycle of analysis, design, development, implementation, evaluation, and revision. While the UD course development team has a vast amount of experience in designing and delivering online courses, they also want to remain flexible and open to emerging ideas as new evidence becomes available and as they teach these college-level certificate courses to online high school students.

After administering post-tests, the development team will calculate gain scores, which will be used as a way to control for different baseline levels of content knowledge between students when assessing student learning in response to an intervention. However, a final level of mastery must be met regardless of how much a student gains during the course.

(b) The simulation-based medical education (SBME) and Food Sciences mobile classrooms

The development team will also pilot test the simulation based medical education (SMBE) and the Food Sciences mobile classrooms and collect usability data from the mobile classroom sessions. The associated lessons developed for the mobile classroom sessions will operationalize two levels of remediation as feedback and remediation that is programmed into the lessons as a standard of the learning process followed by instructor-led remediation to help low-performing students succeed.

The development team's goal is for 80% of the students to proceed through the simulation course without requiring intervention. We are prepared to accept that 1% to 5% of the students may require intensive remediation and several may never be successful.

The simulation-based medical education (SBME) mobile classroom

The hands-on simulation-based medical education (SBME) mobile classroom allow the team to utilize a training method where students practice tasks and processes in simulated "real-world" settings with immediate feedback resulting in improved skills. Piloting the SMBE mobile classroom will serve several purposes:

1. The SBME mobile classroom provides hands-on experiences for students learning how to respond in medical situations that range from routine monitoring of vitals to emergencies without having to involve real patients. It will also allow students to review and practice procedures and skills as often as required to reach proficiency without harming patients.

Students will be able to practice life-saving skills multiple times as the SBME mannequin has programmed responses that depend on student inputs. If students respond with the correct inputs, the simulation continues and the mannequin responds favorably. If not, the SBME patient responds negatively. As a result, students learn technical and manual skills as well as clinical reasoning and higher order decision making.

2. The SBME mobile classroom will be dispatched to learning centers in Dayton, Columbus, Cleveland and other areas, making it possible for online students across the state to travel to central meeting points for intensive, hand-on training.
3. The SBME mobile classroom experiences will be recorded to demonstrate educational lessons that can be accessed by other online students. The team will develop case studies for students to solve complex cases in teams, while collaborating remotely.

Unlike in the “real-world” clinical environment, students will be allowed to perform a task incorrectly and learn from the consequences of their actions until they have achieved mastery of that skill using the SBME mobile classroom.

Once again, intervention/remediation and acceleration can be addressed immediately and students receive appropriate academic support from course instructors based on their individual learning needs.

Only students who cannot achieve skill mastery using the simulated remediation will be referred for instructor-led remediation. This feature is critical to maximizing high school graduation and matriculation rates.

Laerdal’s SimMan 3G Mannequin

SimMan 3G is the next generation simulation solution that is completely wireless and self-contained, technically advanced and easy to use; there is no patient simulator to rival it. SimMan 3G’s intuitive software interfaced with three flexible operating modes, enables novice and expert instructors to create effective simulations more simply and quickly than ever before. A complete description of SimMan following the end of this description.

Food Sciences Mobile Classroom

The Mobile Food Sciences classroom will also increase student achievement and career readiness for online high school students statewide. This resource will provide students with access to a state-of-the-art industrial Food Sciences kitchen and laboratory for training and skills development in certificate courses required for careers in hospitality, food management, and dietetics. Piloting the Food Sciences mobile classroom will serve several purposes:

1. The Food Sciences mobile classroom also provides hands-on experiences for student learning about the technological infrastructure supporting modern industrial kitchens and food laboratories. It will also show students, first-hand, the whole system view of food sciences from the roots in the dirt to the safe processing, sanitary preparation, nutritional quality, and aesthetic value of food.

Students will also have the ability to travel with the Food Sciences mobile classroom to visit local farms and farmers market, experiencing the entirety of the food system and to better understand the “Farm to Table” movement; dieticians at local health facilities; chefs and staff at area restaurants; and state departments of agriculture and food safety. Students will gain valuable knowledge and hone their skills for careers in the Food Sciences sector.

2. The Food Sciences mobile classroom will be dispatched to learning centers in Dayton, Columbus, Cleveland and other areas, making it possible for online students across the state to travel to central meeting points for intensive, hand-on training.
3. The Food Sciences mobile classroom experiences will be recorded to demonstrate educational lessons that can be accessed by other online students. The team will develop case studies for students to solve complex cases in teams, while collaborating remotely.

Students will engage in hands-on learning experiences in this institution quality kitchen and lab, while demonstrating competency in cooking techniques, food safety, and preparation. Students will engage in high technological training that occurs in modern industrial kitchens and food laboratories. Students will also learn to operate audiovisual equipment such as a video recorder so they can record lectures and demos in the current lab to add to the program’s online lecture database and/or to offer the online lab.

The Mobile Food Sciences lab will meet the students at their specified location and give them a head start on their experiences similar only to those achieved at a post-secondary level. The Food Sciences mobile classroom and will create equal opportunities in the online learning format, as all students will partake in the same experiences and have access to the same resources. Students in other online experiential formats often have to create their own individual experiences, but can come across significant barriers to do so. Students in urban and rural settings may have limited financial resources, transportation, and connections to be able to create the amount of engaging experiences presented by the Food Sciences mobile classroom.

The Mobile Food Sciences classroom also provides students with the whole system view of food science, including the partnerships and industries associated with careers in food science. Students will work on their dual enrollment course requirements while simultaneously career shadowing the multiple professionals that work in food science fields. Students will be able to ascertain the vast array of opportunities that come with further education or a career in food science. Students will also be able to network with the various professionals in order to obtain internships or job positions in the future as a part of their education or careers. The Food Sciences mobile classroom could create community partnerships and individual mentorships that other online high schools are missing as a part of their learning programs, thus creating more building blocks to career success and student achievement.

Students will also have the ability to travel with the Mobile Food Sciences classroom to local farms and farmers market, experiencing the entirety of the food system, partaking in the “Farm to Table” movement. Students will be able to understand first-hand, the science of food from the roots in the dirt to the safe processing, sanitary preparation, and nutritional quality and aesthetic value in consuming such food. The Food Sciences mobile classroom could also visit dieticians at local health facilities, chefs and staff at area restaurants, and state departments of food safety and agriculture. The students will also perform cooking demos within the communities as service learning projects as part of their class assignments. These cooking demos could include venues such as health fairs and farmer’s markets, where students will practice their skills, communicate their knowledge, and establish the professionalism required of both career and higher education paths, all while simultaneously giving back to their community. Students will obtain an identity of independent professionals, by gaining information and reciprocating it to others as a part of their educational program.

Summary Thought

According to the development team’s research findings, there are no experiential online learning programs similar to this proposed grant application for high school students. Experiential learning programs available are in a traditional brick and mortar setting and the resources are stationary. There are also online learning programs available that challenge their students to create their own experiences. Our proposal is unique in that the experiences can commute to online learners via the SBME and Food Sciences mobile classrooms making training and skills development readily available to all students.

Task 2: Develop six additional courses that are core courses in numerous health sciences certificate and degree programs. The proposed courses for development include:

- **HSS 226 Computer Applications in Sports Science**
- **HSS 111 Introduction to Sports Management**
- **HSS 210 Introduction to Foods**
- **HSS 210 Lab**
- **HSS 250 Principles of Sport Management, and**
- **TBD**

As with the piloted certificate courses, the development team will use the basic instructional design steps that include: analysis, design, development, implementation, evaluation, revision, and the process repeats, for developing these courses. The UD faculty developers are experienced online educators as such, we do not anticipate a significant learning curve related to the online learning format. We expect these courses to challenge students. Therefore, it is imperative for PSEO students to complete them successfully. The curriculum for these classes will be designed at the level of first-year health science college courses.

The courses will include a comprehensive evaluation component for tracking student performance. This tracking system, built into UD's Learning Management System (LMS) or Sakai as it is commonly referred to. This is an advantage of the online environment over traditional face to face instruction. Remediation comes at two levels: first as a standard of the learning process and second as a final measure to help the marginal student succeed. In support of the first level of remediation, we will embed short quizzes in the course, at very regular intervals that students must pass in order to proceed through each section of the course materials. The quizzes will be attached to question pools and we will select settings in Sakai so that if a student does not pass the quiz on the first try, the student will be asked how long he/she would like to wait to re-try the quiz. The student self-assesses the wait time he/she may need to self-remediate and study the preceding course material. At the student's discretion, another quiz will pop up. This quiz will be comprised of a different set of questions that are randomly-generated from a pool of questions that we will populate with quiz questions. The quiz settings can assure each quiz is comprised of questions at the same level of learning as the original quiz.

Sakai will track the number of remediation attempts that are required for the student to pass each embedded quiz. In support of the second level of remediation, students who have not passed a quiz on five attempts will automatically be identified and a message will be automatically sent the course instructor and student noting that the student will be contacted by the instructor to set up instructor-led remediation. This feature will allow us to identify students who are performing between the mid-level (75%) and lower-end of the achievement spectrum for a particular group of students. The quizzes will be programmed to provide feedback, encouragement for partial successes and directions for what content areas to remediate based on which questions are missed. Our goal is for 80% of the students to proceed through the courses without requiring instructor-led remediation. We are prepared to accept that 1% - 5% of the students may require intensive remediation and several may never be successful.

This same quiz feature will allow the development team to identify students who are performing from the mid-level to the upper end of the achievement spectrum. Students who pass a quiz on the first attempt will be given another question set that is at a slightly higher level of difficulty. This process will repeat for a total of five quizzes. Between these two features (remediation and acceleration) we will be able to disaggregate the range of student achievement along a continuum. This information will be generated for every section of every course so we can pinpoint sections of each course that are supporting student learning and those that need revision to increase student learning.

The courses will also be designed to isolate student learning outcomes according to different information presentation styles. We do not plan to build courses that contain large quantities of online text. Our goal will be to design learning scenarios that engage the students and appeal to different learning preferences. This goal can best be accomplished by utilizing multiple instructional strategies like those that support visual/nonverbal and auditory/verbal. These two learning styles focus more on listening, or the use of graphics or diagrams to represent information compared to simple text. We will experiment with different lengths of lessons to determine if there is a particular chunking of information that facilitates student learning.

The development team will administer post-tests to calculate gain scores, which will be used as a way to control for different baseline levels of content knowledge between students when assessing student learning in response to an intervention. However, a final level of mastery must be met regardless of how much a student gains during the course.

Technology Support for Tasks 1 and 2:

PAOH students will be able to access the two courses offered under Task 1 through Sakai, the University of Dayton's (UD) Learning Management System (LMS). Additionally, to monitor the originality of students' work, UD will provide Turnitin.com. Turnitin.com is an internet-based plagiarism detection service used to compare student submissions with millions of web pages and papers in its database (i.e., submissions from other students, in other courses, and at other universities). This is a very effective tool for detecting plagiarized work, and as such will serve as a reasonable way to ensure the integrity of the grades earned by all students.

UD will also provide technical assistance and support to PAOH students and faculty and has a centralized support system for online students from the Ryan Harris Learning and Teaching Center and the UD Information Technology (UDIT) Department. Both resources have help desks that students and instructors can access via email and phone. Technicians and learning specialists are available to help students with hardware, software, and online learning issues. In addition to these two resources, the School of Education and Health Sciences (SEHS) has an online course development and support laboratory that is staffed by a full-time instructional technologist, numerous graduate student workers, and a Director. The SEHS staff also provides support for SEHS online learners and faculty. The student workers are upper classmen with both technology and content expertise; and they assist both in course development as well as student and teacher support in the SEHS online community.

The team will gather evidence during this First Phase so they can use any of the usability, feasibility, and pilot testing data to inform the development of the six core courses under Task 2. The team also plans to re-evaluate and, if needed, modify the UD's support services as indicated in the pilot phase. Additionally, the team's extensive experience with nontraditional students will further serve to inform any changes made to UD's support for online learners who may potentially have different needs compared to the students traditionally served by the university. The only time UD does not provide live support for online learners is overnight (11 pm to 8 am). However, even during the overnight hours, calls that are placed to UDIT's help desk are redirected to a 24 hour service so students and faculty can always reach a live person. This overnight service is mostly reserved for large scale outages.

The standard Sakai software includes many of the features common to all course management systems, including document distribution, a gradebook, discussion, live chat, assignment uploads, and online testing. In addition to the course management features, Sakai is an excellent collaborative environment and its Collaboration and Teaching Tools include:

- Announcements - used to inform site participants about current items of interest
- Drop Box - allows instructors and students to share documents in a private folder
- Email Archive - all messages are stored in the Email Archive
- Resources - share many kinds of material securely, or make them available to the public
- Chat Room - for real-time, unstructured conversations among site participants
- Forums - instructors or site leaders use to create unlimited discussion forums
- Message Center - allows site participants to communicate using internal course mail
- News/RSS - uses RSS to bring dynamic news to your worksite
- Poll tool - allows users to set up an online vote for site participants
- Presentation - allows you to present a set of slides to many viewers
- Profile/Roster - view the names, photos, and profiles of site participants
- Repository Search - search content created by tools within a worksite or course
- Schedule - allows instructors or site organizers to post items in a calendar format
- Assignments
- Grade book
- Module Editor
- QTI Authoring
- QTI Assessment
- Section Management
- Syllabus

Portfolio tools:

- Forms
- Evaluations
- Glossary
- Matrices
- Layouts
- Templates

- Reports
- Wizards
- Search
- Web Content
- WebDAV
- Wiki
- Site Setup
- MySakai Widgets

In addition to the Sakai learning tools, UD supports Blackboard's Collaborate as a synchronous online learning tool. Collaborate is used to host virtual lectures and meetings; share PowerPoint slides; draw on a virtual whiteboard; talk to other participants via text or voice; and ask polling questions. Collaborate will be used by instructors to meet with students who require instructor-led remediation. Lectures and meetings can also be recorded so that anyone who misses the live session can view it at another time.

UD's E-Learning Lab also provides a full complement of online learning resources. One expanded example is provided below. Each underlined item is a link to a full resource for the service noted.

Accessibility information

This page is provided for persons using adaptive technology.

- Known accessibility issues
- General tips and tricks for navigation using adaptive technology
 - Access keys
 - Miscellaneous navigation tips for non-mouse users
 - Additional navigation tips for screen-reader users
- Settings for recommended screen readers
 - Recommended screen readers
 - How to configure JAWS and Window-Eyes settings
 - JAWS
 - Window-Eyes
 - Recommended screen reader settings by page element
 - Headings
 - Screen refresh
 - Graphics announced by title attributes
 - Links announced by title attributes
 - Summary of recommended JAWS settings
 - Summary of recommended Window-Eyes settings
- Accessibility compliance

Task 3: Complete the market analysis to determine the best certificate programs to pursue development of for the next phase of this project.

UD has been conducting a market analysis to determine what Health Science certificate programs to add to the university's offerings. We have always had a Department of Health and Sport Science that is comprised largely of undergraduate bachelor degree programs. More recently we started adding professional programs in the health care fields with a Doctor of Physical Therapy program in 2006. Our new Physician Assistant program will enroll its first cohort of students in Fall 2014.

The recent steps in our market analysis have included:

July 2012: UD formed a Health Science Task Force comprised of the Dean of the School of Education and Health Sciences (SEHS); Vice Provost of Research; Associate Dean of Health Sciences; UD Health Center physician; Professors from Biology, Physical Therapy, Pre-Med and Health and Sport Science. The Task Force's charge was to review the supply and demand for health care-related programs and career projections. The task force approach and timeline included:

- Brainstorm potential programs July –October 2012;
- Establish a short list of programs and criteria for evaluation by November 2012;
- Collect relevant data on specific programs by January 2013;
- Conduct faculty forum consultations by February 2013;
- Draft recommendations with rationale by March 2013;
- Review and revise recommendations based on market updates by April 2013;

In June 2013, the task force made recommendations to the UD Provost regarding programs UD should and should not consider adding. The report included strategies, benefits, and challenges for each.

From June 2013 – Present: The development team has observed that the market is constantly evolving and courses must be continuously updated. Dr. Brahler completed a systematic review of over 100 current governmental and research reports regarding market trends in the workplace and higher education. **The results revealed a mismatch between the demand and supply for health care workers with at least some college education.**

October 2013: Dr. Brahler consulted with Health and Sport Science (HSS) faculty who teach in programs that have high projected career growth potential about the opportunity to participate with Provost Academy of Ohio in the Straight A project. The HSS faculty and Dr. Brahler propose to teach classes in their areas of content expertise as PSEO classes to introduce high school students to numerous health science career options.

The faculty agreed that high school students, who are completing their education mostly online, will require experiential, hands on activities if they are to be successfully introduced to and trained for health science careers. The faculty will complete the market analysis during the funded period to decide which health science certificate programs should be pursued based on supply and demand but also based on student interest and success with the courses that are proposed in the current project.

REFERENCES

ⁱ National Research Council, Committee on a Conceptual Framework for New K-12 Science Education Standards. (2011). *A Framework for K-12 Science Education*.



Laerdal

helping save lives



SimMan 3G

Simulation Achieving Quality



Patient Care

At Laerdal, we believe that simulation training for Healthcare Professionals is pivotal in our common goal to improve patient outcomes.

Simulation provides the opportunity to train staff without risk to patients. The ability to frequently practice and manage complex medical scenarios, helps to prevent medical errors, while detailed feedback promotes discussion and re-enforces the learning process. Simulation will enable your staff to deliver quality patient care with integrity, consistency and confidence.

Laerdal has had five decades of experience creating medical educational products for use by Healthcare Professionals. It is a history and association of which we are proud.

SimMan 3G is the next generation of Laerdal simulation. SimMan 3G is a groundbreaking simulation solution. Completely wireless and self-contained, technically advanced and yet so easy to use; there is no patient simulator to rival it.

Your
Needs

Imagine the training benefits of running a complete and continuous medical scenario from the moment of patient injury, at any location, through the challenges of patient transportation and concluding in a hospital; all realistically facilitated by a single patient simulator.



Completely wireless and self-contained, simulation training need no longer be compromised by location and equipment constraints.

Designed using the most cutting-edge technology, SimMan 3G opens up numerous simulation possibilities for variable locations and mobility. Easy to program, operate and transport; all aspects of medical training can now be challenged simultaneously and gradient levels of difficulty can be applied to each scenario to build student competence. SimMan 3G is compatible with SimView, which provides comprehensive debriefing support for quality feedback and effective learning.

SimMan 3G

... leading the way forward.

Making Simulation Easier

- to use

SimMan 3G's intuitive software interfaced with three flexible operating modes, enables novice and expert instructors to create effective simulations more simply and quickly than ever before.

- to operate

Whether you are new to simulation training or just need a quick set up solution, the **Automode** feature is revolutionary in facilitating the most automatic way to operate **SimMan 3G**. It combines physiological models, pre-programmed patient cases and an innovative method for managing model based simulation. Instructors can now take advantage of pre-programmed pharmacological responses for over 149 drugs and devices, repeatedly run the most complex cases with ease and adapt difficulties to challenge the skills of every student.

- to teach

The new improved **Instructor Mode** has been designed for instructors who like to combine their knowledge and skills with pre-programmed scenarios. Utilizing **Instructor Mode On The Fly** gives the more experienced simulation instructor the flexibility to digress at any time. The instructor can now initiate challenges responsively to the needs of each student at any given moment without compromising the flow of the simulation. Exciting features of the Instructor Mode include easy access to the most important vital signs and a new Graphical User Interface (GUI) that makes navigation through the scenario straightforward and effortless.



Helping you succeed

Laerdal is dedicated to helping you meet and exceed your educational goals. From simulators and scenarios to installation and training; our products and services are designed to help you achieve the optimal training environment with the most realistic outcome possible.



More than a Patient Simulator

SimMan 3G not only operates remotely but can also wirelessly integrate with your existing computer networks. It integrates fully with the complete 'Circle of Learning' intrinsic to all Laerdal products. Video debriefing, patient monitoring, pre-packaged patient cases and scenarios and SimView are just some of the accessories that make **SimMan 3G** a complete simulation solution.

Education to help maximise your return

SimMan 3G is available with a comprehensive range of products and services. These include an instructor-training programme from one of our product training specialists either at your location or at our fully equipped Laerdal Training Centre. Additional professional services include advanced programming courses, customised refresher training courses and scenario development services.

Protecting Your Investment

While our simulators are recognised for their quality and reliability, for that extra peace of mind, we also offer technical support services that make it easier for you to own, operate and maintain your programmes including preventative maintenance programmes, extended warranties and an optional Laerdal On-Site Service with our field service technician.

- to programme

SimMan 3G's powerful scenario editing capability is built on the tried and tested SimMan software including the same flow diagrams, trends, handlers and events. Scenario writing and validation is simple to learn. Once a custom simulation is prepared, it behaves exactly as the instructor needs time after time so that every student can train in the same standardised way. The software can even include images, sounds and multi-media graphics to enhance the learning of students.

SimMan 3G

... leading the way forward.

SimMan 3G Built to last

Since the launch of Resusci Anne in 1960, Laerdal's lifelike manikins and patient simulators have helped to train an estimated 300 million medical professionals and lay responders around the world to save lives and improve patient outcomes.

Today, Laerdal is internationally renowned for products that not only go beyond user expectations but work well beyond their normal expected life.

SimMan 3G is a testimony to this tradition. It has been designed to withstand use in the harshest of environments to create realistic scenarios.



SimView

Improved learning with quality debriefing

The ability to debrief is a critical component of any simulation based Education program. Debriefing helps instructors to review the learners' performance and assess whether the learning objectives have been met.

As with all of Laerdal's simulators, SimMan 3G can be fully integrated with SimView™, Laerdal's video capture and debriefing solution. SimView captures details of student performance within simulations, and compiles the audio, video, patient monitor information and event log data to form a comprehensive debrief file.

SimView can also be integrated to your network to enable debriefing to take place wherever you choose and also allows simulations to be viewed throughout your facility.

Contact your Laerdal representative to learn more about SimView and how to best configure the SimView solution in your facility.

Quality Debriefing



Quality CPR Feedback

Laerdal's Q-CPR technology measures the quality of CPR providing real time feedback on compression rate, depth, release, and hands-off time as well as generating palpable pulses, blood pressure wave forms and ECG artefacts.



Convulsions

Degrees of seizures and convulsions can be created from minor effect through to a full convulsion through the Instructor Mode.



Bleeding and Wounds

Wound models can be connected to an internal blood reservoir which will bleed both from arterial and venous vessels. Connected to the simulator's physiological modelling, SimMan 3G will react appropriately according to treatment.



Wireless Monitor

Part of the complete wireless simulation solution, the wireless monitor enables you to observe the patient simulator's vital signs while moving around freely during training.



Secretions

The eye secretions feature has multiple scenario applications such as responsive reactions to chemical, biological, radiological and nuclear agents.



Drug & Event Recognition

The advanced Drug Recognition System allows students to administer drugs simultaneously. It registers the amount, speed and type of drug automatically and applies the appropriate physiological responses, saving the instructor time and improving the overall intelligent debrief.



Eye Signs

Include pupillary responses to light, blinks at slow, normal and fast rates, winks and open, partially open and closed reactions.



Vascular Access

In addition to the standard vascular access in the right arm, the intraosseous access via the tibia and sternum allows for procedure accuracy.



Chest Decompression & Chest Drain

Students can now perform a needle Thoracentesis and insert a chest drain bi-laterally.

SimMan 3G

... leading the way forward.

SimMan 3G

- Completely wireless and self-contained
- Internal electrical and pneumatic power
- Supplemental wired connectivity and power
- Wirelessly integrates with existing computer networks
- Swappable, rechargeable batteries
- Approximately 4 hours continuous operation in wireless mode
- Rugged and reliable for use in multiple environments

Multiple Airway Skills/Features:

- Controllable open/closed airway; automatically or manually controlled
- Head tilt/Chin lift
- Jaw thrust w/articulated jaw
- Suctioning (Oral & Nasopharyngeal)
- Bag-mask ventilation
- Orotracheal intubation
- Nasotracheal intubation
- Combitube, LMA, and other airway placement
- Endotracheal tube intubation
- Retrograde intubation
- Fiberoptic intubation
- Transtracheal jet ventilation
- Needle cricothyrotomy
- Surgical cricothyrotomy
- Variable lung compliance – 4 settings
- Variable airway resistance – 4 settings
- Right main stem intubation
- Stomach distention
- Connectivity with third party respiratory simulations

Airway Complications:

- Detection of proper head position
- Can't intubate/Can ventilate
- Can't intubate/Can't ventilate
- Tongue edema
- Pharyngeal swelling
- Laryngospasm
- Decreased cervical range of motion
- Trismus

Breathing Features:

- Simulated spontaneous breathing
- Bilateral and unilateral chest rise and fall
- CO₂ exhalation
- Normal and abnormal breath sounds
 - 5 anterior auscultation sites
 - 6 posterior auscultation sites
- Oxygen saturation and waveform

Breathing Complications:

- Cyanosis
- Needle thoracocentesis – bi-lateral
- Unilateral & Bilateral chest movement
- Unilateral, Bilateral & lobar breath sounds
- Chest tube insertion - bilateral

Cardiac Features:

- Extensive ECG library
- Heart sounds – four anterior locations
- ECG rhythm monitoring (4 wire)
- 12 lead ECG display
- Defibrillation and cardioversion
- Pacing

Circulation Features:

- BP measured manually by auscultation of Korotkoff sounds
- Carotid, femoral, brachial, radial, dorsalis pedis, popliteal and posterior tibialis pulses synchronized with ECG
- Pulse strength variable with BP
- Pulse Palpation is detected & logged

Vascular Access:

- IV access (right arm)
- Intraosseous access (tibia)
- Automatic Drug Recognition System

CPR:

- Compliant with 2010 Guidelines
- CPR compressions generate palpable pulses, blood pressure wave form, and ECG artefacts
- Realistic compression depth and resistance
- Detection of depth, release and frequency of compressions
- Real time feedback on quality of CPR

Eyes:

- Blinking - slow, normal, fast and winks
- Open, closed and partially open
- Pupillary accommodation:
 - synchrony/asynchrony
 - normal and sluggish speed of response

Other Features:

- Seizure/Fasciculation
- Bleeding
 - Simulation of bleeding at multiple sites
 - Arterial and venous
 - Vital signs automatically respond to blood loss & therapy
 - Works with various wound modules & moulage kits
- Urine output (variable)
- Foley catheterization
- Secretions
 - Eyes, Ears, Nose, Mouth
 - Blood, Mucous, CSF, etc.
- Diaphoresis
- Bowel Sounds – four quadrants
- Patient Voice
 - Pre-recorded sounds
 - Custom sounds
 - Instructor can simulate patient's voice wirelessly
- Instructor Communication
 - Multiple instructors communicate using integrated voice over IP

Pharmacology:

- Automatic Drug Recognition System identifies drug & dose
- Extensive drug formulary
- Automatic or programmable physiological responses

System Features:

- Wireless tablet PC controls simulator remotely
- Control multiple manikins from one interface
- Control simulations from anywhere on your network
- Multiple interfaces can control/observe a single simulation

- Instructor Mode
 - Precise control "on the fly"
 - Design & program custom scenarios
 - Create custom events
 - Run pre-packaged scenarios
- Auto Mode
 - Physiological & pharmacological models run pre-packaged simulations
 - Unique, simple controls increase/decrease difficulty & pace
- Simulation controls:
 - Fast forward
 - Pause
 - Rewind
 - Save/Restore
- Profile Editor
- Future prediction & patient outcome display
- Integrated video debriefing
- Data logging
- Instructor comments
- Works with existing SimMan scenarios

Patient Monitor:

- Wireless
- Highly configurable
- Includes:
 - ECG (2 traces)
 - SpO₂
 - CO₂
 - ABP
 - CVP
 - ICP
 - Anesthetic Agent
 - PH
 - PTC
 - PAP
 - PCW/P
 - NIBP
 - TOF
 - Cardiac Output
 - Temperature (core & peripheral)
 - Additional and programmable parameters
- X-Ray Display
- 12 Lead ECG Display
- Custom Image Display
- Custom Video Display

Certifications:

- UL, CE, FCC, CSA, HMR

SimMan 3G includes:

- SimMan 3G Manikin
- SimMan 3G Software & License
- Operator's Tablet PC
- Simulated Patient Monitor and Software
- Simulated Patient Cables
- Webcam
- Drug Recognition Kit
- Soft Sided Transportation Cases
- Specially Designed Clothing
- 1 Patient Case for AutoMode
- 1 Year Manufacturer's Warranty

Accessories:

- Simulated Patient Monitor & Software (Large screen, Panel PC w/power cord)
- SimView
- Wound Modules and Moulage Kits
- Tablet PC Accessory Kit (Monitor, Keyboard, Mouse & Docking Station)
- Portability Kit
- External compressor
- Rugged PC

Scenarios and scenario packages are available on SimStore.

Service Packages*:

- Two Day Introductory Training Course
- Advanced Scenario Programming Course
- Custom One Day Training Package
- Custom Scenario Development Package
- On Site Installation
- Extended Warranty
- Preventative Maintenance
- Loaner Programme

* services available may differ between countries

For more product information, please visit www.laerdal.com



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DATE : Thursday, October 3, 2013

ATTN: Jayne Brahler
School of Educ. and Health Sciences
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300 College Park Ave College Par Ctr Rm
209C
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(937) 229-5608x
cbrahler1@udayton.edu

QUOTE NUMBER : 1-1CRCU2
CUSTOMER NUMBER : 31181129
EXPIRATION DATE : 12/02/2013

SHIP TO:
University Of Dayton Rec
300 College Park
Dayton OH 45469-0790

| QTY | PRODUCT | DESCRIPTION | LIST PRICE | UNIT PRICE | EXTENDED PRICE |
|-----|-------------|--|-------------|-------------|----------------|
| 1 | 212-01101 | SimMan 3G Complete with AiO Monitor Includes SimMan 3G Manikin, Software and License, Operator's tablet PC, Patient Monitor* and Software, Patient Cables, Webcam, Drug Recognition Kit, Soft Sided Transportation Cases, 1 Year Warranty. *17" while supply last, then replaced with 23" | \$67,500.00 | \$67,500.00 | \$67,500.00 |
| 1 | 212-VPLUSP3 | Simman 3g Valueplus Platinum (3 Yr) Includes Installation, Extended Warranty through Year 3, Preventative Maintenance On-Site and Loaner. | \$18,495.00 | \$18,495.00 | \$18,495.00 |
| 1 | 212-90150 | Intro To Simman 3g On-Site A Laerdal Instructor will travel to your facility and teach up to 8 participants. | \$3,595.00 | \$3,595.00 | \$3,595.00 |
| 1 | 210-90450 | Customized Instruction On-Site (One Day) A Laerdal Instructor will travel to your facility and teach up to 8 participants. | \$2,495.00 | \$2,495.00 | \$2,495.00 |
| 1 | SMS3698C | Simulation in Nursing Education Scenarios for SimMan 3G Capital License | \$3,540.00 | \$3,540.00 | \$3,540.00 |
| 1 | SMS3729C | Simulation in Nursing Education Scenarios Vol II SimMan 3G Capital License | \$3,540.00 | \$3,540.00 | \$3,540.00 |
| 1 | SMS3670C | Emergency - Respiratory and Cardiac Patient Cases for SimMan 3G Capital License | \$2,400.00 | \$2,400.00 | \$2,400.00 |
| 1 | 216-00441 | SimView Server PC with Analog Video Card (No Cameras) - English - US only Includes Desktop, LCD Monitor, Keyboard, Mouse, BNC to RCA adapters, Audio Video Adapter Cable, RCA to 3.5mm Cable, Software, 5 SimViewer Licenses and Directions for Use. | \$15,000.00 | \$15,000.00 | \$15,000.00 |
| 2 | 216-05033 | SimView Digital Fixed Network Camera Includes Fixed Camera, Power over Ethernet Midspan, Belkin Network Cable, Belkin Patch Cable and Power Cable. | \$1,000.00 | \$1,000.00 | \$2,000.00 |
| 1 | 216-05133 | SimView Digital Pan Tilt Zoom (PTZ) Network Camera Includes PTZ Camera, Belkin Network Cable, Belkin Patch Cable and Power Cable. | \$3,000.00 | \$3,000.00 | \$3,000.00 |
| 2 | 216-05233 | SimView General Area Microphone Includes Microphone, Audio Base Station, 12VDC Power Supply, Dual RCA Cables for connection to VCR/DVR. | \$500.00 | \$500.00 | \$1,000.00 |
| 2 | 216-83250 | SimView Advanced Set Up Price reflects cost for Laerdal Field Service Engineer to set up SimView, connect to Network (only), and SimView Product Overview. | \$2,495.00 | \$2,495.00 | \$4,990.00 |
| 1 | UMEDIC200 | Essential Cardiac Auscultation | \$3,000.00 | \$3,000.00 | \$3,000.00 |

| | |
|---------------------------------|--------------|
| ITEM TOTAL: | \$130,555.00 |
| ESTIMATED TAX: | \$9,055.09 |
| SHIPPING & HANDLING: | \$432.63 |
| TOTAL: | \$140,042.72 |

Appropriate Sales Tax will be added to invoice – Pricing and Availability are subject to change
Shipping/Handling costs will be added to invoice

Terms:

- . Net 30 Days for approved open accounts; CIA; Credit Cards accepted
- . One(1) year warranty on manufactured products and 90 day warranty on refurbished products
- . Two(2) year parts replacement warranty with technical assistance by phone on all Hill-Rom refurbished products
- . Delivery of product to a specific location within your building, if requested is at an additional charge and not included in this quote
- . Quotes that included training. Training must be booked and performed 1 year from installation. The training obligation expires one year from install