



Donald Gessling presents:

Fundamentals of Pulse Oximetry

Sponsored by: Fluke Biomedical



Wednesday, September 14, 2016, 2:00pm ET

PRESENTER: DONALD GESSLING, FLUKE BIOMEDICAL



Donald Gessling, Senior Engineer at Fluke Biomedical has been designing biomedical test equipment since 1977, Don began his career at the Dempsey Company, and has developed test devices for Dynatech Nevada, and Fluke Biomedical. Currently, he's responsible for the embedded firmware that is used to drive Fluke Biomedical patient simulators, defibrillator analyzers, and other test equipment. He earned a Bachelor of Science in Electrical Engineering from the University of California, Santa Barbara.

WEBINAR AGENDA: Pulse oximetry is an important patient monitoring technology based on the simple technique of shining light through a patient's finger to measure oxygen saturation levels or SpO2.

Learn why this simple procedure is extremely important, and how it works. This one-hour webinar will also cover the basics of pulse oximetry, along with the concepts of light wavelengths, calculations, R-curves, and the most reliable way to test SpO2.

Three Key Takeaways:

1. History of pulse oximetry and how the need to test evolved from the operating room.
2. How a pulse oximeter, non-invasively measures oxygen saturation.
3. Ranges of testing that can be performed.

TechNation would like to thank our sponsor Fluke Biomedical!



Fluke Biomedical is the premier, global provider of test and measurement equipment and services to the healthcare industry. We serve biomedical engineers, quality-assurance technicians, medical physicists, oncologists, radiation-safety professionals and are continually expanding our range of solutions to a broader range of health and safety professionals.

Learn more at "www.flukebiomedical.com"

Patient monitor testing: related standards of reference

Application Note

Patient care and safety are top of mind for hospital quality assurance professionals. Vital signs monitors affect patient care. These critical medical devices are used in diagnoses that influence patient treatment. Incorrect diagnoses due to inaccurate readings from a poorly-performing patient monitor could put a facility at risk for costly litigation.

Performance checks for patient monitors are required by a variety of standards, and are a primary area of focus for groups like The Joint Commission, AAMI and ECRI. Below are a selection of standards you can reference when building your patient monitor quality assurance plan.

The Joint Commission (JC) hospital accreditation manual in Environment of Care (EC) section

- EC.02.02.01 EP 2
 - Requires Clinical Engineering maintain an inventory, including any new devices introduced to the system
- EC.02.02.01 EP 3
 - Requires a maintenance system is in place that assures reliable equipment function
- EC.02.02.01 EP 4
 - Requires a documented plan for maintenance intervals
- EC.02.02.01 EP 6
 - Requires written procedures for managing equipment failures
- EC.02.04.03 EP 1
 - Requires that all equipment is checked for safety and functionality before initial use
- EC.02.04.03 EP 2
 - Requires that life support equipment is maintained, within schedule, at 100%
- EC.02.04.03 EP 3
 - Requires maintenance on all non-life support, within the department's own guidelines
- EC.04.01.01 EP15
 - Requires an annual evaluation of the equipment management plan, with revisions



NIBP and ECG standards

- OIML (Edition 2002) International Organization of Legal Metrology
 - R-16-2: Standard for non-invasive automated sphygmomanometers
 - R-90: Electrocardiographs: Metrological Characteristics – Methods and Equipment for Verification
- ANSI/AAMI SP10:2002 / A1:2003 rev 2008/ A2:rev 2006 rev 2008
 - Standard for electronic or automated sphygmomanometers
- ANSI/AAMI EC 13: 2002/ rev 2007 and IEC 60601-2-27
 - Standard for cardiac monitors, heart rate meters, and alarms
- China JJG 692 2009
 - Standard for non-invasive electronic sphygmomanometers

Pulse Oximetry standards

- ISO 9919:2005(E)
 - Medical electrical equipment: particular requirements for the basic safety and essential performance of pulse oximeter equipment for medical use. (International Organization for Standardization)
- ISO 80601-2-61 (publication pending)
 - Medical electrical equipment - Part 2-61: Particular requirements for the basic safety and essential performance of pulse oximeter equipment for medical use. (International Organization for Standardization)
- United States Food and Drug Administration (1992)
 - General guidance document, device: non-invasive pulse oximeter

About Fluke Biomedical

Fluke Biomedical is the world's leading manufacturer of quality biomedical test and simulation products. In addition, Fluke Biomedical provides the latest medical imaging and oncology quality-assurance solutions for regulatory compliance. Highly credentialed and equipped with a NVLAP Lab Code 200566-0 accredited laboratory, Fluke Biomedical also offers the best in quality and customer service for all your equipment calibration needs.

Today, biomedical personnel must meet the increasing regulatory pressures, higher quality standards, and rapid technological growth, while performing their work faster and more efficiently than ever. Fluke Biomedical provides a diverse range of software and hardware tools to meet today's challenges.

Fluke Biomedical Regulatory Commitment

As a medical test device manufacturer, we recognize and follow certain quality standards and certifications when developing our products. We are ISO 9001 and ISO 13485 medical device certified and our products are:

- CE Certified, where required
- NIST Traceable and Calibrated
- UL, CSA, ETL Certified, where required
- NRC Compliant, where required

Fluke Biomedical.

Better products. More choices. One company.

Fluke Biomedical

6045 Cochran Road
Cleveland, OH 44139-3303 U.S.A.

Fluke Biomedical Europe

Science Park Eindhoven 5110
5692EC Son, The Netherlands

For more information, contact us:

In the U.S.A. (800) 850-4608 or
Fax (440) 349-2307
In Europe/M-East/Africa +31 40 267 5435 or
Fax +31 40 267 5436
From other countries +1 (440) 248-9300 or
Fax +1 (440) 349-2307
Email: sales@flukebiomedical.com
Web access: www.flukebiomedical.com

©2012 Fluke Biomedical. Specifications subject to change without notice. Printed in U.S.A.
5/2012 4208019A_EN

Modification of this document is not permitted without written permission from Fluke Corporation.



DON'T MISS THE WEBINAR WEDNESDAY'S Q&A

Our presenters will end today's webinar with a Q&A session. If you have a question, please submit it early by emailing webinar@mdpublishing.com.

All questions will be addressed at the end of today's presentation or the presenter will follow up with you offline.

SMILE – SNAP – AND SHARE!

We love seeing photos of the TechNation Community! Send a photo of you or your department participating in this week's Webinar Wednesday to webinar@mdpublishing.com. Submissions will be used for the magazine, website and social media so smile, snap a photo and share with us!



Use our hashtag

#TECHNATIONWEBINARWEDNESDAY
on Facebook and Twitter

“I find TechNation Webinars highly educating and informative; I simply love it. It makes me a smarter BioMed!”

-Alero O.

“TechNation webinars are an excellent resource for continuing education credits. We have found them to answer some of the questions we have had for specific equipment management, and the discussions on regulations and latest rules have been useful as well. Keep up the good work TechNation”

- Leroy S.

YOUR VIP PASS TO



MD EXPO

New England • Fall 2016

UNCASVILLE, CT

MOHEGAN SUN CASINO & RESORT

OCTOBER 4-6TH

**\$100 VALUE
VIP INVITATION**
(FOR HOSPITAL EMPLOYEES ONLY)

WHAT IT INCLUDES

- Over 30 hours of accredited CE education
- Over six hours of exhibit hall time to meet with over 100 world-class vendors! Lunch provided each day during exhibit hall hours.
- World-class exhibit hall featuring latest technology, products and services
- Industry-leading speakers covering hottest topics in HTM, compliance, IT, management and equipment service
- The industry's best networking events to connect and share best practices with other leading HTM professionals
- MD Expo annual awards presentation
- Joint Commission Keynote Address covering regulatory updates
- The opportunity to win great door prizes donated by exhibiting vendors.
- Admission to the Wrap-up Party at Margaritaville

VIP Pass Compliments of:

FLUKE®

Biomedical

ENTER PROMO CODE: 16MDE314

**REGISTER ONLINE TODAY AT
WWW.MDEXPOSHOW.COM**



Webinar ► Wednesday