

ASA 2015 Annual Meeting Scientific and Educational Exhibit S29 (Hall G)

QR Codes for Medical Device Point-of-Care Product Information

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Why Use QR Codes?

Background

Information required to safely use medical devices is not necessarily available at the point of care. Instructions may be required to set-up complex equipment, size and insert an airway, or change a gas cylinder. Paper instructions may be adequate, but are often discarded when products are unpacked, or may only be available in the sealed package. QR "barcodes" could help clinicians rapidly find information at the point of care by displaying relevant text, websites, photos, or videos.

Proposed Solution

QR codes are a type of barcode designed in 1994 for rapid reading by the automotive industry. Handheld scanners and free smartphone apps simplify reading QR codes. Consequently, QR codes are ubiquitous in advertisements, menus, and elsewhere.

A QR code can contain numbers and letters which can be used to display text or link to a website. Reading a QR code with an internet connected device can provide instant access to information, thereby obviating the need to type long and hard to remember URL (web address). QR codes could be attached to medical devices and link to online resources such as documentation, video tutorials, quick reference guides/tables, etc.

QR Code ASA S&E Exhibit

We developed a custom website and printed QR codes to demonstrate how QR codes could be implemented in clinical environments to provide access to key information⁽¹⁾

- Point-of-care specific instructions
- Informational web sites
- Current/updated warnings/cautions/recalls
- Form to report product problems, ask questions

Eventually, QR codes may become an alternative method of providing medical device instructions for use and clinically important device characteristics at the point of care/use.



Visit our concept demonstration site to learn more about the possibilities of using QR codes for clinical care.

Send ideas to diego@mdpnp.org

Examples of QR Codes linking to information on the Internet

The internet can be used to publicly share learning materials and other non-confidential resources that would allow clinicians and caregivers to deliver a better care.

Below are examples of information publicly available on the Internet:

Example 1: Supralaryngeal airway insertion

Educational video for the demonstration of the correct insertion technique of a supralaryngeal airway



Example 2: Online learning resources

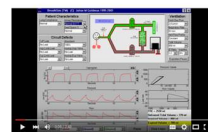
How to help clinicians improve their response to critical events.

Scan this QR code to link to this free perioperative Emergency Manual from the Stanford Anesthesia Cognitive Aid Group⁽²⁾.



Example 3: Interpreting a capnogram

If you need help interpreting capnograms, try these YouTube videos that explain the mechanisms behind various abnormal capnograms.



Example 4: Tracheostomy information

There are many educational websites about tracheostomy, with different kinds of resources (articles, links, books, videos) and FAQs sections to help caregivers and their loved ones.



A step further [This QR Code links to our demonstration web site]

QR codes on medical devices could link to the product's dedicated website. There, the manufacturer would publish information about the device that would help clinicians understand and utilize the device properly. Including:

- Specifications
- Product recalls
- How-To sections or instructions
- Learning resources, manuals or instructional videos
- FAQs sections
- etc.



Examples of Use Cases

Report of a Case: A 38-year-old female with primary *biliary cirrhosis* is brought in for a deceased-donor liver transplant at 1am. The anesthesiologist prepares an operating room for the liver transplant. During the OR set-up, he realizes that the rapid transfusion medical device needs a new cartridge installed. There is no anesthesia technician available at this hour, so the anesthesiologist fumbles through directions on the packaging to try to load the cartridge. He also searches the web for instructions on how to assemble the device.

After 40 extra minutes of searching for, reading directions and looking for help, he finally assembles the device correctly and brings the patient into the OR for the liver transplant. The organ has an increased ischemic time of 40 min due to the anesthesia set-up delay.

With QR Codes: All the Manufacturer XYZ's rapid transfusion medical device cartridge's packaging comes with a QR code printed on the front. The anesthesiologist scans the QR code with his smartphone camera (i.e. iPhone or Android) and the QR code brings him to a dedicated website where a short video explains how to set up a device of this kind.



The information on this dedicated site would also alert for components or materials that could jeopardize patients with allergies (i.e. containing latex). For a drug (i.e. Dantrolene), instructional tutorials could explain to the clinician how to properly prepare and administer the drug.

References

- (1) Anesthesia Patient Safety Foundation Workshop, Oct 2013, J. Goldman
- (2) Stanford Anesthesia Cognitive Aid Group <http://emergencymanual.stanford.edu/>



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