

RADIOLOGY MANAGEMENT

March/April 2017
volume 39 number 2

The Journal of AHRA: The Association for Medical Imaging Management

Accounting Basics Part 4: Net Present Value

By Carole A. South-Winter, EdD, CNMT, RT, FAEIRS
and Jason C. Porter, PhD



Leading and Motivating Generation Y Employees

By Curtis Bush, MBA, CRA, FACHE



Enhancing Patient Safety Using Medical Imaging Informatics

By Mahtab Karami, PhD and Nasrin Hafizi

The Diagnostic Imagination in Radiology: Part 2

By Rodney Sappington, PhD



ahra

An Alternative to Evacuated Bottles

By Dan Felix

For a long time, evacuated bottles have been the status quo for disposing of ascitic and pleural fluid in radiology departments like ours. I oversee imaging services for Tucson Medical Center (TMC), a 600-bed regional teaching hospital that's part of the Mayo Care Clinic Network. Recently, two converging trends—cost and safety—drove us to seek an alternative to evacuated bottles.

Our supply costs were regularly exceeding budget by up to 15% because of expensive evacuated bottles. We conduct over 500 paracentesis procedures and 260 thoracentesis procedures annually. For each procedure, the average cost for evacuated bottles and the fee to dispose of them was \$107.10. That's outrageous, especially in our current environment of flat reimbursements.

The exchange of evacuated bottles—often up to five or six during a single procedure—posed the risk of spills and dropped bottles, which could expose staff to potentially infectious waste fluid. Not surprisingly, the handling of potentially infectious materials is now the second greatest concern among healthcare risk managers, according to Aon's annual Health Care Workers Compensation Benchmark Report.¹ In fact, one in 10 healthcare workers in the United States suffers a splash exposure or needle stick injury every year, according to one study.²

In addition to the concern for staff welfare, exposure brings with it two other concerns. First and foremost is patient safety, since some studies have found a link between staff and patient safety.

One study found hospitals with greater levels of employee injury are more likely to have nursing shortages, which can lead to poorer patient outcomes.³

Another concern is the cost of exposure: If a staff member is exposed to and contracts a serious bloodborne infection, TMC's payout could reach a million dollars—for medications, follow-up laboratory testing, clinical evaluation, lost wages and disability payments.⁴

The Answer: A Self-Contained Solution

We explored various options and found a safer, lower-cost alternative in an FDA-approved self-contained system that automates the collection, measurement, and disposal of waste fluids. It connects directly from the patient to our facility's

plumbing system, so it eliminates the need for evacuated bottles and the hazards of handling potentially infectious waste fluid. See Figure 1.

Our infection control department, which was involved in our initial review of the new system, supported it because it eliminated the handling of waste fluid—both during the procedure and afterwards to transport bottles to the environmental services department for disposal. Our lead technologist was also involved in the initial review and supported the system from a user standpoint, citing its user-friendly design and programmable safety features, such as preset volume and auto stop.

The cost savings was another major draw. We saw a return on investment in just nine months—making this one of



Figure 1 • The New System Set Up

the easiest purchase requests I've ever had to make. Our medical supply cost per procedure dropped from \$107.10 to \$24.00. Installation costs for the direct-to-drain system can range from a few hundred dollars to a few thousand. Our installation costs were on the higher end because we chose to install the system in a high-dose radiation room, which is surrounded by lead bricks.

We installed the system in our dedicated ultrasound room and use it for roughly 80% of paracentesis and thoracentesis procedures. Most of the other procedures are portable; the patient can't be moved so we have to do the procedure in the patient's room.

Other benefits we realized with this new system include:

- Easy to use, so minimal training was required.
- Up to a 25% reduction in procedure time with high volume procedures, since there's no delay to exchange bottles.
- Increased accuracy of extraction volume, which our radiologists appreciate.
- Greater focus on patients, since our technologists don't have to watch and exchange bottles.
- Simple cleaning process, which takes less than five minutes between procedures.

As a leader at TMC, I feel it's my responsibility to applaud technologies and techniques that reinforce our position as a leading community hospital. The system we implemented not only reduces costs and increases safety, it also demonstrates our commitment to offer our community the most advanced medical technologies. ☸

References

¹Aon Risk Solutions. 2014 Health Care Workers Compensation Barometer Report. Published December 2014. <http://www.aon.com/attachments/risk-services/2014-Aon-Health-Care-Barometer-report.pdf>

²Karmon, S.L., Mehta, S.A., Brehm, A., Dzurenko, J., Phillips, M. (2013). Evaluation of bloodborne pathogen exposures at an urban hospital. *Am J Infect Control*. 41(2), 185–186. [http://www.ajicjournal.org/article/S0196-6553\(12\)00272-6/fulltext](http://www.ajicjournal.org/article/S0196-6553(12)00272-6/fulltext)

³William Charney and Joseph Shirmer, "Nursing Injury Rates and Negative Patient Outcomes: Connecting the Dots," *Workplace Health & Safety* (formerly AAOHN Journal), November 2007, pp. 470–475. <http://whs.sagepub.com/content/55/11/470.abstract>

⁴U.S. Occupational Safety & Health Administration. Occupational Exposure to Blood Borne Pathogens Course. Updated Nov. 11, 2015. <https://ceufast.com/course/osha-occupational-exposure-to-blood-borne-pathogens/>

Dan Felix is director of imaging services for Tucson Medical Center. He's been in management positions with the center for the past 15 years and can be contacted at dan.felix@tmc.com.

³Medical Malpractice Center. "Lung Cancer Misdiagnosis." Available at: <http://www.malpracticecenter.com/misdiagnosis/lung-cancer>. Accessed February 1, 2017.


⁴AuntMinnie.com. "The year ahead in radiology: 9 trends to watch in 2016." Available at: <http://www.auntminnie.com/index.aspx?sec=ser&sub=def&pag=dis&ItemID=113146>. Accessed February 1, 2017.

⁵Consortium for Open Medical Image Computing. "Gran Challenges in Biomedical Image Analysis." Available at: https://grand-challenge.org/All_Challenges. Accessed February 1, 2017.

⁶Obermeyer Z, Emanuel EJ. Predicting the future—big data, machine learning, and clinical medicine. *N Engl J Med*. 2016;375:1216–1219. Available at: <http://www.nejm.org/doi/full/10.1056/NEJMp1606181>. Accessed February 1, 2017.

⁷Lumiata. "Risk Matrix." Available at: <http://www.lumiata.com/product/>. Accessed February 1, 2017.

Rodney W. Sappington, PhD is a senior clinical data scientist, informatician, author, and healthcare strategist. He is CEO of Acesio Inc., a disease insights company that leverages medical and non-medical data to better understand early indicators and inequities that lead to global disease incidence. He can be contacted at RodneyS@sappington-associates.com.



THE NEW ALTERNATIVE TO EVAC BOTTLES

Eliminate the cost and risk of evacuated bottles with the FDA-approved STREAMWAY® System.

The FDA-approved STREAMWAY System from Skyline Medical is an automated, self-contained system that eliminates the need for costly, high-risk evacuated bottles and canisters. It's changing the way imaging departments collect and dispose of potentially infectious waste fluid from paracentesis and thoracentesis procedures.


- Financing options include **0% for 3 years**; and a pay-per-procedure option
- Tucson Medical Center's Imaging Department **reduced its per-procedure supply cost 78%** and saw ROI in just 9 months with the STREAMWAY System.

What are you waiting for?

View a video and register for a demo at www.skylinemedical.com/radiology

STREAMWAY®

DIRECT-TO-DRAIN MEDICAL FLUID DISPOSAL



SKYLINE

MEDICAL INC.

651.389.4800
info@skylinemedical.com
www.skylinemedical.com