

---

At Abington Memorial Hospital

---

# Decision to go DEHP-free pays off in waste reduction and staff satisfaction

*A Case Study in Value*

---

## Introduction

Abington Memorial Hospital is a fully accredited, 570-bed, regional teaching hospital located in Abington, Pennsylvania, a suburb of Philadelphia. With an overall mission to provide the highest quality health care, Abington has a long tradition of focusing on patient safety. More recently, Abington has launched an institution-wide green initiative to significantly reduce its environmental impact. By switching to di-2-ethylhexyl phthalate (DEHP)-free materials, Abington was able to uphold their tradition of commitment to patient safety in as environmentally friendly a manner as possible.

---

## The Decision to Go DEHP-Free

Abington first took note of the potential safety issues with DEHP in April 2004, after Hospital Safety Officer Paul Rivers attended the CleanMed conference on environmentally preferable products. At the conference, Paul learned that DEHP had been shown in animal studies to cause adverse effects in the reproductive tracts of developing males (Table 1).

After sharing this information with others at Abington, the safety committee and Abington COO Meg McGoldrick recommended a complete switch to DEHP-free materials to avoid possible patient safety issues. IV sets and containers are a common source of DEHP in hospitals. While considering their options for replacements, Abington learned that their current provider, Hospira, offered DEHP-free tubing as well as a DEHP-free bag, the VisIV® container.

---

*“We were committed to eliminating DEHP. After we saw the other advantages, we made the decision to switch.”*

—Les Devereaux, Director of Material Management

---

Abington considered all aspects of the VisIV® container when evaluating it. They were pleased to find that, in addition to being DEHP-free, the VisIV® containers are latex-free, PVC-free and have specific design features to enhance patient and caregiver safety. Furthermore, Abington saw the fact that VisIV® containers have no overwrap as an opportunity to increase staff efficiency and cut down on waste.

After evaluating all their options, the hospital safety committee made a decision to immediately replace all tubing and IV containers for which DEHP-free alternatives were available. The Abington decision was initially motivated by the goal of becoming DEHP-free. But the added benefits of waste reduction, as well as a safe, user-friendly and efficient IV container factored into the final decision.

## The Transition to VisIV® Containers

As one of the first U.S. hospitals to adopt the VisIV® container, Abington experienced the benefits and challenges of being an early adopter of a new product. Challenges included a learning curve that comes with using any new product and training staff to work with two separate product lines of IV containers because a complete line of VisIV® containers was not yet available. At Abington, proper in-servicing was the key to overcoming both challenges.

As an early adopter, Abington had the opportunity to work closely with Hospira in developing a thorough in-servicing program to help transition successfully to VisIV® containers. The program focused primarily on on-site training over the week leading up to the “Go Live” day. During this time, Hospira worked closely with Nursing Education to provide in-servicing across all major units.

The in-servicing program also included internal communications detailing: 1) the differences between the new Hospira VisIV® containers and the previously used containers, 2) the process for transitioning to VisIV® containers and 3) the reasons for the switch. These communications included emails and memos, posters on VisIV® containers hung in each unit and an article that appeared in the Abington newsletter. Together, these communications helped ensure not only that all staff knew of the coming change, but they also clearly understood the benefits of switching to VisIV® containers.

---

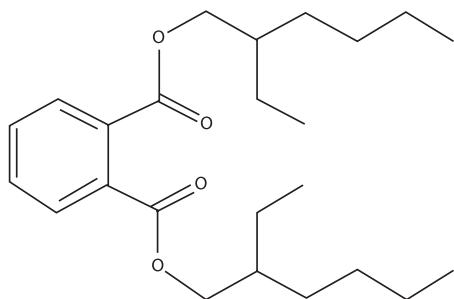
*“Don’t look at just the cost of the product, look at the value the product brings to the hospital as well.”*

—Dave Jaspan, RPh, CCP, Administrative Director of Pharmacy

---

Another factor that helped make the transition a success for Abington was developing in-house experts to field any questions from other staff. In the case of Abington, the experts were the pharmacy department staff, since they are responsible for adding almost all medications to IV containers. The storeroom and central supply staff also played a pivotal transition role by making sure that VisIV® containers were not mistakenly thrown out because they did not have an overwrap.

**Table 1: The concerns of DEHP**



Di-2-ethylhexyl phthalate (DEHP) is a chemical used in polyvinyl chloride (PVC) medical devices to add flexibility. Concerns over its safety first arose in the late 1960s following documentation of DEHP leaching from PVC and subsequent tissue deposition.<sup>1</sup>

In animal testing, DEHP has been shown to cause adverse effects in the reproductive tracts of developing males. Additional concerns exist regarding its effect on thrombus formation, microemboli and its impact on the liver and lungs.<sup>2</sup>

Recently, the FDA issued a public health notification regarding the safety of DEHP-containing products and recommendations on how to limit its exposure to patients.<sup>3</sup>

## The Outcome at Abington

Abington quickly realized clinical and economic benefits in addition to the safety benefits of switching to DEHP-free containers and IV sets. Many of these stemmed from the fact that VisIV® containers have no overwrap, print the expiration date on the container itself and are shelf stable for up to 24 months.

For nurses and pharmacists at Abington, these features offered efficiencies over their previous IV containers. For example, batch processing, IV bag preparation and setup times in the pharmacy became faster.<sup>4</sup> Overall, 89% of Abington pharmacists (n=17/19) preferred VisIV® containers vs their previous IV containers (Figure 1).<sup>4</sup>

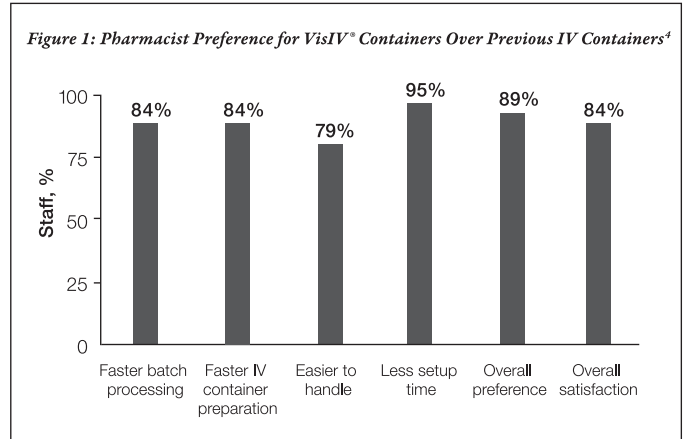
The expiration date is printed on the container, which helps save time. Previously nurses and pharmacists had to determine how long a bag could be used once removed from the overwrap. If a bag out of the overwrap wasn't dated, it was discarded.

From a clinical perspective, Abington nurses and pharmacists discovered additional benefits. In their efforts to get chemotherapy patients home faster, they appreciated the timesaving factor of not having to remove an overwrap. Overall, they found VisIV® containers to be easier to handle and prepare than their previous containers.<sup>4</sup> And in one instance, the clear VisIV® container allowed an Abington pharmacy technician to detect that a particular drug had not been added.

Abington was able to reduce both waste and cost due to the fact that VisIV® containers are lighter than previous IV containers and overwrap-free. From October 2006 to September 2008, the switch to VisIV® containers resulted in an estimated 6 tons less clean waste and an estimated 10 tons less medical waste (Figure 2).<sup>5</sup>

Because of these and other green efforts, the U.S. Environmental Protection Agency awarded Abington the Trailblazer Award for environmental leadership in 2006. The award recognizes hospitals that are paving the way for other hospitals to build upon their success and more easily implement similar programs. The award generated positive press for Abington and strengthened their image and standing within the community.

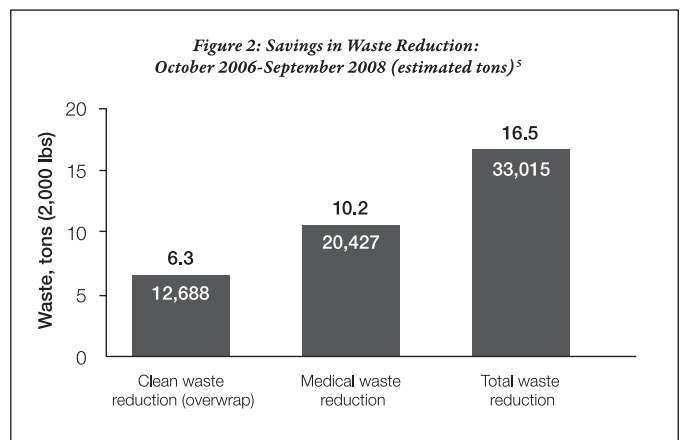
But as impressive as the awards and savings are, it's important to remember why Abington was interested in VisIV® containers and DEHP-free sets in the first place: to proactively address a potential threat to patient safety. While this may be the least measurable of all benefits, it was by far the biggest influence in terms of the Abington decision. Above all, Abington invested in VisIV® containers because they felt it was the right thing to do: for their patients, for themselves and for the environment.



Data reflect results from a survey provided by Abington pharmacists (N=19).

*“In the oncology setting every second counts. Even saving a few minutes in the chemotherapy suite is beneficial for patients. They just want to get home as soon as they can.”*

—Mary Ehrgott, RPh



Based on units of VisIV® containers used at Abington from October 2006 to September 2008.

*“It is safer from a patient standpoint because in the design of the system, Hospira provided tamper-resistant ports.”*

—Paul Rivers, Hospital Safety Officer

## Conclusion

As with all hospitals, Abington faces the challenges of delivering the highest quality healthcare in as affordable a manner as possible. Abington was able to demonstrate how an investment in patient and caregiver safety by adopting VisIV® containers paid off in terms of a quantifiable reduction in waste and improved staff satisfaction.

---

*“Abington Memorial Hospital is constantly seeking new opportunities to minimize our waste, while delivering the safest and most advanced patient care. The VisIV® container helps us reach these goals simultaneously.”*

—Meg McGoldrick, Chief Operating Officer

---

Everyone at Abington agrees that early upper management interest in safety was critical. Mr. Rivers sums it up: “If upper management says that this is the right thing to do and that we’re committed as an institution to going DEHP-free to increase patient safety, everyone is quick to rally around it.”

### ***Critical Success Factors***

1. Explore the full benefits—both measurable and immeasurable
2. Get early upper management buy-in
3. Set up interdisciplinary team of all major departments to oversee process
4. Communicate the benefits to the hospital staff
5. Work closely with your provider’s representative to ensure a smooth transition
6. Alert waste management of the need to document savings early

### References:

1. Tickner JA, Schettler T, Guidotti T, McCally M, Rossi M. Health risk posed by use of di-2-ethylhexyl phthalate (DEHP) in PVC medical devices: a critical review. *Am J Ind Med.* 2001;39:100-111.
2. Schettler T. DEHP exposures during the medical care of infants: a cause for concern. Arlington, VA: Health Care Without Harm; 2002. Publication 3-06. [http://www.noharm.org/library/docs/Going\\_Green\\_3-6\\_DEHP\\_Exposures\\_During\\_the\\_Medi.pdf](http://www.noharm.org/library/docs/Going_Green_3-6_DEHP_Exposures_During_the_Medi.pdf). Accessed January 22, 2009.
3. US Food and Drug Administration Web Site. FDA Public Health Notification: PVC devices containing the plasticizer DEHP. July 12, 2002. <http://www.fda.gov/cdrh/safety/dehp.html>. Accessed October 28, 2008.
4. Data on file. VisIV® preference survey. Hospira, Inc.
5. Data on file. Waste reduction report. Hospira, Inc.

This white paper is based on interviews with Abington Memorial Hospital personnel conducted by Goble & Associates, Inc. All data were provided by Abington Memorial Hospital. Editorial services provided by Goble & Associates, Inc. Abington Memorial Hospital was not compensated for their participation.

