HIT or Miss Chapter 12

A community hospital implemented a bar code medication verification (BMV) system to improve tracking of medications and support safe medication administration. In addition to the software for BMV, hospital administrators purchased laptop computers stationed atop wheeled carts, or workstations on wheels (WOWs), and medication bar code scanners.

Software was selected for the program because it had the same look and feel of software currently in use to enter orders, review consults, and retrieve laboratory results. Two pharmacists were trained to customize the system. Additionally, two nurse managers were assigned to assist in development and implementation. Because of staffing limitations, information technology (IT) was not involved in BMV development or implementation.

BMV went live using a stepwise plan. All end-users were required to attend one classroom session. Superusers were selected from nursing staff and received the same training as other nurses. Following completion of the classroom sessions, one nursing unit was selected each month for a 3-day go-live process. During the go-live phase, nurses on each unit were paired one-to-one with a superuser of the BMV system for 6 h. There was no training or help desk assistance provided for use of the WOWs.

Shortly after implementation, many of the laptops began to crash when the BMV system was opened. Because IT was not involved in the BMV program implementation, users were told to contact the pharmacy for assistance. Superusers were also tasked with troubleshooting hardware problems, which left little time for assisting with BMV implementation or their own nursing duties.

Facilities engineering was not involved in the program and had not been assigned to maintain or repair the laptop carts. Lacking proper authorization, they refused to assist in repairs until documentation was prepared and approved. It was not unusual to see one of the BMV pharmacist programmers roaming the floors, screwdriver in hand, repairing laptop carts.

At the end of the first year, expensive external extra-long-lasting laptop batteries with wall-mounted chargers stopped recharging so more had to be purchased. Other hardware problems were encountered. Scanner cords broke because they were not long enough and busy nursing staff had stretched them past their limit. Batteries on cordless scanners would not recharge and had to be replaced. At this point, IT took on responsibility for hardware issues and during the second year of the program was able to purchase enough spare laptop batteries and scanners to service the hospital.

The IT department was able to hire more staff and was finally able to provide help desk services for the BMV program. Because of the huge backlog of work, WOWs with repair tickets would sit in unit storage rooms for days to weeks. Unit nurses felt that little or no importance was placed on how the nurses would function when the WOWs were not functional. Lacking support, nurses felt that it was assumed they would share the remaining WOWs. Former superuser nurses were occasionally able to solve some of the problems and created workarounds to keep the WOWs functional as much as possible.

When computer-savvy nurses were able to take on some repairs without authorization from IT, conflicts developed between nursing and IT. Nursing’s requirements for functional WOWs for the BMV system needed to take precedence over IT support for other hospital functions, creating stress on IT staff.

As hardware and software failures increased, nurses stopped scanning medication because there were not enough scanners, laptops, or WOWs available. Workarounds were created by carrying extra identification bracelets to scan and by hand-typing drug numbers into documentation fields, which initially was only to be done for the rare case when the bar code would not scan. In this manner, nurses could sign out their medications while still sitting at the nurses’ station. Medication errors were made, the same medication errors the BMV system was supposed to correct.

Medications were kept in a med room that housed a dispensing machine. Nurses had to enter their username and personal identification number (PIN) (or fingerprint), choose the patient, choose the medication, remove it, and sign out. Only a brief orientation session to this system was provided including the safety and security features of medication dispensing systems. It was not uncommon for a nurse to remove second doses of meds from the dispenser and place them in their pocket so they would not have to return to the machine for a drug they knew they would be given in 3–4 h. Although against policy, nurses routinely did this with controlled medications because in the paper system if a nurse forgot to sign off the medicine, someone could sign and cosign it so the record was kept properly. However, the signature omission would be maintained in the new BMV system and the pharmacy department would note the discrepancies in the count of the meds: two doses removed from the dispenser and only one dose recorded. Medications went missing. Lastly, password sharing was not uncommon as most nurses failed to realize the implications and gravity of this practice.

Within 2 years of go-live, the system was considered a failure; the lack of support from IT and facilities engineering was seen as the primary cause of the failure. Ultimately, the entire electronic health record (EHR) system was abandoned for a newer platform that integrated CPOE, test results, and all clinical notes including physician and ancillary departments.

[**Discussion Questions**](https://jigsaw.vitalsource.com/books/9780429589508/epub/ops/xhtml/ch12.xhtml#rsec12_2)

* How could interdisciplinary governance, including clinicians and IT, have improved this program?

The biggest problem was that no one thought to put all the right people in the same room before launching. Pharmacy and nursing ended up carrying the project while IT and facilities stood on the sidelines, which meant pharmacists became amateur cart mechanics and nurses were left juggling broken scanners. A proper governance team could have sorted out responsibilities from the start: IT owns the technology, facilities owns the carts, and clinicians actually use the system. Instead, everyone assumed someone else was handling the details, and the result was predictable: confusion, frustration, and plenty of finger pointing. It resembled the classic bystander effect described by Latané and Darley, where everyone sees the problem but no one acts because responsibility is diffuse. Clear governance would have given each group defined ownership, preventing the program from collapsing under the weight of “not my job.”

* How could end-users have been better supported, including help desk and other staff?

End-user support mostly meant one training session and the hope that nurses could figure it out as they went. When things broke, staff were told to call pharmacy because pharmacists were somehow expected to fix laptops. Superusers were expected to troubleshoot while still covering their normal shifts, which quickly became impossible. A real help desk at go-live, backup equipment, and just-in-time training materials could have made a big difference. Without that, nurses did what we clinicians always do: they found workarounds. Unfortunately, those workarounds like scanning extra bracelets or pocketing medications undermined the very safety goals the system was supposed to achieve.

* What organizational oversight and accountabilities would have helped and how should that have been managed by leadership?

Leadership treated the rollout as if buying the software and hardware was the whole job, forgetting that someone actually had to keep the system running. No clear accountability was set for hardware repairs, workflow support, or ongoing training. A steering committee with regular reviews could have identified problems early, allocated resources, and made sure staff had what they needed to follow safety protocols. Instead, broken carts piled up, nurses improvised, and the system limped along until it was declared a failure. In the end, abandoning the entire EHR platform became the solution, a very expensive way to admit that the basics of planning and accountability had been skipped.