

PHLEBOTOMY FOR THE SAKE OF PHLEBOTOMY: REDUCING UNNECESSARY BLOOD DRAWS

Alia Moore, PGY-2

Story from the Front Lines:

Many patients on the adult internal medicine wards become medically stable before they are able to physically leave the hospital, usually due to delays in disposition. Despite their low acuity, these patients are often phlebotomized on a daily basis. Consider the case of a 55 year old lady who had a complicated hospital stay following liver transplantation. Despite her complex course, she did well and within 4 months of surgery was ready for discharge to a long-term acute care facility. Unfortunately, various non-medical issues precluded this for nearly 2 weeks, and during that time she continued to have complete blood counts and comprehensive metabolic panels drawn daily.

Teachable Moment:

Why do clinicians feel compelled to obtain basic blood tests on patients who have no evidence of acute illness? What are the risks of this practice?

Maybe physicians worry that anyone sick enough to remain in the hospital is sick enough to warrant testing. This attitude may be more prevalent in academic settings, where trainees are responsible for most patient care.¹ The consulting transplant team, for their part, continued to request daily liver function tests up until discharge, even though they had normalized weeks before.

Perhaps one could implicate the increasingly litigious nature of healthcare. The concern that a single overlooked abnormality could lead to a court summons may drive physicians to be more aggressive with daily labs draws than they might otherwise be.

Then again, it may just be a habit. Doctors and nurses usually expect to have daily lab data on each patient during rounds. Oftentimes a doctor can place one order for morning labs, and it will remain active every day until it is cancelled. When labs aren't ordered, staff will sometimes send them anyway. And since routine labs seem cheap, what is the harm?

Iatrogenesis: 100mL of phlebotomy is estimated to result in a 7g/L drop in hemoglobin, and one study suggested that the mean blood loss caused by routine labs drawn during a hospital admission is nearly 75mL.² This is problematic for any patient, particularly one with cardiac or respiratory complications. Our patient was losing 3.5mL of blood daily into a purple top CBC tube; her metabolic panels required a different tube entirely. Over time, this can very easily result in anemia.

Lab draws can also lead to other problems. While peripheral venipuncture is low risk for infection, this must always be a consideration. Routine phlebotomy can also result in bruising or hematomas, vasovagal syncope, and discomfort; on rare occasions it can even cause transient nerve damage.³ Central access seems a more comfortable and convenient option. Unfortunately, these lines pose a significant risk of infection and thrombosis, especially if they remain in place for a prolonged period.⁴

Incidental findings: The odds of finding an abnormality when checking labs every day is considerable, and can lead to further workup. The discovery of our patient's progressive, normocytic anemia led to additional blood tests to evaluate the cause and monitor the trend, but an extensive workup ultimately led to no changes in management.

Iatrogenic findings aside, lab abnormalities may be spurious, inaccurate due to human error, or within the expected margin of error. Clinicians should bear this in mind when ordering routine labs in the face of clinical stability.

Cost: A single inpatient CBC is inexpensive, but the price becomes substantial over days and weeks. In fact, one study placed the cost of routine phlebotomy at almost \$150 per day.⁵ Uninsured patients will bear this financial burden themselves. Insured patients are largely protected, but it is worth noting that many insurance companies are beginning to withhold payments for hospital errors. Ultimately, hospitals may not be reimbursed for the management of phlebotomy complications or lines retained for easy access.⁶

How frequently should we check routine labs on patients awaiting discharge? Several studies have attempted to tackle this question by asking physicians to simply stop and “think before you order”, and there is a general consensus that unnecessary tests should be avoided. Nonetheless, there are no definitive guidelines, and the onus really falls to each individual clinician.^{7,8} With this in mind, it is a good rule of thumb that absent acute illness, anyone with several consecutive days of stable labs probably doesn’t need “routine labs”.

When caring for inpatients awaiting discharge, being cognizant of ordering practices and making decisions based on our best clinical judgment can reduce costs, risks, and undue stress among both physicians and our patients.

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