Testing Without Purpose: A Lesson in Clinical Reasoning

During a placement on the general medicine ward, I watched a foundation doctor scroll through the electronic ordering system during morning ward rounds. "Let's get baseline bloods," she said, clicking through FBC, U&Es, LFTs, and bone profile for a 68-year-old patient admitted three days earlier with community-acquired pneumonia. The patient was clinically improving, apyrexial, eating well, and due for discharge. Her admission bloods had been entirely normal. I remember thinking: why are we doing these tests? What clinical question are we trying to answer? What would we do differently if the results were abnormal? The foundation doctor, when I asked, looked momentarily uncertain. "Just to check everything's okay before discharge," she said.

What happened next exemplifies a pattern emerging across NHS data. The bone profile came back with a calcium level of 2.58 mmol/L, marginally above the laboratory reference range. This triggered a repeat test, then a corrected calcium calculation, then a parathyroid hormone level, and finally an outpatient endocrinology referral. The patient, ready for discharge, spent an additional day awaiting results. When I returned to the ward the following morning, I found her reading the abnormal results on her NHS App, visibly anxious. She asked me what hypercalcaemia meant, whether she had cancer, whether this explained why she had felt unwell. I struggled to reassure her, knowing the test had likely been unnecessary. Six weeks later, the endocrinologist wrote back: isolated finding, likely laboratory variation, no action required. The entire cascade stemmed from a test ordered without clear clinical indication.

This observation reflected what researchers have quantified across the UK. Studies examining diagnostic testing in primary care suggest that approximately one quarter of blood tests may be unnecessary, with nearly half producing no change in patient management. Surveys of junior doctors reveal that 100% report circumstances in which they ordered tests they later recognised as inappropriate. This suggests the problem is not rare clinical error but systematic practice embedded in how we train and support doctors.

The drivers are complex and deeply rooted in medical culture. Research identifies defensive medicine as the most commonly cited reason, with 59% of doctors acknowledging medicolegal fears influence their testing decisions. The asymmetry is stark: missing a diagnosis through under-investigation carries professional consequences; over-investigation rarely does. For junior doctors, studies highlight additional factors including uncertainty about pre-test probability, poor clinical reasoning skills, and electronic ordering systems with default test batteries that encourage comprehensive rather than targeted investigation. Time pressure compounds these issues, making reflexive ordering feel safer than thoughtful clinical reasoning.

The consequences extend far beyond wasted resources. Research into cascade effects reveals that 68.4% of patients exposed to unnecessary testing experience psychological harm, primarily anxiety about abnormal results that prove clinically insignificant. False positives are inevitable when tests are ordered in low pre-test probability situations. Physical harm affects 15.6% of patients through unnecessary procedures. Yet perhaps the most insidious harm is medicalisation: the transformation of healthy people into patients through testing that identifies abnormalities requiring monitoring despite no evidence of actual disease.

My initial reaction was frustration at reflexive ordering. But understanding the research reframed my judgment. The foundation doctor was navigating a system that discourages under-investigation more severely than over-investigation, operating within a culture where "just to be safe" feels rational given medicolegal risk. Understanding this logic did not diminish my core question: does ordering tests without clear clinical purpose actually serve patients? The evidence suggests it often does not.

This distinction between reflexive testing and purposeful testing grounded in clinical reasoning captures Professor Paola Domizio's core pedagogical philosophy. Domizio, a pathology educator at Queen Mary University of London, championed the idea that pathology is the bridge connecting biomedical science to clinical decision-making. In her work on pathology in the undergraduate curriculum, she argued that modern medical education had marginalised pathology as a "support service" rather than teaching it as the foundation of diagnostic thinking. A pathology test is not valuable because it is

available but because it answers a specific clinical question and informs management. My experience watching tests ordered without articulated clinical hypothesis crystallised how much medicine needs this philosophy embedded in practice. Domizio understood that every test represents a clinical decision, and every decision should be deliberate.

The problem is not inevitable. Research demonstrates that educational interventions focusing on clinical reasoning and requiring clinicians to justify each test reduce inappropriate ordering by 7-20%. Teaching frameworks like the Morgan approach, which asks clinicians to articulate "Why am I ordering this test?" and "How will the result change my management?", demonstrably improve clinical reasoning. The Choosing Wisely campaign found that physicians exposed to evidence about low-value testing were significantly more likely to reduce unnecessary investigations. Early clinical exposure through vertically integrated curricula produces doctors who order fewer but more targeted investigations.

As I progress through medical school, I recognise that the estimated 300,000 pathology tests performed daily across the UK each represent a clinical decision. Each should reflect the clinician's hypothesis about what disease might be present, what finding would change management, and why this investigation is necessary now. When tests are ordered thoughtfully, pathology becomes what Domizio envisioned: a tool for precision, for informed clinical judgment, for protecting patients from both under-treatment and unnecessary harm.

Looking back at that ward round, I understand what I witnessed: medicine practiced without sufficient clinical reasoning, pathology divorced from diagnostic thinking, tests ordered as routine rather than as answers to specific questions. But we can do better. We can ask why before we click. We can estimate pre-test probability. We can articulate what finding would change our management before we order the test. Every clinician who pauses to ask "What question am I trying to answer?" honours Paola Domizio's legacy and contributes to a future where pathology serves its true purpose: guiding clinical decisions, not replacing clinical thinking.

References

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