ENVIRONMENTAL IMPACT OF CHRONIC DISEASE MONITORING, UNNECESSARY TESTING AND SPECIMEN REJECTION

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The Choosing Wisely® campaign was established over ten years ago by the American Board of Internal Medicine with goals dedicated to ensuring care was: 1) supported by evidence; 2) not duplicative of other tests or procedures already received; 3) free from harm; and 4) truly necessary.[1] This was an important campaign, and its ethos resonates today with respect to unnecessary testing and its associated fiscal, psychological, and importantly, environmental consequences. Blood testing practices in general practice in the UK have recently been examined in a collaborative project between researchers at Bristol University and Primary Care Academic CollaboraTive (PACT) titled, 'Why Test?'.[2] They retrospectively examined blood test requests and deemed around 25% to be unnecessary and found just 6% contributed to, or confirmed, a diagnosis. To elucidate factors contributing to unnecessary testing and gauge opinion about what could be done to reduce it, Choosing Wisely surveyed American physicians.[3] The top reasons for over-requesting were due to concerns about malpractice, wanting 'to be safe' and for reassurance.[3] Other reasons cited were to 'keep patients happy'.[3] When asked about a range of potential solutions, the most popular suggestions were to reform malpractice; have evidence-based testing practices; spend more time with patients and to change the system of financial rewards physicians receive for ordering tests and procedures.[3]

Chronic disease monitoring

In the UK, primary care providers receive incentives and rewards for meeting chronic disease monitoring targets outlined in the Quality Outcomes Framework.[4] Over the next two decades, people will live for longer and the burden of chronic disease will increase.[5] A rise in demand for testing can be anticipated. It has been demonstrated that frequency of chronic disease monitoring can be reduced

without causing harm for certain conditions. During the COVID-19 pandemic, patients prescribed disease-modifying antirheumatic drugs (DMARDs) for rheumatological disorders such as arthritis had their blood test monitoring regimens reduced from three to six months.[6] Reduced monitoring did not lead to more abnormal results.[6] This reduction could be significant as it is estimated that DMARD monitoring may contribute up to 10% of the annual workload.[6] Reducing monitoring frequency (when safe to do so) can benefit both the patient and the environment.

Specimen rejects

Approximately 60% of errors are attributed to pre-analytical factors, including poor specimen quality (e.g. clotted, haemolysed, underfilled), inadequate labelling and insufficient specimen volume.[7, 8, 9] Most laboratories will have criteria for rejecting specimens when alerted to such errors, but at what cost to the environment? The carbon footprint and contribution to waste from sample rejection has recently been estimated by a biochemistry department in Istanbul, Turkey.[9] Approximately 4% of total samples analysed (~7,300,000) between 2021-22 were rejected.[9] They estimated this contributed 12.3 tonnes CO_2e and generated 3.7 tonnes of medical waste (for context, Turkey's total CO_2e value for 2021 is reported as 564.4 million tonnes).[9] Recommendations for blood sampling have been published by the EFLM pre-analytical working group, along with educational material.[10] These resources could be distributed to teams in emergency care and in other relevant departments with the aim of improving specimen quality and rates of avoidable errors.

The laboratory can also apply minimum retesting intervals to manage the demand for tests that are too frequently or inappropriately requested. There have been a reported 2,691,591 tests rejected over a 10-year period (from 27 studies) contributing an estimated 145 to 485 tonnes of CO_2e .[11] Reducing unnecessary venepuncture, rather than sample rejection, will likely have a greater impact on reducing CO_2e since specimen collection generates the most emissions of the entire analytical process.[12, 13] We would be interested to hear from members who have successfully managed the demand for tests at source, and ideally which reduces unnecessary venepuncture, particularly for those tests more commonly requested inappropriately such as Hba1c and lipids.[14]

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