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10-minute consultation title:

Can I have some blood tests to check nothing is wrong?

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Box - “What you need to know”

- Most requests for check-up blood tests are motivated by a specific health concern or symptoms – addressing these specifically may be most fruitful.
- Explain the limitations of blood tests in asymptomatic people – particularly the rate of false positive results.
- There are potential harms associated with over testing and these are rarely appreciated by patients. A frank discussion about when harms are likely to outweigh the benefits, and vice versa, may be helpful.

MAIN TEXT

Vignette

A 34-year-old man requests blood tests for “an MOT, just to check I am OK”. He is well, asymptomatic and takes no medication.

Patients frequently request a general check-up with blood tests. In the UK these are often referred to as an “MOT” in allusion to the annual motor vehicle check. Patients may however have unrealistic expectations of medical tests [1] and underestimate their potential harms. While agreeing to some blood tests can be an easy way out for a busy clinician, it can expose patients to the harms of over testing and produces downstream work load. We provide a framework for navigating these requests constructively, some elements of which are feasible within a 10-minute consultation.

What you should cover

It is important to clarify what he means by an “MOT”. He may have seen advertising for the NHS Health Check (<https://www.healthcheck.nhs.uk/>) or from the private sector. He may have prior experience of regular health check-ups from another health system.

Explore ideas, concerns, and expectations by asking, for example, “what do you think a blood test will tell you?” or “what made you come for a check-up now?”. Individuals requesting routine health checks often have specific health concerns (e.g. cancer, HIV, heart disease, family history), psychosocial issues [2] or undisclosed symptoms [3] that are the true reason for seeking care. These might be elicited by a question like “there are many different blood tests, is there a specific condition you were hoping we could test for?”, or “do you have a symptom you hope to explore with these tests?”. Give the patient the golden uninterrupted minute paying close attention to cues of a hidden agenda. If one is unearthed, redirect the discussion to resolving this issue. A useful phrase may be “If you didn’t have symptom/worry/problem X would you still need the blood tests?”.

Next, check for specific risk factors that influence whether you might recommend a screening test, e.g smoking, sexual history and family history. Focusing on recent lifestyle changes may help elicit specific concerns. A full review of evidenced-based screening is beyond this article – a full list of recommendations for the United Kingdom can be found at <https://view-health-screening-recommendations.service.gov.uk/>

Continuation of vignette

You are not able to elicit any specific worries or family history but he still wants his blood testing to make sure he is healthy.

What you should do

Discuss the implications of the expected results. Would an abnormal blood test mean something is wrong? Would a normal set of bloods mean nothing is wrong?

Patients that want blood tests in primary care often expect them to yield a large amount of information about their health, provide a clean bill of health, or diagnose serious conditions at an early stage without error [4]. This misconception may be difficult to challenge, especially when it has been reinforced by previous health care interactions.

Explain the concept of the reference range. Many blood tests have their reference range defined by taking many healthy people and doing the test on them. The reference range is set so that 95 in every 100 healthy people would have a normal result, and 5 an abnormal result. (Figure 1). Furthermore, many common tests, such as serum lipids, have significant measurement variation, making repeated measurements (as might occur in a yearly MOT) challenging to interpret [5].

Conversely, explain that a set of negative results do not rule out the possibility of serious disease [6]. A useful phrase might be “Doing a test is like asking a question – we can ask ‘is my thyroid working normally?’ ‘do I have enough iron in my blood?’ but there is not a test to answer the question ‘is there anything wrong with me?’”. Many dangerous conditions do not show up on blood tests, for example some cancers[6].

It may also be helpful to ask “which tests do you want to do?”. This may often be responded to with a request to do “all the tests/as many as possible”. You can explain that there are thousands of tests, and it is impossible to do them all. We do tests when there is evidence that benefit is greater than the harm, or when a patient has symptoms. This may help the patient understand that we are not against testing *per se*. You might remark “if I thought these tests would improve your health – their benefits outweighed their harms - I would fully support doing them”.

Explore the uncertainty around benefits of this kind of blood testing

At present there is no evidence that health checks – which may include blood tests – improve patient-important outcomes [5], like living longer or healthier. For example, when a full blood count is done as an “MOT”, 1 in 10 will be abnormal, but less than 1 in 100 will lead to any treatment change for the patient[7]. Blood tests and check-ups are better targeted for specific situations and life stages where evidence of their benefit is more clear [8].

Discuss the harms of overdiagnosis and testing

There are several harms that you could discuss with the patient depending on their priorities and values:

- False-positive results and blood “incidentalomas” may lead to unnecessary anxiety, treatments and cascade testing [9] with potentially harmful invasive procedures (e.g. biopsies) or irradiating scans (e.g. X-rays and CTs); “starting doing tests can be like lifting the lid on Pandora’s box”; “if we find an abnormality, these are some of the next steps we may need to take”
- Diagnosing subclinical conditions may increase the cost of health insurance in some countries and result in poorer self-perceived health and wellness [10]
- False reassurance which may delay diagnosis or mean we don’t focus on lifestyle changes [2] that could be most beneficial
- Many patients do not feel reassured by normal tests or are only briefly reassured (e.g. [11])

A more-is-better mindset is pervasive within medicine. Action can feel better than inaction, even if the action leads to harm. Paradoxically, patients may appreciate the discovery of an abnormal result, which ultimately harms them in the ways described above, or resulted in an earlier diagnosis but the same long-term outcome – so-called lead-time bias. idea more-is-

better mindset to testing may exist among clinicians about how medicolegal risk is managed, although a full discussion of this is beyond the scope of this article.

Pay attention to your own resilience and workload

The number of times this scenario presents in general practice will vary according to population health statistics, the cultural expectations of certain cohort of patients and the clinician's own time and inclination to have this conversation. We recognise that this consultation can represent a 'saving grace' in a busy session and that it is important to pay attention to your own resilience in any given day. There is an opportunity cost associated with a conversation about the nuances of MOT tests. It may occasionally be necessary to agree to tests to preserve the doctor-patient relationship, or following shared decision making where the patient is aware of the risk-benefit equation of tests. We hope however that this vignette has highlighted that a simple request for 'MOT blood tests' is not always free from harm (or indeed onward workload) and that requesting diagnostic tests is not a benign part of our job.

Box – “Education into practice”

- How might you respond to a request for “MOT” bloods to elicit a patient's covert agenda or concerns?
- How would you explain the limitations of blood tests in asymptomatic and apparently healthy patients wanting to check all is well?

Box – “How patients were involved in the creation of this article”

Two patient reviewers have read and provided feedback on the content of this article. Some phrases to use with patients were added on their suggestion. We reduced the detail on laboratory reference ranges as it was felt this might be too complicated to cover in 10-minutes and possibly not of interest to all patients seeking MOT blood tests.

Box – “How this article was created”

This article was produced based on the clinical experience of the authors. We also conducted online literature searches on Pubmed, Google Scholar and Cochrane database with the search terms “health checks expectations”, “health check-ups expectations”.

Contributor and guarantor information

DS and JW had the idea for the article, LB and JW performed the literature search, LB, DS and JW wrote the article, DS is the guarantor. The corresponding author attests that all listed authors meet authorship criteria and that no others meeting the criteria have been omitted.

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Competing interests declaration

We have read and understood BMJ policy on declaration of interests and declare the following interests: David Spitzer is Chair of the RCGP Overdiagnosis Group and Jessica Watson is a member of the RCGP Overdiagnosis group.

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Figure Legends

Figure 1 False positive characteristics for a typical laboratory test. A – The standard normal distribution that describes the results of many blood test when applied to a healthy population. The reference range of many lab tests is defined to include the central 95% of all healthy results. By definition, 5% of all healthy individuals will have an abnormal test result. B – given a 5% false positive rate for all tests, the probability of having at least one abnormal result increases as a function of the number of tests performed. If twenty tests are performed, there is a 64% probability of at least one positive result, 26% of at least 2, and 7.5% of at least three positives.