Editorials

Urgent cancer referrals:

how well are they working and can they be improved?

Urgent GP cancer referrals, often referred to as 2-week wait (2WW) referrals in England (with equivalent processes in the devolved nations), have changed the landscape of cancer diagnosis in the UK. The data presented by Round *et al*,[1] demonstrate this starkly: referrals have increased hugely over the past decade and the detection rate (DR; the percentage of new cancer cases treated resulting from a 2WW referral) has increased from 41% to 52% over this period. This is especially good news as patients whose cancer is diagnosed after a 2WW referral are more likely to have earlier stage disease, and therefore have better outcomes, than those diagnosed through other routes. Indeed, Round *et al* estimate that if DRs hadn't increased, then 165 899 fewer cancers would have been diagnosed through this pathway over the past decade in England, and many of these would subsequently have had more advanced stage disease, less well tolerated treatments, and poorer outcomes as a result. One of the downsides of the increase in 2WW referrals is that conversion rates (the percentage of 2WW referrals resulting in a cancer diagnosis) have fallen, meaning that the 2WW referral system is becoming less efficient, and many more patients are being referred who do not have cancer. These outcomes are all a predictable consequence of the liberalising of risk thresholds underpinning the referral guidance by the National Institute for Health and Care Excellence (NICE) in 2015. The study also highlighted significant variation between practices, and identified factors that might contribute to the variation in detection rate (larger practices, younger GPs, and more deprived populations). While these may not be amenable to intervention, reasons for these associations need exploring further. The study raises important questions that we will address in this editorial.

VARIATION IN REFERRAL RATES

How much should we try and address variation in referral rates (and therefore detection and conversion rates) between practices, and in what ways? The simple answer is to ensure clinical compliance with 2WW referral guidelines. These are essentially based on NICE guidelines (NG12),[2] with local adaptations. Some practices may not be referring, or delaying referring, eligible patients, and therefore contributing to lower detection rates. UK GPs have been reported to be less guideline compliant for some cancers compared with their counterparts in other countries.[3] A study from Wales reported that for some patients, the GP did not act as quickly as they could to investigate or refer patients with symptoms of lung cancer.[4] Some variation is out of the control of primary care, and driven by local secondary care trusts in setting different thresholds for upholding/downgrading referrals.

Round *et al*'s finding that larger practices make more referrals and have higher detection rates may be explained by a normative within-practice tendency for greater guideline compliance. Interestingly, factors such as doctor–patient familiarity can act as both barriers and facilitators to cancer referral depending on the context.[5] Falling conversion rates, especially in some site-specific cancers, may be driven by referral of increasing numbers of patients at lower levels of risk. This may now be improved by rapid diagnostic centres allowing GPs to refer patients with vague symptoms and those where there is sufficient worry about a cancer diagnosis.[6]

While the numbers were large in the Round *et al* study, it did not allow detailed analysis of differences between the site-specific pathways. This is a knowledge gap that needs addressing, as there is known to be variation on the performance metrics between the different cancer pathways. This will reflect differences in the nature of cancer symptoms, with some cancers, particularly those with non-specific symptoms, being harder to suspect than those with narrow symptom signatures.

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THE IDEAL 2WW REFERRAL RATE PER PRACTICE

It is not known what the ideal 2WW referral rate per practice should be in order to maintain detection rates as high as possible and maintain conversion rates at an acceptable level, and how this may vary between the cancer pathways. While high detection may be important for patients, this will mean low conversion rates. This has implications on resource use and capacity, which will sit less well with commissioners. Whatever the 'ideal rate', the continued rise in the number of 2WW referrals is probably untenable. The data in the Round *et al* study suggest that a full-time GP will make about 65 referrals per annum, and four or five of those will detect cancer; with a similar number of the GP's patients diagnosed by other routes. 2WW referrals result in a large amount of secondary care investigation and assessment to correctly identify the 7% of people with cancer and rule out the 93% who do not. As Round *et al* acknowledge, this puts 'pressure on diagnostic services', and puts patients at risk of iatrogenesis, anxiety, and overdiagnosis. Despite 2WW referrals coming at considerable cost, there is also a lack of health economic data to underpin 2WW referrals.

PATIENTS WHO ARE REFERRED BUT DO NOT RECEIVE A CANCER DIAGNOSIS

There are implications for the 93% of patients (and their GPs) who receive a 2WW referral but end up with a non-cancer diagnosis. These patients would have had sufficient signs and symptoms to qualify for a referral and all will have underlying reasons for those signs and symptoms. While the symptoms of some patients will resolve over time, many will need further assessment and investigation. The current 2WW pathway is not designed to do this, at least not for most cancer pathways. Patients are often returned back to GPs without a diagnosis. However, those referred urgently for head and neck cancer but who are given the 'all clear' have an increased risk of cancer in the following 5 years.[7] This is also likely to be true for other cancers. Additionally, patients may be given a false reassurance after this initial 'all clear' and delay help-seeking for new and recurrent symptoms,[8] and need appropriate information and effective safety netting in place to ensure patients know

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how and when to reconsult.[9]

The COVID-19 pandemic and its aftermath will challenge cancer diagnosis. There is still probably a 'catch-up' of diagnoses needed and limitations on diagnostic capacity.[10] This is compounded by the ongoing challenges of remote consulting and enduring changes on symptom appraisal and help-seeking by patients.

URGENT CANCER REFERRAL PATHWAYS INTO THE FUTURE

Looking forwards, cancer diagnostic pathways are needed that can prioritise those at greatest risk but also assess those at lower risk, be affordable within the health service, and safely, and rapidly, rule in — and rule out — cancer. 2WW pathways over the past decade have almost certainly incrementally improved cancer outcomes in the UK but are not without consequences, and there is scope for more efficient pathways. Hence, we suggest work in five distinct areas:

1. Ensuring compliance with existing guidelines. Practices and clinicians must try and comply with guidelines as much as possible. Initiatives that may help with this include the development of practice metrics to assess performance in cancer diagnostics; the use of tools such as 'C The Signs', which are available within some Clinical Commissioning Groups in England, enabling practices to benchmark and audit their referral performance against local and national norms; and interventions such as 'ThinkCancer',[11] currently being trialled, which aim to get GPs and practice staff to consider the possibility of cancer more often and to act on this.
2. The need to develop pathways for symptomatic patients at a lower level of risk, who do not qualify for an urgent 2WW referral (the so-called 'low risk but not no risk patients').
3. A clearer understanding and ongoing monitoring of site-specific urgent referral pathways, as there are likely to be different clinical and policy drivers between these.
4. Widening direct access to GPs for diagnostics, especially imaging, could potentially allow many patients without cancer to be managed entirely in primary care. While there are significant challenges to do this, it was the subject of discussion at a recent UK Parliamentary Health and Social Care Select Committee about the future of cancer services and how to improve outcomes.
5. Innovations in biomarkers and AI/machine learning in order to detect and prioritise patients at greatest risks, and to de-prioritise those at lower risk. The need for this is articulated in the Early Detection and Diagnosis of Cancer Roadmap, published last year.[12]

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REFERENCES

1. Round T, Ashworth M, L'Esperance V, Moller H. Cancer detection via primary care urgent referral in England 2009/10 to 2018/19 and the association with practice characteristics. *Br J Gen Pract* 2021; DOI: https://doi.org/10.3399/BJGP.2020.1030.
2. National Institute for Health and Care Excellence. *Suspected cancer: recognition and referral. NG12.* 2021. https://www.nice.org.uk/guidance/ng12 (accessed 5 Aug 2021).
3. Nicholson BD, Mant D, Neal RD, *et al.* International variation in adherence to referral guidelines for suspected cancer: a secondary analysis of survey data. *Br J Gen Pract* 2016; DOI: https://doi.org/10.3399/bjgp16X683449.
4. Neal RD, Robbe IJ, Lewis M, *et al.* The complexity and difficulty of diagnosing lung cancer: findings from a national primary-care study in Wales. *Prim Health Care Res Dev* 2015; **16(5):** 436–449.
5. Parsonage RK, Hiscock J, Law RJ, Neal RD. Patient perspectives on delays in diagnosis and treatment of cancer: a qualitative analysis of free-text data. *Br J Gen Pract* 2017; DOI: https://doi.org/10.3399/bjgp16X688357.
6. Dolly SO, Jones G, Allchorne P, *et al.* The effectiveness of the Guy's Rapid Diagnostic Clinic (RDC) in detecting cancer and serious conditions in vague symptom patients. *Br J Cancer* 2021; **124(6):** 1079–1087.
7. Scott SE, Oakley R, Moller H, Warburton F. Tracking cancer occurrence in the 5 years after referral for suspected head and neck cancer. *Oral Oncol* 2020; **109:** 104955.
8. Renzi C, Whitaker KL, Wardle J. Over-reassurance and undersupport after a 'false alarm': a systematic review of the impact on subsequent cancer symptom attribution and help seeking. *BMJ Open* 2015; **5(2):** e007002.
9. Nicholson BD, Mant D, Bankhead C. Can safety-netting improve cancer detection in patients with vague symptoms? *BMJ* 2016; **355:** i5515.
10. Cancer Research UK. *Evidence of the impact of COVID-19 across the cancer pathway: key stats.* 2021. https://www.cancerresearchuk.org/sites/default/files/cruk_covid_and_cancer_key_stats_june_2021.pdf (accessed 5 Aug 2021).
11. Disbeschl S, Surgey A, Roberts JL, *et al.* Protocol for a feasibility study incorporating a randomised pilot trial with an embedded process evaluation and feasibility economic analysis of ThinkCancer!: a primary care intervention to expedite cancer diagnosis in Wales. *Pilot Feasibility Stud* 2021; **7(1):** 100.
12. Cancer Research UK. *Early detection and diagnosis of cancer: a roadmap to the future.* 2020. https://www.cancerresearchuk.org/sites/default/files/early_detection_diagnosis_of_cancer_roadmap.pdf (accessed 5 Aug 2021).