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Referral for diagnosis: effectiveness not activity or expediency is a priority

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DIAGNOSTIC EFFECTIVENESS IS NOT DEFINED BY ACTIVITY OR POPULARITY

High quality decision-making for individual patients is at the heart of integrated medical care and has little correlation to the level of activity undertaken. There has been a rise in diagnostic indecision in recent years as practitioners increasingly rely on 'doing a lot' rather than 'doing it right'. This is evident in the expanding use of 'rapid' or 'open access' systems and 'rule out' testing to diagnose diseases, rather than reliance on basic high quality medical diagnostic acumen, based on knowledge and triage expertise. The National Health Service (NHS) needs to be cost-effective and it is unacceptable to provide or commission services in isolation on the basis of expediency, demand or popularity without reference to their effectiveness.

The culture of activity versus effectiveness appears to be widespread. Each week at the *JRCPE* we receive manuscripts documenting clinical activity across the range of internal medicine. These studies generally fail to put diagnostic or therapeutic activity in their clinical context, nor do they address effectiveness or the impact of this activity on the system. Rarely do they ever address the resources committed. One critical aspect of effectiveness in diagnostic pathways is to ensure that referrals are made on the basis of a credible prior probability of disease, rather than using open access systems as a method for 'ruling out' potential diagnoses. Patients must be referred with an adequate basic assessment completed, the relevant questions defined and have undergone a simple examination and basic testing. There is little evidence that effectiveness rather than activity is a principle of rapid access service design. This must be corrected in the forthcoming commissioning agenda.

SYSTEM EFFECTIVENESS DEPENDS CRUCIALLY ON PRIOR PROBABILITY OF DISEASE

Rapid access diagnostic systems have been developed to accelerate disease confirmation. They are expensive in both time and resources required. Every published clinical guideline on diagnosis or treatment states that guidance must be applied in the context of each individual patient presentation. These systems however are designed to provide diagnostic confirmation not basic recognition. Inefficient use, highlighted by high negative diagnostic rates, simply multiply costs, which is unacceptable in a tax-funded system. This process is not benign. Implementation of rapid access systems involves interviews and both laboratory and/or imaging tests to confirm diagnosis. The efficiency or true positive detection rate of any rapid access system will depend on the quality of the estimate of prior probability of disease. Effective access to pathways is centred around patients with a reasonable prior probability of disease and can be identified by the audited true negative rate. This clearly must be significantly less than 50% (random prediction of disease). It is reasonable to expect rapid access systems to function at over 50% positive case detection rates when following recommended diagnostic algorithms.

Good triage leads to high positive confirmation rates and effectiveness. Inadequate triage leads to high negative rates and costly inefficiency. The clinical context is central to effective use and this can only be defined by the referring medical practitioner's skill and decision-making, a definable process recently highlighted in the *JRCPE*[1] and at the heart of addressing the medical quality of an individual practitioner's work.

THE THREAT OF RULE OUT TESTING

Deferring decisions to another time, place or on to another person is a natural human characteristic. We all do it. In medical diagnostic practice however, it can be a very costly error for society and for the individual patient. Defining a probable diagnosis for an individual patient is the primary role of a medical practitioner. The medical profession and patients have all witnessed a rise in diagnostic indecision in recent years. Part of this is manifested in the rise of a modern culture of rule out testing. This has in part been encouraged by the development and misuse of rapid access systems. Unfortunately these systems can encourage poor diagnostic practice, deferring decisions by referral, 'just in case' disease A or B is evident. This is ineffective for patients, who rarely wish to know what they don't have wrong with them. A

patient's fear of illness is rarely so great as to require referral. The culture of indecision has been promoted in turn by an increased focus on 'important' disease, partly as a result of single disease specialists' interests, but also fed by patient pressure groups and in some cases from covert commercial interests. Rule out testing is seen by some community doctors as a mandate for an increase in the use of open access medical diagnostic systems yet these systems were never intended to replace diagnostic acumen. They are often serviced by non-medical staff, nurses or technicians with no breadth of diagnostic skill, who are simply following a protocol established for one disease. The focus (frequently overtly stated) therefore defaults to a ruling out process. The value to patients of this emphasis is unclear and the potential for harm (wasting time that could be used in achieving a correct diagnosis in severe/critical illness) is rarely quantified. The costs, both financial and from clinical diagnostic error/delay, can be enormous.

TIME TO INVEST IN RESEARCH AND REINVEST IN DIAGNOSTIC QUALITY FOR INDIVIDUAL PATIENTS

Rule out testing in principle is cost-ineffective in a tax-funded healthcare system, patently unsatisfying for the majority of patients and an anathema to quality in medical care. It is clearly an abuse of procedures, but I would suggest that this is based on a negative design and a lack of feedback rather than an attempt to disregard agreed processes. Use of this testing implies wrongly, in most instances, that individual doctors cannot make a positive diagnosis for the individual patient without resource to multiple other referrals. To some extent it could be suggested that rapid access systems have been inappropriately developed to foster secondary care specialist interests over and above the needs of the majority of patients referred (who in most contemporary practice do not have the index disease). In fact the most frequent issue is often inappropriate, and occasionally repeatedly inappropriate, use of these services.[2] Generally most community care staff are perhaps encouraged by ineffective system design and poor feedback to default to poorly judged rule out activity. This increasingly affects the acute medical activity in hospital admissions areas.

We must re-address and re-evaluate the fundamental role of individualised medical diagnosis. This is the key activity that medical training is meant to impart. Patients expect, and the vast majority want, a targeted individualised assessment and perhaps now is the time, and we have an opportunity to prove, that this model is both cost effective and most importantly, clinically effective. This can only be done through data acquisition, feeding back performance corrections, driving up positive detection rates, reducing ineffective utilisation of blind testing and providing quality in diagnostic assessment. Effectiveness does not mean speed, quantity or simply recording activity where these are actually clinically irrelevant to individuals and incur vast expense to the healthcare system.

Studies of clinical effectiveness, targeting the access to secondary care pathways and defining the negative diagnostic rates are urgently required in order to make specific improvements in the diagnostic chain. It is time to address the quality of prior probability of disease assessment in rapid access systems correctly, by researching and defining both sides of the coin, true positive and true negative rates. The former is the *raison d'être,* the latter, 'the elephant in the room' no one appears willing to address. If entry to the pathway is inefficiently triaged then the process or those administering it must be examined closely to prevent system collapse. The key to effectiveness lies not in the staff completing a pathway but in the quality of the referral and entry process. Such data are desperately needed from NHS systems to drive up quality for individual patients. Integrated care must be about patients, appropriateness and effectiveness, not what is rapid, popular or expedient. It needs to be quantitatively defined in an NHS context (not a fee-for-service healthcare economy) before investment is made or indeed taken away by administrative changes under the integration agenda.

The level of activity involved in using these systems tends to be substantial, but their detection rates of disease diagnosis can be shockingly low. Thus evidence of activity is not evidence of effectiveness.[3] Effectiveness, not activity underlines commissioning and investment in an integrated NHS.

INTEGRATED CARE REDESIGN AND RULE OUT TESTING: A THREAT TO NHS STABILITY?

As part of the current redesign of NHS healthcare services, an integration of care agenda is being set out.[4] This must focus on patient not provider interests and be based on supporting demonstrable effectiveness. Just as we set high standards for new drug therapies or devices, we should also address the utilisation of pathways and bring quality closer to the patient. Due to the salary costs and the staff-intensive nature of many rapid access diagnostic systems, it is unacceptable to invest in pathways that do not provide a high degree of positive diagnosis. This is not a secondary care issue but truly an integrated healthcare issue and must be at the heart of managing patients better to integrate effective decision-making.

Current UK government policy favours handing resource allocation to community care, where nominated commissioners will carry a heavy burden of responsibility to improve utilisation of NHS resources.[5] Rationalising and demonstrably improving quality of use in rapid access systems could be one target to promote better

structure and practice by promoting cost-effective use of pathways for positive individual diagnosis.

Those of us in the medical profession who believe that a tax-funded system of care is feasible and a continuing necessity for the health of all UK citizens must ensure that the quality of basic medical diagnosis is placed correctly at the heart of the integrated care agenda. It must be based on credible referrals to the correct systems. Poorly considered and inadequately justified individual referral will result not only in delay, error and dissatisfaction for patients but could initiate a terminal decline of what can be funded in the NHS.

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