Scholarship Based Medicine: teaching tomorrow's generalists

Why it's time to retire EBM

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We need whole-person, generalist medicine, now more than ever [1-3]. Yet the dominant model defining quality in medical education and practice - Evidence Based Medicine (EBM) - has become a barrier to expert generalist practice through its assertion of a hierarchy of knowledge defining best practice [4]. EBM was developed as a model for lifelong learning, and later clinical decision making, within the field of specialist medicine [5]. It is acknowledged that specialist and generalist medicine are grounded in different models of scientific thinking [1,6,7]. They therefore require different approaches – different hierarchies to judging between knowledge and so defining best practice. If we are to revitalise generalist practice, we must retire EBM.

To train the next generation of generalists – and indeed to support the current generation - generalists must now assert our own model of best practice in lifelong learning and clinical decision making. We can learn from the successes of the implementation of the EBM movement. The need for clear statements of practice, for stepped learning tools, support for training the trainer as well as the trainee, in order to disseminate learning and practice. But we need to redefine quality of practice.

I propose the need for a new model of Scholarship Based Medicine (SBM) – a model of practice that places the intellectual task of generalist medicine at the top of a knowledge hierarchy [Figure1]. Redefining quality in practice so as to support the revitalisation of generalist medicine and reverse the reported decline in person-centred care in the primary care setting [8], address the growing challenge of iatrogenic harm associated with multimorbidity[9], and re-inspire a generation of frustrated clinicians[4].

A new hierarchy of knowledge for generalist practice

Generalism is grounded in a principle of person-centred care [1]. Yet patients increasingly report that they don't receive personalised care [8]. My research offers an indication of why principle fails to translate into practice.

Clinicians repeatedly describe uncertainty in defending 'beyond protocol' decisions – clinical judgements that do not confirm to evidence-based guidelines [4]. In referring to the hierarchy of evidence, they describe how scientific evidence 'trumps' clinical opinion. They report feeling "unable to defend an off-guideline decision in a court of law", and so find themselves applying the evidence even if they feel it is wrong for this individual [4]. Quality of care is defined by adherence to evidence-based protocols. Their accounts reveal an uncertainty in how to differentiate between clinical judgement and opinion – in how to translate 'my judgement' into recognisable 'best practice'.

The science of generalism

Generalists and specialists do different jobs, and so differ in the clinical reasoning approaches that they use.

Specialist practice is grounded in a disease-focused, 'seek and control' approach[2]. It is a theory driven form of clinical practice that assesses the likelihood that a diagnostic category can be applied to this individual. Specialists use scientific theories about disease – what it is, how it is identified (diagnosed) and how it can be managed. Their role is to test a hypothesis that this individual has this disease. They collect data to test their hypothesis (in the form of symptoms, signs, tests) and apply deductive reasoning to test their hypothesis. Their underlying clinical question asks, could I diagnose

this individual with condition X. Scientifically speaking, the EBM hierarchy of knowledge is appropriate for the deductive reasoning of specialist care.

Generalist practice is grounded in a whole-person-centred, exploratory approach [7]. The primary goal of person-centred-care is to maintain, restore or improve an individual's health-related capacity for daily living[2]. Medical generalists use multiple data sources (scientific, patient and professional) to explore and explain a presented illness experience – scientific evidence is just one source of data (or more accurately information, Figure 1) – to be used. They use inductive reasoning to generate from the whole data set an individually tailored explanation of illness. The underlying clinical question asks, should I diagnose this individual with condition X - would it enhance health-related capacity for daily living? Scientifically speaking, we have frameworks describing best practice for inductive reasoning [7], which I have translated into an applied consultation model for clinical practice [10]. These scientific frameworks, for example from Information Science, also recognise a new hierarchy of knowledge – where (robustly applied) interpretive wisdom sits at the top of the pile and defines quality practice (figure 1).

A new model for professional practice – SBM

From these discussions, we can start to describe a new model of life-long learning and clinical decision making for generalist practice, recognising 3 elements.

Search for data: EBM teaches skills in systematic searching for research evidence. Generalist practice is also evidence informed, but generalists use a wider source of data in interpreting individual illness experience: data from science, from patients and from professional wisdom [1]. Generalists need to

be able to search and appraise a wider scientific literature on understanding illness. Clinicians are already taught the skills to collect patient data through consultation skills. Professional data – the knowledge-in-practice-in-context (mindlines) described by Gabbay and le May – is an important but, as yet, still underresearched resource [11]. There is work to do to describe its strengths and weaknesses, and how to optimise both its generation and use so that it can be fully integrated into the SBM approach.

Interpretation of illness: the skills of clinical reasoning described above, including a framework to support/assess trustworthy application of the process[7,10]

Recognising quality: In the absence of a reference to 'truth' by which to judge knowledge generation, interpretive practice includes reference to utility[7]. SBM defines quality of care by the impact of a revised model of practice on an individual patient – whether they receive person-centred care that enhances their capacity for daily living. But SBM also recognises the impact of the model on collective professional practice – its capacity to delivery person-centred care and generate knowledge-in-practice-in-context. Evaluation needs to be built into new models of practice.

These elements describe the building blocks from which we can start to describe the educational resources needed to support a new model of quality generalist practice – a model of Scholarship Based Medicine.

Reimagining General Practice for generalist care

Shifting to SBM as a model of continual professional learning and practice could help revitalise generalist practice and rebalance the delivery of primary care [12]. The change would certainly have implications for curricula and assessment for generalists-in-training, but also potentially for the design of practice and careers.

Survey data highlights that GPs currently lack the "head space" to consistently deliver 'beyond protocol' care – the best practice described by SBM. They reveal a need not for longer consultations, but a re-prioritisation of tasks and workload to free up the intellectual capacity for the complex task of generalist interpretive practice. Introducing SBM as a new model of quality practice potentially requires revision to the way we design and structure the generalist's working day.

Gabbay and le May described the importance of a collective "professional capital" in supporting generalist practice – the collective action of generalists working together to reinterpret data in context to produce locally useful applied knowledge or 'mindlines'. With rapid changes in the structures of GP teams, we urgently need to understand the implications for this collective professional action and so for quality of generalist care.

The Royal College of General Practitioners and the Society for Academic Primary Care are currently collaborating in a programme of work to Reimagine GP Careers through championing and cultivating the intellectual task at heart of general practice (https://sapc.ac.uk/article/gp-scholarship). This work includes building on the ideas described in this article, and we welcome contact from people interested in working with us to develop these resources.

So that, collectively, we can work to reclaim the definition of quality and best practice within our discipline and so revitalise the gold-standard wisdom of expert generalist practice.

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Figure 1: Describing the scientific method behind specialist and generalist practice

	Specialist Practice	**Generalist Practice**
Nature of scientific practice	Deductive: Theory driven logic underpinned by assessment of statistical likelihood of truth	Inductive: data driven logic which infers (and critically reviews) a likely explanation
How it differentiates between opinion and justified belief.	Top of hierarchy: scientific proof 	Top of hierarchy: inductive wisdom 
Clinical question asked	Could we diagnose this patient with condition X?	Should we diagnose this patient with condition X?
Lifelong learning model	Evidence Based Medicine	Scholarship Based Medicine