

# Doctors as a knowledge and intelligence building group: pragmatic principles underlying decision-making processes

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Pragmatism, as a philosophical option, is concerned with end results and argues that “all our thought-distinctions, however subtle, demand a possible difference of practice.”<sup>1</sup> Physicians calculate daily the best plan of action for each patient, following some pragmatic rules: only taking into account different strategies when they lead to different results, the personal effort and moral risks are considered, and if of equal outcome and cost, the strategy that best preserves clinical safety and moral values. The purpose of this study is not to clarify the content of philosophical pragmatism, but to observe how it is applied in clinical decisions and what difficulties arise. We propose a paediatric case to illustrate this process:

Dr Seel has just been visited by a 3 year old boy affected by earache. Dr Seel thinks the boy has otitis, because the eardrum was bulging and slightly red, and Dr Seel is aware of current evidence-based recommendations<sup>2</sup> which suggest that it is often not necessary to treat otitis with antibiotics. However the mother requests such treatment: “A few months ago he also had ear pain and non steroidal anti-inflammatory medicine didn’t work.” Dr Seel reconsiders her decisions, recalling the eardrum appearance, and prescribing antibiotics as a safer option.

We can distinguish several aspects in this vignette:

1. *Calculation of efficiency:* What must I do to achieve a diagnosis or therapeutic goal, and how time-consuming would it be? For this calculation, the doctor has four sources of information: (1) her own experience; (2) evidence-based clinical guidelines; (3) deliberation with colleagues or her team<sup>3</sup> and (4) any assistance available from laboratory or

radiology studies. The result of this process is an action plan.<sup>4</sup> Pragmatic calculus integrates all four elements, being physicians—in general—unable to specify the assigned weight to each one. The result of this calculation may indicate to do something or to refrain from any action, (ie, futile care in terminal care). Nevertheless when analysing what efficiency means in a given context, the perspective should be made explicit: Who receives the benefits and faces the costs? Health professional, patient or society? From the vignette it seems that Dr Seel is more concerned with efficiency rather than considering a community perspective.

2. *Calculation of effectiveness:* The extent to which the physician perceives that a particular strategy will be successful. In this example, the doctor surprisingly changed her first opinion. A request from the patient (or family) amplifies a doubt that the doctor had initially ruled out: “Do I have to prescribe antibiotics?” An affirmative answer depends on something as fragile as judging the family request. A fast heuristic such as, “when in doubt the best way is to avoid problems and preserve parent’s confidence,” can even make her to change her initial perception: “ultimately the eardrum was really swollen!” This way of ‘fast thinking’ has been conceptualised by Kahneman in his *prospect theory*.<sup>5 6</sup>
3. *Calculation of patient satisfaction:* Will the patient or the family accept (or reject) my action plan? Treatment *effectiveness* also depends on that, because an unconvinced patient (or parent) would hardly adhere to the plan.

The patient-centred model (PCM) has been proposed to enhance patient participation in decision-making. This process has come to be formulated in terms of ‘shared mind’<sup>7</sup> and proclaims the need to incorporate patient and family values and sharing of the cognitive and affective processes involved in decisions.<sup>8 9</sup> Translated to our vignette, we may prescribe an antibiotic with instructions to use it only if

the child worsens in the next 48 h, a strategy that has proven effective in reducing inappropriate use of antibiotics (‘safety-net prescription’, see [box 1](#)).<sup>10 11</sup>

Rational clinical practice seems to depend, however, on the doctor’s acceptance of evidence-based medicine (EBM) criteria. Patient’s beliefs—and sometimes physicians’ perceptions as well—can be a hurdle to a rational decision, because they can be anchored on personal or cultural biases. Pragmatic calculation is then greatly complicated because the doctor may face the following questions:

1. Am I quite sure that for this particular patient and clinical situation EBM criteria will work as well as my own pragmatic calculus?
2. When the mother requests antibiotics...should I start a process of education and persuasion—(a process which is expensive in time and uncertain in its results)—or is it wiser to give antibiotics to assure mother’s trust?...If I lose this mother’s trust my strategy would have a greater long-term impact than to prescribe a simple antibiotic.

The doctor is tempted to simplify the pragmatic calculation using three strategies which can be summarised as follows:

- a. *Prioritise the canonical rules:* The paediatrician always refrains from giving antibiotics when faced with an otitis. We call this strategy as *canonical simplification strategy*.
- b. *Prioritise personal perceptions:* When subtle aspects of the clinical picture suggest to us that the child will do better with antibiotics (fever, patient’s appearance...), we prescribe it, (even against a EBM criterion). We call this strategy as *strategy based on intuition*.
- c. *Prioritise patient’s satisfaction:* Whenever the mother—or father—tells us that she wants antibiotics for her child, we will give it to avoid curtailing her confidence. We call this strategy a *satisfying strategy*.

The three strategies impoverish the pragmatic calculation. PCM warns us especially against the first, nevertheless, we know that when a patient openly expresses her desire for a concrete drug, she has great probability of receiving it.<sup>12</sup> Thus an undesirable effect of PCM would be to legitimise a mere satisfying medicine, something that has been rejected by many PCM theorists.<sup>13</sup> However, a patient’s requests may also influence a doctor not prone to accept PCM. In fact our example shows a paediatrician who changed her mind due to an argument that is far from patient oriented (“It is

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**Box 1 Evidence-based medicine and communication skills: otitis wait-and-see prescription<sup>11</sup>**

Dr S: Mrs Y, I want to describe the dilemma we seem to be in. Could I do that?  
 Mrs Y: Sure, Doctor. I'm just interested in getting my daughter's ear right.  
 Dr S: Me too! Well, here's the situation. Your dear daughter has an ear infection. Are we both agreed on that diagnosis?  
 Mrs Y: Yes, Doctor.  
 Dr S: OK. Now there are two kinds of ear infections we see. Some are caused by bacteria like *Streptococcus* or *Haemophilus*. Most ear infections are caused by viruses. The patient suffers equally from either cause.  
 Mrs Y: What does my daughter have, Doctor?  
 Dr S: We are never 100% sure but I think it is about 90% sure that this is a viral infection.  
 Mrs Y: I see.  
 Dr S: And here's the puzzle part. We have to decide about treatment. If it is a viral infection, antibiotics never help. If it is bacterial, antibiotics may help.  
 Mrs Y: So let's give her an antibiotic, right?  
 Dr S: Good idea, EXCEPT that antibiotics often simply kill off good bacteria and the patient then gets a secondary infection that is much worse.  
 Mrs Y: I see. I wouldn't want that.  
 Dr S: Nor I. So I have a tentative plan I'd like to check out with you.  
 Mrs Y: Go ahead, Doctor.  
 Dr S: I'd like to hold off the antibiotic for her but give you a prescription for one anyway. You could keep the prescription in your purse and only get it filled if your daughter continues to have a fever more than three more days. How would that sound?

easier to prescribe an antibiotic than to convince the mother.”). Good clinicians will try to harmonise needs and expectations by means of patient education. This enhances effectiveness, which is necessary (although not sufficient) for maximising the efficiency of an intervention.

In many countries, payers (including National Health Service authorities), base some quality policies assessing on the extent to which physicians follow *EBM* criteria. The resulting economic incentives can encourage and legitimise an uncritical adherence to these rules, devaluing clinical experience and fostering discontent among physicians and patients.<sup>14 15</sup> Clinical experience was the cornerstone of decisions at the bedside until a few decades ago, but it seems now to become the major culprit of variability in clinical practice.

Can we defend clinical experience as a necessary ingredient for applying the criteria of *EBM*? At least we can afford three arguments:

A. Many patients are so complex that criteria can hardly be reduced to a simple and standardised clinical situation. More complex clinical situation requires greater clinical experience and deeper deliberation team quality. So medical teams must be understood as complex adaptive systems.<sup>3</sup>

B. A physician provided with solid clinical experience has an ethical duty to make a *personal validation* of new *EBM* criteria. In general, these criteria are accepted without question, but if some queries arise, a senior doctor must consider them seriously. This behaviour is not only honest but the last chance to avoid mistakes (eg, unnecessary acyclovir treatment in Bell's palsy).<sup>16</sup> Sometimes the problem is not the *EBM* criterion, but the way it is translated to our reality. A valid criterion for general population would not apply easily to a more specific one, or to a particular environment. Often clinical research produces average results from patients so peculiar that research can have high-internal validity but limited generalisability. Supplementing it with clinical reasoning and personal experience is usually necessary. Furthermore recommendations based on low-quality evidence carry the risks of ‘encouraging uniform practices’ and ‘inhibiting research that could clarify the magnitude of benefit or harm’.<sup>17</sup> Less frequently a doctor or a team could have discovered new strategies or treatment subtleties not covered by *EBM* studies. It is also worth highlighting that there are some theoretical and empirical developments proposing a model of rational decision-making that

takes into account not only the Bayesian perspective<sup>18</sup> but studies on the psychological and cognitive processes (dual processing models).<sup>6 19</sup>

C. Scepticism is a necessary factor to favour knowledge advancement. The sceptical doctor is not opposed to the *EBM*, but examines the corpus of criteria trying to find facts that oblige *EBM* to refine some beliefs or simply to replace them. In the case of coeliac disease the proposal of a non-coeliac gluten sensitivity,<sup>20</sup> forced experts to expand the diagnostic scope.<sup>21</sup> In other cases the sceptical view has endangered the very existence of some diagnoses (such as fibromyalgia)<sup>22</sup> or refined others (as testosterone deficiency).<sup>23</sup> In our case paediatricians seem in many countries reluctant to accept *EBM* ‘non-prescription’ criterion: prudence, distrust or intransigence?<sup>24 25</sup>

In conclusion pragmatic calculation is present in current decisions but it is not easy to perform a calculation taking in account *EBM* criteria, the patient's perspective and our own perceptions. Some ‘fast thinking’ strategies may arise, and we should be alert not to overly legitimise them. Clinical guidelines should enhance a reflective practice to avoid a mere mechanical application of canonical criteria.<sup>26</sup> Often communication skills play a key role in harmonising patient expectations with *EBM* criteria (see box 1). Eventually health authorities should support environments where teams, as complex adaptive systems, might perform high-quality clinical deliberations.<sup>27</sup>

**Acknowledgements** All the authors thank Dr Ronald M Epstein, Family Medicine, Rochester University; Dr Ramon Pujol, Internal Medicine, School of Medicine, University of Barcelona; Dr Josep Maria Borràs, Epidemiology, School of Medicine, University of Barcelona; and Dr José Lázaro, Medical Humanities, Autonomous University of Madrid, for their deep and detailed comments that have allowed significant improvements of this manuscript.

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**Contributors** FB-C contributed to the drafting of the manuscript, gave main ideas and took part in group coordination. AE contributed to the philosophical review and terminology. FWP was involved in the box drafting, reviewing concepts and discussion. VM provided the clinical vignette and applied evidence-based medicine to the clinical case.

**Funding** This work was supported by Spanish Government's DGICYT research project: FFI2011-23238, “Innovation in scientific practice: cognitive approaches and their philosophical consequences”. This work is part of the consolidated network, recognised by the Generalitat of Catalonia as “Grup d'Estudis Humanístics de Ciència I Tecnologia” (GEHUCT; “Humanistic Studies on Science and Technology”).

**Competing interests** None.

**Patient consent** Obtained.

**Provenance and peer review** Commissioned; externally peer reviewed.

**To cite** Borrell-Carrió F, Estany A, Platt FW, et al. *J Epidemiol Community Health* Published Online First: [please include Day Month Year] doi:10.1136/jech-2014-203868

*J Epidemiol Community Health* 2014;**0**:1–3.  
doi:10.1136/jech-2014-203868

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