

SHORT REPORT

What's the use of Archimedes?

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Last year, *Archives of Disease in Childhood* introduced a new section entitled "Archimedes". Its purpose is "to assist practising clinicians by providing 'evidence based' answers to common questions which are not at the forefront of research but are at the core of practice".¹ Archimedes is actively looking for paediatricians to submit their efforts at finding answers to these questions.

In October 2001, five SpRs and four community paediatricians on the MMedSc in Child Health at the University of Leeds decided to take up the challenge. Each undertook to tackle one question of either general or community paediatric interest that had arisen recently in the course of their clinical practice. In accordance with the principles of evidence based practise,² they pursued the evidence, critically appraised it, and presented it to their colleagues. Table 1 shows the results of their endeavours.

DISCUSSION

Nine paediatricians took an average of 5.4 hours each in their attempt to track down an answer to an important clinical question they had; this does not take into account the time taken to appraise the evidence. At the end of the day, only two of them came up with adequate evidence of sufficient quality to change their clinical practice. The question has to be asked whether all this effort was worthwhile. Is this the sort of investment that we need to make in order to promote evidence based medicine?

On the surface, it is hard to justify so many hours of work searching databases, obtaining articles, critically appraising

the evidence, and debating its quality and application. Can we expect professionals to exert this effort in what too often is a frustrating and fruitless search?

Perhaps surprisingly, we all concluded that it was a worthwhile exercise. At the end of five weeks, after we had shared our experiences and results together, we anonymously and independently evaluated the process. Without exception all of us felt that our skills in searching electronic databases, asking structured clinical questions, and critically appraising the literature, had improved, and that these were all key skills which were essential to acquire.

So, as a learning experience the exercise was worthwhile. But, we felt, there were other reasons for supporting Archimedes' columns. The process has highlighted the very real lack of evidence available to answer important everyday questions. Why is there an increasing number of research papers on the use of melatonin in children with neurodevelopmental disabilities and sleep problems, but no high quality randomised controlled trials? Why don't we know if grommets are effective in language delay with secretory otitis media? Why don't we know the benefits and risks of administering BCG to babies born from HIV infected mothers?

Many cynics (including those in the RCPCH email discussion group who recently debated the value of evidence based medicine in continuing professional development) would use this lack of evidence to support their arguments that evidence based medicine has attained too much prominence. However we feel otherwise, and believe that there

Table 1 Results of the investigations

Question*	Quality of evidence found	Time taken to search electronic databases	Time taken to locate articles	Would their clinic practice change as a result of the search?
1 What is the best medical treatment for neonatal abstinence syndrome?	No conclusive evidence	4.5 hours	2 hours	No
2 Is labial fusion a marker for sexual abuse?	Inconclusive evidence	2 hours	2 hours	Perhaps increased suspicion of an association
3 Do chest x rays and ECGs add to one's clinical evaluation when assessing heart murmurs?	Satisfactory evidence that they are unhelpful	2 hours	1 hour	Yes
4 Is melatonin effective in treating sleep disturbance in children with a disability?	Poor quality evidence	1 hour	3 hours	No
5 Are there risks in giving BCG to a baby born of an HIV infected mother?	Small cohort study and case reports	3 hours	3 hours	No
6 Are inhalers effective in treating persistent and recurrent coughing in children?	RCTs of reasonable quality	8 hours	2 hours	Yes
7 Does the prescription of EpiPen benefit children with peanut allergy?	Inconclusive	3 hours	3 hours	No
8 Is a single prophylactic dose of vitamin D effective in preventing rickets in high risk children?	No evidence at all despite widespread use in other countries	3 hours	2 hours	No
9 Do grommets improve language development in children with language delay and secretory otitis media?	One trial: ruined through most control children dropping out	2 hours	2 hours	No

*All these questions are being submitted to Archimedes.

is a value in showing where there is a lack of quality evidence for common and important practices. It is only in this way that the research agenda will change and will become more driven by the general paediatrician working at the community or general paediatric coalface.

Archimedes is asking us to ask questions. By showing where the gaps in evidence lie, we as a community should be able to put our efforts into ensuring that paediatricians in the future will have the evidence available for common and important issues that affect children's care and health. It is not through mindlessly following institutional guidelines that we shall improve the clinical effectiveness of children's health care. It will only happen through practising evidence based health care on an individual level, in the manner promoted by Archimedes.

Good luck, Archimedes!

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COMMENTARY

Rudolf *et al* have found a depressingly small proportion (2/9 = 22%) of answers to real, important clinical questions. Compared to the output of Archimedes from September 2001 to May 2002, this is a poor effort. (Archimedes found satisfactory answers to 12/15 questions.) But it does correspond well to studies looking at clinical questions in other arenas.¹ I think this reflects a high degree of submission bias (a precursor to publication bias, where only questions with "adequate" answers are submitted for consideration) rather than the brilliance of previous contributors to Archimedes.

In running patient centred journal clubs in both teaching and district general hospitals, similar percentages of questions without answers have been found. While this initially leads to a sense of nihilism, it has the benefit of talking through the beginners' feeling of "everything can be evidence based" to a sense of proportion and occasionally determination to use audit/research projects to answer important questions rather than tick the box on a training portfolio.

Archimedes has taken the challenge of Rudolf *et al* by dedicating his birthday issue to "Questions you thought should have answers, but don't". Repeatedly asking questions is the only way to expose gaps in our knowledge, and drive forward the clinical care of our children.

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Conflict of interest: the author of this commentary is the section editor of Archimedes and is also a student on the MMedSci course run by the author of the main paper.

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