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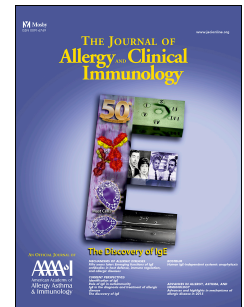
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Asthma: the past, the future, the environment, and the costs

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Two distinct but related articles in this issue suggest a vision for a future with less asthma burden. Chen et al.¹ ask whether the parents' financial circumstances, when the parent herself / himself was a young child, independently impact their child's asthma. Tchudy et al.² review the potential (some of it realized) of payment innovations to fund nonclinical, relatively low cost, somewhat evidence-based environmental control approaches. Put together, those two articles point to a very exciting trajectory that, in our opinion, is long overdue – both to research different, and sometimes understudied, aspects of the “environment”, as well as a concerted effort to try to change the policy and actual environment in order to provide better care.

Chen et al.¹ found that parents of children with asthma who reported that – in the first three years of their own lives – they lived in a rented apartment, were more likely to have children with worse asthma symptoms (and biochemical evidence for worse inflammatory activity) as compared with parents who said that they recall living in a house that their family owned in the first three of their (the parent's) lives. The authors conclude that parents who lived in a low socioeconomic status (SES) environment themselves as children have children who have a greater asthma burden, independent of current circumstances. They postulate that this is mediated at least in part by higher level of conflict in homes of parents with low childhood SES. While some of the measures that Chen et al.¹ use have demonstrated validity, they are imperfect proxies. For example, parents recall of their own parents' housing status (rental vs owned) when the reporter's age was 1-3 years old must be quite imperfect, as is the exclusive use of this criterion to assess SES status. As acknowledged in the manuscript as a limitation, it is plausible that the findings of this research can be summarized not as

“intergenerational effects affect asthma” but as: “parents with sicker children are more likely to report their own childhood as being disadvantaged”.

We think this is an important study nonetheless. We agree with the authors that a well-designed, costly cohort study would be best to provide evidence on intergenerational effects. In the absence of such a study, we will need to triangulate findings of smaller, less conclusive studies such as this, and in the meanwhile, acknowledge that we simply do not know whether it is true or not that intergenerational effects have an impact.

Chen and al.¹ have published an intriguing investigation that provides inconclusive data that that parents' circumstances as they grow up may shape their children's future in a way that is independent from their or the child's current environment.

Let's assume for one moment that their conclusions were justified. The pessimist would regard it as a 'lost cause,' with an unhappy outcome pre-ordained by prior harm. The optimist would see two key opportunities. The first would be of primary prevention, seeking to promote economic opportunity with an eye towards both immediate and intergenerational benefits. The more tempered optimist would identify a history of parental disadvantage during childhood as a risk that might merit additional investment in asthma control, such as described in Tchudy et al.² here. Perhaps we should be helping those children so that, when in turn they have children, those will benefit; the intergenerational “transmission”, if it exists, could become a positive, ever-improving cycle.

But how to intervene? Since “interventions” to increase the parents’ SES are not within the general realm of clinicians, Tchudy et al.² review myriad mechanisms that have recently become available to promote environmental interventions to promote asthma care. Those efforts may involve aspects of “accountable care organizations”: health care systems that are remunerated based on patient outcomes and per-capita expenditures in an entire cohort rather than on per-patient use of services. We believe that indeed ACO’s are the “wave of the future” in health care, but we would like to caution about one aspect that we believe is not covered in the manuscript. It appears that a general underlying assumption is that devoting resources to preventative and coordinated care (for example, in the form of “health promotion coaches”) is going to result in substantial savings. Not only is this not proven, we actually believe that it is very unlikely. As reviewed elsewhere with regards to care coordination³, when taking into account the cost of the intervention itself (as one should), ancillary health interventions, even if very successful, are rarely cost-effective. Even ACO’s are systems in which the death of a patient may be the most cost-effective way to prevent future costs incurred by this patient. In this kind of environment, the requirement that interventions that make the patient live a longer and better life will reduce costs may be misguided. We believe that only a health system that is not entirely guided by costs but, rather, is evaluated via clinical and not economic outcomes, is going to be able to support such environmental prevention efforts in the long run. Of course – it would be even better if cost reduction could also be achieved, but we caution against focusing only on that aspect as a measure of success. What if costs have increased because the coach turned out to be quite expensive, but the child’s symptoms and quality of life

substantially improved? Should we abandon that effort, or should we instead celebrate it as a success and force the health system to acknowledge it as such? Our own belief is that the latter is the more appropriate approach. And so, to supplement the article by Tchudy et al.² we would like to add that efforts at environmental prevention may be justified in non-economic terms even if they prove to increase costs. The evaluation of health care systems must include clinical outcomes, such as those promoted by the Collaboration for the Advancement of Pediatric Quality Measures (CAPQuaM) consortium⁴ and others, in addition, or sometimes in lieu of, cost considerations.

The two articles, in the aggregate, remind us of the incredible complexity involved in providing health care, even for one of the most common and quite treatable ailment. Chen et al claim that we should try to improve not only the child's immediate environment but also target intergenerational effects, while Tchudy et al suggest that we devote efforts to modify the current environment as a way to reduce costs and improve care. Neither of those manuscripts can provide conclusive proof that in fact, engaging in those efforts will improve outcomes. But we cannot wait for this proof. We believe that the best way forward is the one delineated in our Figure, with practice expanded to some plausible but not yet entirely proven realms. But we believe that we should continue to study the subject even while implementing the changes that we are able to implement. We don't have to claim that tentative evidence is proof, nor should we promise cost savings without proof. Rather, we can advocate for doing what we believe is right, as we wait for proof that we did it right, or evidence that we should change course. As we collect the evidence, we believe that quality care metrics should

emphatically not include a cost measure. Tchudy et al.² are right in that, if we are able to reduce costs while helping patients, this would be wonderful. But we believe that a preventative intervention, if it truly improves outcomes and quality of life, should be implemented, in some circumstances, even if costly.

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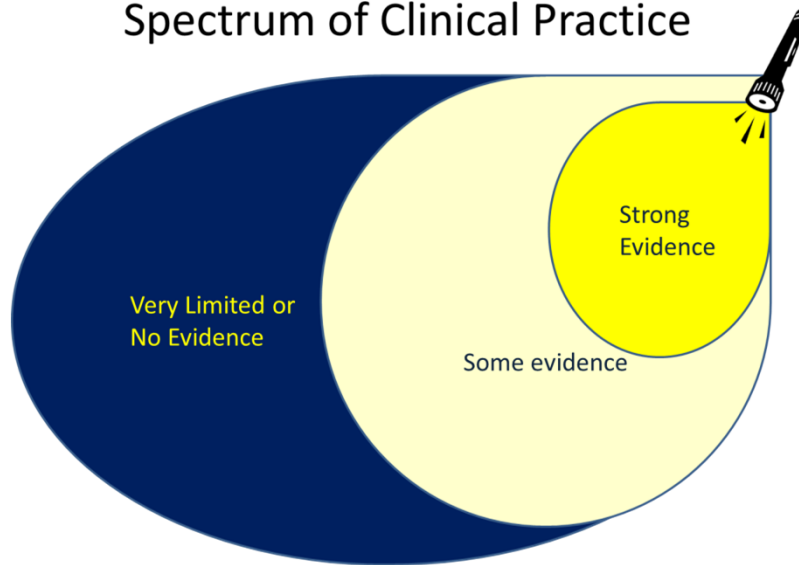
1. Chen et al. – This issue to be filled in by JACI when full reference is known (JACI 16-00409)
2. Tchudy et al – same as above. (JACI 16-01095)
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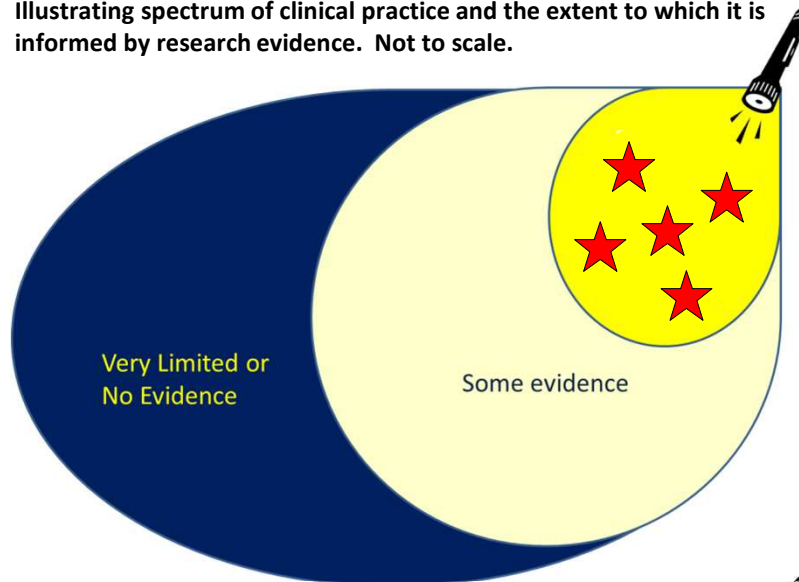
147 Spectrum of evidence-informed clinical practice: where should clinical efforts be concentrated?

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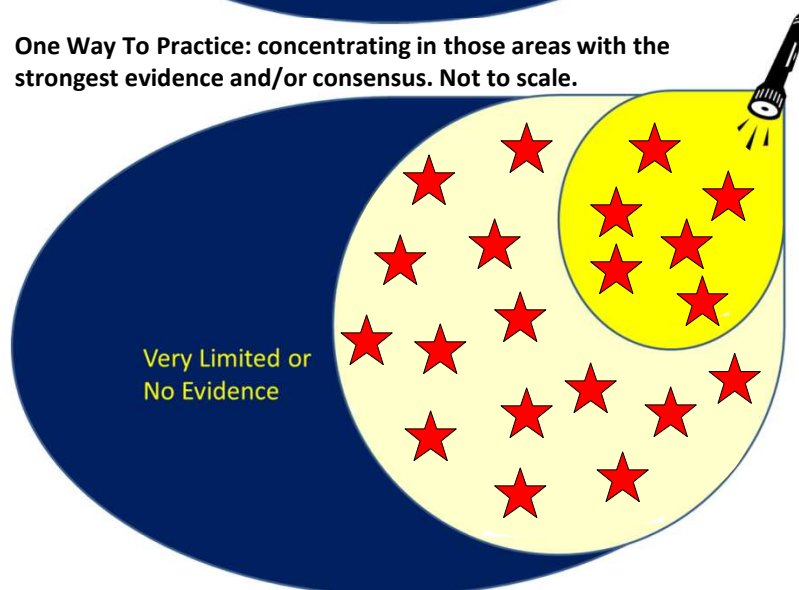
Spectrum of Clinical Practice



- A. Illustrating spectrum of clinical practice and the extent to which it is informed by research evidence. Not to scale.



- B. One Way To Practice: concentrating in those areas with the strongest evidence and/or consensus. Not to scale.



- C. A Vision of Optimal Practice : Inclusive of areas for which there is some clinical uncertainty. Not to scale.