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# Exporting “failure”: why research from rich countries may not benefit the developing world

## Exportando “fracasso”: porquê a pesquisa de países desenvolvidos pode não beneficiar os países em desenvolvimento

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### ABSTRACT

The ‘10/90 gap’ was first highlighted by the Global Forum for Health Research. It refers to the finding that 90% of worldwide medical research expenditure is targeted at problems affecting only 10% of the world’s population. Applying research results from the rich world to the problems of the poor may be a tempting, potentially easy and convenient solution for this gap. This paper had the objective of presenting arguments that such an approach runs the risk of exporting failure. Health interventions that are shown to be effective in the specific context of a Western industrialized setting will not necessarily work in the developing world.

**DESCRIPTORS:** Descriptors: Biomedical Research, trends. Technical Cooperation. Developed Countries. Developing Countries. Evidence-Based Medicine.

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### RESUMO

O “gap 10/90” foi inicialmente apontada pelo *Global Forum for Health Research*. Refere-se ao achado de que 90% dos gastos mundiais em pesquisa médica é voltada a problemas que afetam apenas 10% da população mundial. Resultados de pesquisa aplicáveis provenientes dos países ricos aos problemas dos pobres poderiam ser uma solução tentadora, conveniente e potencialmente fácil para solução desse gap. O artigo teve por objetivo apresentar argumentos de que tal abordagem acarretaria o risco de exportar fracassos. Intervenções em saúde que se mostram efetivas no contexto específico de um país ocidental industrializado necessariamente não funcionará em um país em desenvolvimento.

**DESCRIPTORES:** Pesquisa Biomédica, tendências. Cooperação Técnica. Países Desenvolvidos. Países em Desenvolvimento. Medicina Baseada em Evidências.

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## INTRODUCTION

The "10/90 gap" was first highlighted by the Global Forum for Health Research.<sup>a</sup> It refers to the finding that 90% of worldwide medical research expenditure is targeted at problems affecting only 10% of the world's population. Applying research results from the rich world to the problems of the poor may be a tempting, potentially easy and convenient solution for this gap. In this paper, we argue that such an approach runs the risk of exporting failure. Health interventions that are shown to be effective in the specific context of a Western industrialized setting will not necessarily work in the developing world.<sup>5,9</sup>

### PROBLEMS WITH RANDOMIZED CONTROLLED TRIALS

Randomized controlled trials are considered to be the gold standard in assessing health interventions, yet they generally only investigate one intervention at a time.<sup>19,20</sup> As we shift from an era of classic chronic disease or risk factor epidemiology to one of "eco-epidemiology",<sup>18</sup> in which the focus is on prevention of disease through governance and fiscal and environmental policies rather than on simplistic notions of individual lifestyle modification, different approaches to research are needed. As Schwartz & Carpenter<sup>15</sup> pointed out, focusing on individual-level health determinants while ignoring more important macro-level determinants is equivalent to obtaining the right answer to the wrong question.

A further limitation of randomized trials is that their results are highly dependent upon their context, which affects the appropriateness, interpretation, and external validity of the study.<sup>21</sup> Many randomized trials study highly selected groups of people, which means that the results may not be applicable to the broader population, resulting in a conflict between proof of concept and external validity.<sup>11</sup> Trials often fail to take into account whether the intervention, if found to be effective, would be affordable to the vast majority who should benefit from such intervention.

### PROBLEMS WITH SYSTEMATIC REVIEWS

Systematic reviews are another tool for evaluating the quality of clinical evidence relating to a health intervention. Research output derived from similar interventions or studies with similar outcomes are evaluated in aggregation to assess whether, if pooled together, the data would show more consistent results than in the individual studies. Systematic reviews are a powerful tool in that they maximize the data and evidence available, thus reaching conclusions based on stronger data quality and quantity.

However, systematic reviews also suffer from contextual problems similar to those of trials. Most of the studies that are included in such reviews come from particular contexts, which are often developed country settings. Thus, the findings from systematic reviews may not always be applicable or relevant to other settings.<sup>17</sup> As Chinnock et al<sup>2</sup> stated, "systematic reviews have yet to achieve their potential as a resource for practitioners in developing countries".<sup>2</sup>

### ENABLING RESEARCH PRACTICES AND STANDARDS THAT ENHANCE THE APPLICATION OF RESEARCH FINDINGS IN THE DEVELOPING WORLD

Given these limitations of randomized controlled trials and systematic reviews, can the results from such studies in the developed world ever be applicable to the developing world? It should be stressed that researchers based in developing countries and actively involved in generating systematic reviews and conducting clinical trials will have a different perspective on contextual factors, the relevance of the research question and the applicability of their findings. The importance of this type of evidence has not been discussed. Here, a few examples of the valuable contributions that such studies can make towards other, developing country settings are highlighted below.

Firstly, the validity of such work across differing communities should be rigorously assessed to see whether their results are deemed generalizable. Secondly, studies can potentially be of more use if they take into account different contexts such as the organization of healthcare delivery, its human resources and financing. Regional differences can strengthen a multinational study, and do not weaken it if an appropriate analysis plan is integrated early on in designing the work. Two major international research projects have demonstrated this: the MRC CRASH trial,<sup>14</sup> which evaluated the role of corticosteroids among patients with head injury; and the INTERHEART study,<sup>23</sup> a large case-control study on risk factors associated with myocardial infarction. These studies included research teams from various contexts, thereby generating knowledge that was relevant and applicable to local settings.

Until such large collaborative initiatives become the norm, we should acknowledge the limitations of our current best evidence. Systematic reviews, for instance, need to present all the sound evidence on the study subject, but should conclude with take-home messages on the circumstances under which they may

<sup>a</sup> Global Forum for Health Research. 10/90 report on health research 1999. [cited 2009 Dec 02] Available from: [www.globalforumhealth.org/Media-Publications/Publications/10-90-Report-on-Health-Research-1999](http://www.globalforumhealth.org/Media-Publications/Publications/10-90-Report-on-Health-Research-1999)

or may not work. Such simple messages could alert the reader regarding the external validity of the conclusions reached and the type of setting within which such evidence may yield a higher impact. It is also essential that context-appropriate health research and health interventions take place in developing countries. Exporting research results and intervention methods purely based on industrialized countries' settings, to poorer countries, ignores the fact that the expectations, costs and burdens of disease vary widely between these countries. The Cochrane Collaboration's health promotion and public health group, in collaboration with an international taskforce, has recently completed a study to make recommendations for systematic reviews on public health topics of particular relevance to developing countries.<sup>13</sup> Such recommendations will aid in identifying topics or fields in which a synthesis of the evidence may be of greater benefit for developing countries. Again, more of this evidence needs to hail from the part of the world where many of the global health problems are concentrated, in order to ensure truly systematic, global evidence-based medicine.

## BARRIERS TO RESEARCH IN THE DEVELOPING WORLD

Lack of access to the research literature limits research efforts. A United Nations report presented in Addis Ababa in 1969 proposed that if the "vicious circle of underdevelopment" was to be overcome, an indigenous scientific capability needed to be fostered, which meant overcoming the "highly imperfect access to the body of world scientific knowledge".<sup>3</sup> The current *status quo* of restricted access means that the scientific conversation between people in the rich and poor worlds – conversations in which clinical evidence is critiqued or new clinical trial reports are used to set policy – is an unequal one. "Authors from developing countries," according to Langer et al,<sup>10</sup> "are often not adequately prepared to participate in the international scientific debate, as they have limited access to the published literature."<sup>10</sup> The HINARI<sup>a</sup> program, set up by WHO together with major publishers, is an example of a project that is producing a positive change, since it enables health institutions in 113 developing countries to gain access to over 3,750 journal titles.

In addition to access to literature, many other issues can be listed as critical obstacles. The limited research – in terms of quantity and impact – arising from developing countries is also partly due to the poor academic environments. Academics in developing countries often work in isolated settings, and fewer of them interact with public health policy makers. They often work

under extreme pressure in terms of clinical caseload, and economic concerns mean that their spare time is devoted to private practice. In the same vein, issues of changing the research culture, investment in research skills and funding of research also appear as fundamental and important barriers to research activity in developing countries. Also, the most prominent medical journals, mostly based in the developed world, appear to be less concerned with geographically and economically distant healthcare issues.<sup>8,16</sup>

Academic and research collaborations based in developing countries need to address local issues and produce research that can be easily and readily implemented locally. Furthermore, there is a huge, untapped potential for research in less developed countries to contribute to medicine and public health in general by generating low-cost solutions to health problems, some of which are also crippling the economies of rich countries despite their much greater spending on health. Such work may export success from the poor world to the rich world.

## STRATEGIES TO ENCOURAGE ACCESS TO RESEARCH RESULTS AND RESEARCH CAPACITY IN DEVELOPING COUNTRIES

Chronic barriers to research in developing worlds need to be addressed through a formal organizational structure to sustain collaboration. We must invite academics from the developing world to sit at the academic high table to offer their views on what work is needed. This will perhaps shape how all researchers, from both rich and poor worlds, frame their own papers by encouraging thinking of a more globalized nature. To tackle the growing inequalities in global health and raise the profile of international health in developed countries, such novel approaches are needed.

One example is the "NHS links" (Wright et al<sup>22</sup>), a network of health professionals across the United Kingdom involved in a variety of health links between NHS trusts and health centers in less developed countries. Wright, its medical director, argues that a "coherent and systematic approach to international exchanges would not only promote a more professional and equitable approach to the selection and induction of staff, but would also place global health and inequalities in the conscience of health organizations themselves".<sup>22</sup> Such links would mean the 'quality threshold' for research would not need to be lowered.

The International Dialogue on Evidence-informed Action to Achieve Health Goals in Developing Countries (IDEAHealth<sup>b</sup>) is a forum that focuses on

<sup>a</sup> World Health Organization, The HINARI Programme. [cited 2009 Dec 02] Available from: <http://www.who.int/hinari/en/>

<sup>b</sup> World Health Organization. International Dialogue on Evidence-informed Action to Achieve Health Goals in Developing Countries. [cited 2009 Dec 02] Available from: <http://www.who.int/rpc/meetings/ideahealth/en/index.html>

a small number of important health goals, bringing together health policy-makers, researchers and citizen-consumers to share experiences and evidence in a bid to formulate solutions on how to respond to challenges like health human resources, maternal and child health and health financing.

## FINAL CONSIDERATIONS

There is a lack of research funding into low-tech interventions with the potential to yield important scientific and public health advances. This yield refers not only to clinical end-points but also to cost-effectiveness measures, among others. We should study low-tech interventions especially if they produce high yields in the appropriate settings. There are several examples of successful low-tech health interventions that have been studied in resource-limited settings, such as management of depression<sup>1</sup> treatment of seizures

due to neurocysticercosis,<sup>6</sup> rapid diagnostic tools for tuberculosis,<sup>12</sup> and use of web resources to prevent sexually transmitted infections.<sup>4</sup>

As for policy-formulating evidence, reality shows well-documented and significant gaps between 'what is known' and 'what is done'.<sup>a</sup> Health differentials between social groups, or between poor and rich countries, are not primarily generated by medical causes, and they require solutions at a different level.

When approaching the evidence using a low and middle-income perspective, researchers need to be aware of context, i.e. where it comes from. In particular, they need to assess whether the evidence is relevant to their own setting. A true evidence-based approach towards global international health requires that the research and academic community from low and middle-income settings should have a major say in the shaping of interventions that address their own needs.

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<sup>a</sup> Global Forum for Health Research. 10/90 report on health research 1999. [cited 2009 Dec 02] Available from: [www.globalforumhealth.org/Media-Publications/Publications/10-90-Report-on-Health-Research-1999](http://www.globalforumhealth.org/Media-Publications/Publications/10-90-Report-on-Health-Research-1999)

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