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Undertaking Research in Other Countries: Further Considerations

Adamson Muula

The article by Skene [1] has touched on an important topic in as far as global health research is concerned. Skene’s barometer is certainly a critical contribution to the discourse in research ethics that could be used in both extra-territorial and intra-territorial research. There are, however, several areas where I feel a different opinion would enrich the discussion.

My first concern is that the author presents this barometer with the slices of the pie having sharp demarcations. To the reader, this may suggest that there are clear-cut transitions from one area of the barometer to the other. In reality, however, issues in ethics are less well demarcated. For instance, a research area in itself may fit more in one color zone, but the participants chosen may move it towards the next color zone. Another researcher studying the same research area but different participant groups may be in a different color zone. In general, however, gradations with one color merging into the other, rather than clear-cut demarcations, would be more likely to be observed in practice. The fact that a different scheme could present reality more clearly is exemplified by the author’s use of the “green zone”, where research on competent adults, research on vulnerable populations, and research on children have all been grouped under one “roof”. Skene’s barometer may also be modified if one considers that vulnerability can be determined on a categorical basis (all persons in that category are vulnerable) versus on a situational basis [2]. For example, why should all persons under sentence of capital punishment be considered vulnerable? Do we assume that these people cannot make informed decisions which are so central in research ethics? Are we worried about coercion or constraining factors?

It is of interest that Skene’s barometer has research on stored human tissue and observing people in a public place as neither associated with any laws and no requiring ethics oversight. Did the author mean that a researcher intending to video tape (which is by the way observational) in a restaurant not require ethics oversight? I would argue that stored human specimens should also be associated with ethical oversight. Mfutso-Bengo and I have made a case for continued ethical oversight. Did the author mean that a researcher intending to transfer specimens across national boundaries. Available: http://jme.bmj.com/cgi/letters/33/1/3541512. Accessed 26 April 2007.


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Undertaking Research in Other Countries: Author’s Reply

Adamson Muula [1] rightly observes that demarcation between the “zones” of Skene’s barometer is unclear. Certain activities may fall in one zone or another, depending on the circumstances. A research project does not fall within a particular zone solely because of its type. One must consider the project in operation. Muula mentions the treatment of participants in trials, particularly whether they are properly informed before the trial starts. One could add other factors such as the way participants are recruited, personal information held, or adverse incidents reported. Thus “research involving competent adults”, which I have in the green zone (permitted with ethical oversight), would move to the yellow or orange zones (permitted under national laws with ethical oversight; or prohibited by national laws) if participants were coerced or duped into entering a trial; or if their personal details were revealed without their consent of diseases (although cosmetics can also be a treatment for disfiguring human diseases).

It is interesting that the author also suggests that research on cloning “would be unlawful in Australia and almost universally regarded as ethically unacceptable”. This certainly brings into question the thesis that research ethics are universal. I guess in the next decades, the world will grapple with the ethical conduct of research in space. Who has jurisdiction when research occurs in outer space? These questions and others will certainly confront humanity, if not in this century, perhaps in the next.

Finally, because of the use of specific examples and situations, Skene’s barometer may be applicable to Australia but not so much to the wider world. I guess the tool will undergo transformations where general algorithms and principles will be considered such that the barometer will be used beyond Australia.
Hal Levin

This article and editor’s summary give the impression that the tuberculosis infection rate was actually reduced by opening windows [1]. A careful reading of the article clearly states that while ventilation rates were measured, infection rates were merely calculated using the Wells-Riley equation. This is old news. While it is important to take into account the adequacy of the ventilation rate provided by mechanical ventilation systems, the ventilation rate through open windows is a function of window size, number, and location in a room as modified by indoor–outdoor temperature differences and wind direction and velocity.

Not every case will result in the differences observed in the Peruvian hospitals studied. One must be careful not to overgeneralize the results.


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Natural Ventilation for Prevention of Airborne Contagion: Conclusions Overgeneralized

Hal Levin

This article and editor’s summary give the impression that the tuberculosis infection rate was actually reduced by opening windows [1]. A careful reading of the article clearly states that while ventilation rates were measured, infection rates were merely calculated using the Wells-Riley equation. This is old news. While it is important to take into account the adequacy of the ventilation rate provided by mechanical ventilation systems, the ventilation rate through open windows is a function of window size, number, and location in a room as modified by indoor–outdoor temperature differences and wind direction and velocity.

Not every case will result in the differences observed in the Peruvian hospitals studied. One must be careful not to overgeneralize the results.


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Natural Ventilation for Prevention of Airborne Contagion: Authors’ Reply

We would like to thank the correspondents for their thoughtful contributions to this important public health topic [1]. As our abstract and article state, we measured natural and mechanical ventilation and then calculated the effects of these ventilation rates on estimated tuberculosis (TB) infection rates using a mathematical model of airborne infection. This appears to be the first published assessment
of natural ventilation rates in health-care settings, and the novel conclusions of our article are that extremely high rates of dilutional ventilation can be achieved through natural ventilation at very little cost by simply opening windows and doors. Indeed, this natural ventilation was far in excess of even the best maintained mechanical ventilation systems used in health-care settings. Importantly, this natural ventilation greatly reduced the calculated risk of airborne infection.

Measuring TB transmission itself is difficult, as rates in staff are confounded by exposures outside the workplace, and mechanical air sampling techniques have had limited success. We have established a guinea pig air sampling facility to directly measure TB transmission in a hospital ward in Lima, Peru [2] and have used this model to evaluate the effects of upper room ultraviolet light and negative air ionization on TB transmission. We plan to use this facility to further study natural ventilation, and its effect on actual TB transmission.

The results of the current study cannot be generalized to regions too cold to tolerate enhanced natural ventilation and not every room may be as amenable to natural ventilation as the Peruvian rooms that we studied. However, the key conclusions are clear: high rates of natural ventilation were achieved even on days with little wind and even rooms without high ceilings and large windows were well ventilated, such that natural ventilation significantly exceeded mechanical ventilation.

It is therefore clear that natural ventilation has an important role to play in the fight against institutional TB transmission in resource-limited settings. Mechanical ventilation is expensive to install, requires costly ongoing maintenance, may be dangerous if poorly maintained (for example, delivering positive instead of negative pressure), and is clearly inappropriate for the great majority of resource-limited settings where the burden of TB is highest. TB infection control is an urgent priority, underscored by the emergence of extreme drug-resistant TB strains and the increasing congregation in potentially high-risk overcrowded settings of persons living with HIV through the roll-out of enhanced HIV care. When infectious TB patients share rooms with others, opening windows and doors to enhance natural ventilation is a simple, inexpensive, and effective strategy in the fight against nosocomial TB transmission.

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