

# EDITORIAL

## The Greater Good

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In the previous issue of the Journal we published a Special Section devoted to a series of papers on the Ebola epidemic that we had received and published electronically over the past 6 months.<sup>1</sup> In terms of content views and journal citations, that undertaking has been extraordinarily successful. Consequently, we will from time to time combine special collections and publish them in a section format that will enable future collation and printing as a supplement should an appropriate sponsor be found. The major benefits to the journal will be the publication of content in a more timely manner and that we will be better able to ensure that all citable material is rigorously and objectively peer-reviewed.

In the current issue we are again privileged to publish a Special Section, this one highlighting material on Health Communications Strategies, much of which comes from work done as part of a European Union grant titled TELL ME.<sup>2</sup> TELL ME is almost a self-explanatory acronym: Transparent communication in Epidemics: Learning Lessons from experience, delivering effective Messages, providing Evidence. This project represented an innovative, multi-year, multi-national, and multi-institutional character. The aim is to provide evidence and to develop models for improved risk communication during infectious disease outbreaks, notably flu epidemics and pandemics. The project was funded by the European Commission under the Seventh Framework Programme (FP7) for Research and Technological Development, under the HEALTH theme.

The key objectives of the TELL ME project were as follows:

1. **To collect and assess evidence about population behavioral responses** to infectious disease outbreaks and ways in which different types of communication can affect human behavior.
2. **To identify and report emerging challenges**, new methods, and tactics in communication concerning infectious disease outbreaks.
3. **To produce a series of guidance documents** on new communication strategies for health professionals and agencies to effectively engage with vaccine-resistant groups.

4. **To develop an integrated, evidence-based, communication package (TELL ME Communication Kit)**, which will offer a new anticipatory model for crisis communication.
5. **To design, construct, and test a prototype** of a computational method for simulating the actions and interactions of autonomous decision-making entities within a virtual environment during an epidemic outbreak, in order to observe the emergence of effects at the macro level (Agent-Based Social Simulation).

Realizing these objectives is clearly important and the various articles presented detail some of the ways the TELL ME researchers attempted to do so. This past year the critical importance of Health communication strategies in addressing outbreaks of infectious diseases, and their all too obvious shortcomings, have come into clear focus at the forefront of public health, both with the devastating Ebola epidemic and now the recent spate of measles outbreaks. Although we are dealing with 2 RNA viruses, their clinical, pathological, and epidemiologic consequences defy any further comparisons. Likewise, similarities from a public health perspective and the necessary supporting health communications strategy to better achieve successful intervention and control present vastly different challenges; for each, a unique health communications strategy is required. One of the critical differences and the importance of health communication is well stated by John Barry, author of *The Great Influenza*<sup>3</sup>: “in the next influenza pandemic, be it now or in the future, be the virus mild or virulent, the single most important weapon against the disease will be a vaccine. The second most important will be communication.”<sup>4</sup>

There are many informative lessons in *The Great Influenza* (which should be required reading in every medical school and every school of public health), but one needs to be underscored—without an effective vaccine we must turn to other public health interventions that are too often inadequate or are intrusive and too frequently resisted. And lest we take too much comfort in our ability to produce a vaccine to protect us, in 1918 the first cases were reported in March and the majority of deaths occurred in October and November of that year (7 to 8 months later),

with an estimated total of 675,000 deaths among a US population of 105,000,000 resulting from the pandemic. In April 2009 through November 2009,<sup>5</sup> had the influenza virus become as lethal, and given the timelines for vaccine development, we would not have had a vaccine deployed in time and might well have experienced up to 2 million deaths before one could be fielded and administered. Yet, at the time, public health authorities and their communications were branded as alarmist and exaggerated, respectively. In retrospect, the 2009 influenza A (H1N1) thankfully proved to be a much less lethal variant. However, here again, the critical need for an effective health communications strategy, not only to promote effective interventions but also to attempt to balance public fears and realistic expectations is all too evident. But as we are aware, this is much easier to articulate than to accomplish.

Now Ebola has been displaced from the headlines by a resurgence in measles cases and a spate of outbreaks in the United States and other countries over the past several years. The immediate outbreak of note stems from 40 cases associated with the Disneyland theme park in southern California this past December and resulting in an additional 103 related cases reported in the District of Columbia and 17 states. This for a disease targeted for eradication from the Western Hemisphere by the year 2000;<sup>6</sup> this for a disease for which we have a highly effective vaccine. Unfortunately, we do not seem to fully appreciate that the most effective of vaccines will not work if it is not administered, as evidenced in the single largest outbreak of measles in 2014, which occurred among unvaccinated Amish individuals in Pennsylvania and resulted in 383 cases.

We must ask whether this is the result of a failure of health communication. It is not entirely, as there exists an array of legal exemptions from vaccination requirements that vary greatly from state to state. Only 2 states allow only a medical exemption, Mississippi and West Virginia, whereas 48 states grant religious or personal (philosophical) exemptions as well. Given the extremely high reproductive number ( $R_0$ ) for this disease,  $R_0 = 12-18$  (the estimated average number of new cases a single case will generate), a large percentage of the population must be protected in order to prevent disease spread. This level of protection is, of course, what we term herd immunity, and a proxy measure to determine the necessary level of protection is given by  $1 - 1/R_0$  for a given agent. For measles the required level approaches 95%, and this level, evenly distributed, among the population, would delimit outbreaks but would not eliminate sporadic individual cases.

Given an overall vaccination rate of 90% in the United States, and a large pool of unvaccinated individuals because of exemptions, a health communications strategy should target this particular population subgroup in order to decrease

the overall number and percentage of susceptibles. This messaging, in my opinion, must have two major thrusts:

1. Counter the anti-vaccination messages that achieve the status of Urban Myth but which continue to convince parents against vaccinations. Again, this is not an easy task and those charged with crafting messages should refer to the work of Nyham et al.<sup>7</sup>
2. Promote the greater good concept: we all have a duty, if not an obligation, to do our part to contribute to the overall health of our communities, and we certainly all share in a collective obligation to do no harm.

A thorough study and discussion of this critically important topic in present and historical context can be found in Paul Offit's *Deadly Choices: How the Anti-Vaccine Movement Threatens Us All*,<sup>8</sup> another work that should be required reading at the health professions school level. At the more personal level, I have included a powerful open letter by famed children's author Roald Dahl at the end of this editorial to underscore the importance of vaccination to every parent.

In closing, we need to understand that a basic ethical tension exists between clinical medicine and public health. The clinician is obligated to place the care and welfare of the individual patient above all other interests; the public health practitioner has the overall welfare of the population as the primary concern. This divergent ethic is also evident at the policy level, where in formulating a vaccine strategy the overall objective of limiting the spread of a disease versus preventing individual cases needs to be clearly delineated.

Only then can an effective health communications strategy that balances private and public rights and obligations be crafted. The TELL ME project has developed a set of tools to facilitate this exercise, and, if utilized, the greater good will be better achieved, but not at the expense of individual choice.

## REFERENCES

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**MEASLES: A DANGEROUS ILLNESS, BY ROALD DAHL**

Olivia, my eldest daughter, caught measles when she was seven years old. As the illness took its usual course I can remember reading to her often in bed and not feeling particularly alarmed about it. Then one morning, when she was well on the road to recovery, I was sitting on her bed showing her how to fashion little animals out of coloured pipe-cleaners, and when it came to her turn to make one herself, I noticed that her fingers and her mind were not working together and she couldn't do anything.

“Are you feeling all right?” I asked her.

“I feel all sleepy,” she said.

In an hour, she was unconscious. In twelve hours she was dead.

The measles had turned into a terrible thing called measles encephalitis and there was nothing the doctors could do to save her. That was twenty-four [sic] years ago in 1962, but even now, if a child with measles happens to develop the same deadly reaction from measles as Olivia did, there would still be nothing the doctors could do to help her.

On the other hand, there is today something that parents can do to make sure that this sort of tragedy does not happen to a child of theirs. They can insist that their child is immunised against measles. I was unable to do that for Olivia in 1962 because in those days a reliable measles vaccine had not been discovered. Today a good and safe vaccine is available to every family and all you have to do is to ask your doctor to administer it.

It is not yet generally accepted that measles can be a dangerous illness. Believe me, it is. In my opinion parents who now refuse to have their children immunised are putting the lives of those children at risk. In America, where measles immunisation is compulsory, measles like smallpox, has been virtually wiped out.

Here in Britain, because so many parents refuse, either out of obstinacy or ignorance or fear, to allow their children to be immunised, we still have a hundred thousand cases of measles every year. Out of those, more than 10,000 will suffer side effects of one kind or another. At least 10,000 will develop ear or chest infections. About 20 will die.

LET THAT SINK IN.

Every year around 20 children will die in Britain from measles.

So what about the risks that your children will run from being immunised?

They are almost non-existent. Listen to this. In a district of around 300,000 people, there will be only one child every 250 years who will develop serious side effects from measles immunisation! That is about a million to one chance. I should think there would be more chance of your child choking to death on a chocolate bar than of becoming seriously ill from a measles immunisation. So what on earth are you worrying about? It really is almost a crime to allow your child to go unimmunised.

The ideal time to have it done is at 13 months, but it is never too late. All school-children who have not yet had a measles immunisation should beg their parents to arrange for them to have one as soon as possible.

Incidentally, I dedicated two of my books to Olivia, the first was *James and the Giant Peach*. That was when she was still alive. The second was *The BFG*, dedicated to her memory after she had died from measles. You will see her name at the beginning of each of these books. And I know how happy she would be if only she could know that her death had helped to save a good deal of illness and death among other children.