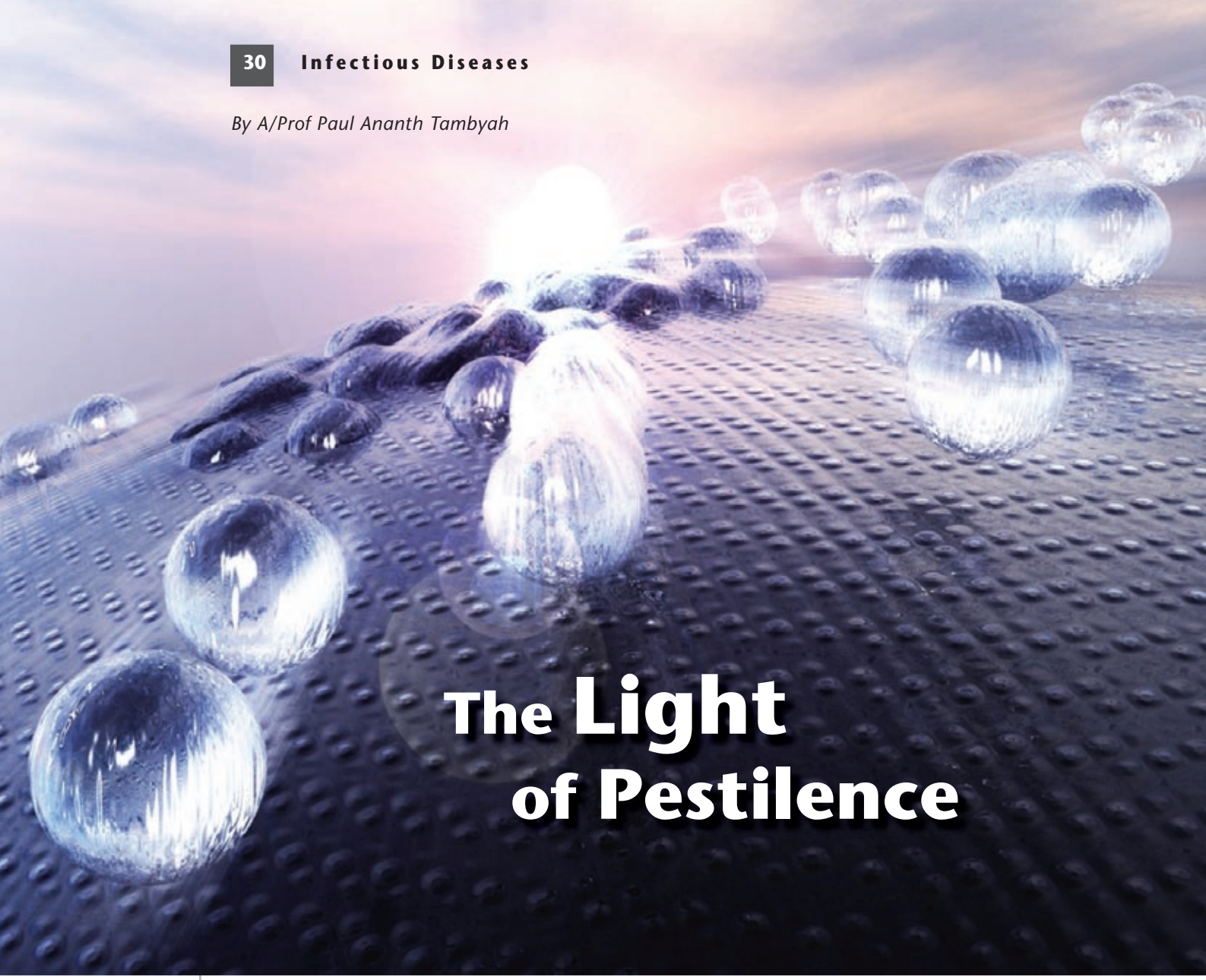
By A/Prof Paul Ananth Tambyah



The Light of Pestilence

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When Han Chong approached me to contribute to the *SMA News*' Infectious Diseases theme issue, I gave him a non-committal answer. Like the true friend that he is, within days, I received an email from the editorial office of *SMA News* with details of my expected contribution. My contribution, to use Han Chong's own words, should be a Yoda-like piece on infectious diseases in general in Singapore.

"POWERFUL YOU HAVE BECOME ..."

Infectious diseases was an unknown specialty in Singapore when I began medical school a long time ago in a campus not so far away (Faris Lecture Theatre to be precise). The only fully trained infectious diseases specialist in the public sector was practising in the academic department of pharmacology. Most internists assumed that any general physician could treat infectious diseases, with the communicable diseases specialists at Middleton Hospital looking after those with public health significance. We were not that far behind what was happening in North America. The paradigm there had shifted probably somewhere between the emergence of penicillinase producing staphyloccous aureus, and the recognition that medical devices such as intravenous catheters or mechanical ventilators could become portals for nosocomial infection. With the founding of the Infectious Diseases Society of America in the early 1960s by Dr Maxwell Finland (whom I like to claim a connection to, as he trained Calvin Kunin and Ed Kass who trained Dennis Maki who trained me!) and others.

There still is considerable overlap between clinical microbiology (which the pathologists

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excel in), tropical medicine, epidemiology, public health and infectious diseases. It is indeed striking that the dozen or so consultant infectious diseases physicians in Singapore have a number of additional qualifications and interests in many of these fields. This is a testimony to the catholicity of the infectious diseases profession.

In recent years, with the SARS crisis which then Prime Minister Goh described as his premiership's darkest hour, and the threat of pandemic influenza, infectious diseases has gone from being a Cinderella specialty for those who cannot be surgeons (like myself!) to a headline grabbing profession for the über-bug busters. Although we like to think that we are becoming more powerful, the reality is that given a choice, most CEOs would much rather hire an aesthetic surgeon than an infectious diseases physician under our current reimbursement system. Nevertheless, I think that we are a little more visible than a couple of decades ago.

Since this is an article for the general audience, I will prevent myself from waxing lyrical about the novel quorum sensing inhibitors being developed in our own backyard that have the potential to intercept cell-to-cell communications between pseudomonads like a US government eavesdropper. Instead, I would like to focus on the role of pestilence, as infectious diseases used to be known (and as some administrators still refer to us, ID physicians, I am sure!), as a searchlight.

"OH GREAT WARRIOR, WARS NOT MAKE ONE GREAT ..."

The sword, famine and plague dispensed by those infamous four horsemen have been markedly evident in the year that has just passed. Yet, beyond the direct devastation wrought by war, hunger and disease, what has become more evident is the glaring systemic defects exposed by these apocalyptic messengers.

Famine in Saharan and Southern Africa has exposed the hypocrisy of a world trading regime that allows milk lakes and grain mountains to accumulate in the subsidised farms of the wealthy, while children die of starvation in the 21st century. Hurricane Katrina exposed the underbelly of an administration that believed in 'minimal government', which blithely told poor and elderly people that they were best off driving out of a doomed city in their non-existent cars. Indeed, as a *New York Times* editorial put it so aptly, the inattention to infrastructure has succeeded in achieving the worst ambitions of 'the terrorists': the death of a great American city.

But I am not an economist, agronomist or engineer. I am a simple ID physician and I think that there is enough that has been exposed by infectious diseases in the past year both locally and beyond to fill this entire issue, but I will confine myself to a couple of potent examples where pestilence has shone the spotlight on areas we need to repair.

SARS WARS

We have all heard about how the SARS crisis was a wake-up call for Singapore and the world. For Singapore, it was a reminder that infection control is not a luxury that we indulge in when we have a small surplus; it was literally a matter of life and death. For Singaporeans in general, it was a gripping realisation of how globalisation has changed the world of microbes. It did not take months for ships from the Mediterranean to bring measles and smallpox to help the conquistadors wipe out the ancient Mayan and Inca civilisations. Now, within a week, a single physician visiting a global city such as Hong Kong could spark off a worldwide epidemic on three continents that led to unprecedented panic and economic devastation.

Enough has been written about SARS in these pages and elsewhere by myself and others, and so I am not going to flog this horse any more.

YOU WILL FIND ONLY WHAT YOU BRING IN

At the beginning of 2005, we were shaken by the headline 'Elective Ops Cancelled', and thought in the immortal words of Yogi Berra that this was 'déjà vu all over again'. This time, however, it was not some new respiratory virus but rather a gut commensal that had acquired the gene for resistance to our most potent anti-gram positive antibiotic – yes, I am talking about vancomycin resistant enterococci (VRE). The dust has now settled somewhat and scholarly publications are beginning to emerge from that outbreak. They highlight once again, the capacity for microbes to expose the underbelly of a system. Data from Fong et al (Ann Acad Med Sing 2005; 34(Suppl):S20) showed that the largest single risk factor for the acquisition of VRE in Singapore General Hospital was being in a C-class ward. These patients had at least a three-fold increased risk of acquisition of VRE, an even higher risk than renal failure patients (OR 1.4).

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Worldwide, over-crowded and under-staffed public healthcare facilities are the main foci of transmission of multi-resistant pathogens and it is sobering to realise that we are no different. It is unclear how long we are going to be able to continue keeping many of our most vulnerable citizens, the poor elderly with multiple medical problems in over-crowded, under-staffed wards, where they run the risk of colonisation and infection with resistant pathogens. But this is a societal issue that we can only raise constantly and hope that those with the power to change things will listen.

Cook County Hospital in Chicago, which has been described as a 'fourth-world' institution treating the indigent, homeless, migrants and others, has recognised the impossibility of maintaining infection control in large 'Nightingale' wards with 21st century levels of staffing. The new Cook County hospital was thus rebuilt with only single and double rooms largely for infection control purposes. It simply made economic sense to reduce nosocomial infections which would have lengthened hospital stays and added the burden on the rate-payers who funded a large proportion of the care there.

"NAMED MUST YOUR FEAR BE BEFORE BANISH IT YOU CAN."

The epidemic of endocarditis that occurred this year among intravenous drug abusers in Singapore also highlighted another societal issue: the problem of intravenous drug abuse in Singapore. This issue of subutex abuse was actually first highlighted in *The New Paper* (1 October 2003) but the first clinicians to bring its complications to light were infectious diseases physicians Dr Ling L M and Dr A Ong writing in the *Epidemiology News Bulletin* of July-September 2004.

Substance abuse in Singapore is a problem which many of us try to avoid discussing but the reality is that doctors have a critical role in preventing and controlling it. Many of us were shocked to discover that for the third quarter of 2005, according to local pharmaceutical industry data at www.imshealthasia.com/1311.html#spore/cf0/ulnone (accessed 10 January 2006), Subutex, a drug approved for only one indication – treatment of opiate addiction – is ranked third after Norvasc and Plavix, and just ahead of Lipitor and Fosamax. The data from the previous two quarters was not that different; Subutex ranked second and fourth in the first and second quarters respectively. I cannot believe that opiate addiction is one of the top five medical conditions in Singapore – in the same league as hypertension, osteoporosis and hyperlipidemia. There must be some other explanation for these sales figures and it cannot reflect well on certain elements of Singapore medicine.

Either way, as Singaporeans, and as Singaporean doctors in particular, we need to deal with the issue of substance abuse head on rather than consign it to one particular segment of the population.

"THE DARK SIDE CLOUDS EVERYTHING. IMPOSSIBLE TO SEE THE FUTURE IS."

Many here are concerned about pandemic influenza. Others are concerned about the next emerging pathogen, which might not be viral, might not be respiratory, or like the variant CJD, might not even have nucleic acid. Still others are concerned that there will be an over-reaction to the threat of pandemic influenza.

Dr Richard Krause, former head of the National Institute of Allergy and Infectious Diseases, who was in Singapore for much of last year as the Director of the REDI Center, wrote in the January issue of *Emerging Infectious Diseases* (www.cdc.gov/ncidod/EID/vol12no01/05-1132.htm) about the 'fog of epidemics' and the experience of those involved in the 'Swine Flu Episode' of 1976. As most of you know, there was a small cluster of swine flu cases in US military personnel and a great deal of fear that the new pandemic strain to equal the 1918 flu had materialised. Eventually, millions of Americans were vaccinated for a pandemic that never materialised and a small number had a rare side effect of that particular influenza vaccine – the Guillain Barre Syndrome. Dr Krause eloquently describes the pitfalls involved in making a major public health decision with limited information and a rapidly changing epidemiologic situation. He writes:

The Fog of War: Uncertainty
Where is the enemy?
What is his strength?
What counterattack?

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The Fog of Epidemics: Uncertainty
Where is the microbe?
How many; how virulent; how communicable?
What counterattack?

Perceived Miscalculations
1975 Swine flu outbreak
Response too rapid
1981 HIV/AIDS occurrence
Response too slow

- Krause R, EID 2006

It has been argued by myself and others that WHO 'over-reacted' to the SARS epidemic by issuing travel warnings to countries when there were few if any infections in travellers to Singapore, Taiwan and Toronto where the epidemics were almost entirely confined to hospitals. The economic devastation wrought by the travel warnings to these countries was apparently considered an acceptable price to pay for the global effort to control the disease. One can only hope that no more ill-considered travel warnings are issued with the next infectious disease threat and that those planning the response are able to cut through the fog with the light of science.

"REMEMBER A JEDI'S STRENGTH FLOWS FROM THE FORCE. BUT BEWARE ANGER, FEAR, AGGRESSION. THE DARK SIDE ARE THEY."

So, how are we to react when the light of pestilence brings up the huge gaps in our knowledge, society and systems? Doctors actually do engage the authorities, like the GPs who have been trying to keep MOH awake by ensuring that the proposed Family Physician Register is not an attempt at protectionism by a select group but rather a genuine attempt to raise the standards of primary care in Singapore. They have shown that although the authorities can occasionally lose sight of the ball (for example, ignoring warnings from National Council of Social Services on goings-on in multimillion dollar charities while cracking down on unregulated autoclaves in small clinics!), when they are engaged by a group of concerned clinicians, they might be willing to listen to reason. I can only hope that the same approach will work for the tremendous infectious diseases challenges that lie ahead of us.

To use the oldest cliché in the Jedi arsenal, "May the Force be With You." ■