



A classic to get
your teeth into,
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VIEWS & REVIEWS

Should I have an H1N1 flu vaccination after Guillain-Barré syndrome?

PERSONAL VIEW **Laura Claire Price**

I have found myself asking the difficult question of whether to be vaccinated against H1N1 flu when I return to work as a hospital doctor this autumn. In December 2008 I developed severe Guillain-Barré syndrome but am making a good recovery.

I presented with foot drop one week after an episode of food poisoning. Nerve conduction studies showed patchy motor nerve demyelination and marked conduction block. I was admitted to the intensive care unit for invasive ventilation and supportive care for three months. During this time I had marked neuropathic pain (with “burning” skin) and also haemodynamic instability and adynamic ileus as a result of autonomic dysfunction. Serology testing was positive for *Campylobacter jejuni*. I had no other relevant past medical history and had had one previous seasonal flu vaccine without adverse effects.

My concern stems from the “swine influenza” vaccination programme in the United States in 1976, when 45 million people were given the influenza A(H1N1)/New Jersey/1976 vaccine. Vaccinations were suspended after 10 weeks mainly because 532 new cases of Guillain-Barré syndrome, or just under one case per 100 000 vaccinations, were reported, with a peak relative risk exceeding 12 in the two to three weeks after vaccination.

To put this into context, the European incidence of the syndrome is 1.2 to 1.9 cases per 100 000 people, although the incidence increases with age, and the estimated background incidence within six weeks of any vaccination is 0.07 to 0.46 cases per 100 000 people vaccinated. The causal relation reported in 1976 has not, however, been found in subsequent studies of flu vaccination, although admittedly these later studies concerned seasonal rather than pandemic numbers. Studies showed a small increased risk in the 1992-3 and 1993-4 seasons, with a risk ratio of 1.7 or about one case per million people vaccinated. A Canadian study of Guillain-Barré syndrome admissions also showed a small but significantly increased risk after vaccination

(risk ratio 1.45 (95% confidence interval 1.05 to 1.99; $P=0.02$), although no such increase in risk was seen in a smaller UK study. Several studies showed an increased risk of adverse events after flu vaccination, with 0.7 reports of the syndrome per million vaccinations from 1990-2005, although these studies relied on case reporting so may be unreliable.

Just two questionnaire based studies have examined the risk of recurrent Guillain-Barré syndrome after flu vaccination in people with a history of the syndrome. In the first, 3.8% of 211 UK patients experienced a relapse, and in a very recent Dutch study none of 106 patients who had a flu vaccination (range 1-37, giving a total of 775 vaccinations) reported another episode of the syndrome.

One may question why the vaccine might cause the Guillain-Barré syndrome. Infections induce activated T cells and antibodies that in the syndrome are thought to cross react with Schwann cell or axonal antigens and macrophages, producing the demyelination. Presumably the vaccine may induce a similar immune response in susceptible individuals.

An important question is whether the syndrome is more likely to develop after flu vaccination or after flu infection itself

in influenza A associated Guillain-Barré syndrome, suggesting different immune mechanisms. One alternative hypothesis is that flu vaccine contains *Campylobacter* antigens, as the chickens from which eggs are used for vaccine production may be infected with *Campylobacter*, which is difficult to eradicate.

Most patients have had a precipitating infection in the six weeks before onset of Guillain-Barré syndrome, most commonly

Campylobacter jejuni and cytomegalovirus, although in 60-70% of cases no causative organism is identified. Flu is a rare cause, thought to result in 1% of cases, although the proportion is likely to increase during seasonal outbreaks. Flu is likely to contribute to those cases where no causative organism is usually identified, as suggested by a French study, in which recent flu-like illness was reported in 30% of these cases. Of these patients, 14% tested positive for previous influenza A infection and all were aged under 65 years. Interestingly, they were less likely to need mechanical ventilation than patients whose episode of Guillain-Barré syndrome followed *Campylobacter* infection.

An important question is whether the syndrome is more likely to develop after flu vaccination or after flu infection itself. A study of 553 people with the syndrome and 5445 matched controls found an 18-fold increase in the risk of recurrence of the syndrome in the two months after flu-like illness (odds ratio 18.6 (7.5 to 46.4)), whereas the study suggested a possible protective effect of vaccination (odds ratio 0.16 (0.02 to 1.25)). A more recent, self controlled case series using 775 episodes of the syndrome showed that the relative incidence within 90 days of flu-like illness was 7.4 (4.4 to 12.4), higher within 30 days (16.6 (9.4 to 29.5)), whereas the relative incidence within 90 days of vaccination was 0.76 (0.41 to 1.4). These studies suggest that although flu-associated Guillain-Barré syndrome is rare, the risk is much higher than that after vaccination. Large scale flu vaccination has even been proposed as a means to protect against the syndrome.

In view of the potential risks of and likely exposure to flu infection as a healthcare professional, my current view is to consider “having the jab” when it becomes available. Laura Claire Price is specialist registrar, respiratory and intensive care medicine, London
lauracprice@hotmail.com

[A longer version of this article with references is on bmj.com](#)

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REVIEW OF THE WEEK

Trust me, I'm a scientist

The biggest problem in science communication is public lack of trust in the scientific establishment, argues **David Colquhoun**, who urges scientists to bypass the PR people and take up blogging

Unscientific America sounds like a fascinating topic, not least because the book is a follow-up to Mooney's *The Republican War on Science*. It is written entirely from a US perspective (the United States, apparently unaided, sequenced the genome and invented the internet). It is reported that 46% of Americans believe that the earth is less than 10 000 years old. That's certainly cause for alarm, and Mooney and Kirshenbaum are certainly alarmed. They think that the public needs to be educated in science. They identify the obvious problems—evolution, climate change, and quackery—and ask what can be done. The problem is that they propose no good solutions and some bad ones. The aims are worthy, but sometimes the book reads like an overlong and somewhat condescending whine about why science and scientists are not sufficiently appreciated.

I simply don't think it's true that the public is not interested in science, nor that people can't understand it at a level that is sufficient to be useful. It's true that they have been let down badly by some sections of the media. Think particularly of the great "MMR hoax". The disastrous fall in vaccination against measles, mumps, and rubella can be attributed more to talk show presenters and airheaded celebrities than to lack of interest among the public. People are systematically deceived by "anti-vaxers," climate change denialists, vitamin pill salesmen, and a horde of crackpot alternative therapists.

There is one problem that Mooney and Kirshenbaum don't talk about at all, yet it seems to me to be one of the biggest problems in science communication: it isn't lack of interest on the part of the public, nor even lack of understanding, but lack of trust. The tendency of real science to indulge in hyperbolic self promotion is one reason for this lack of trust. Sometimes this descends into outright dishonesty. This is a tendency promoted by governments and funding agencies, through their insistence on imposing silly performance measures. The public is quite sensible enough to take with a pinch of salt the almost daily announcements of "cancer cures" that emanate from university press offices.

On the face of it, we should be encouraged that "public engagement in science" is the flavour of the day. It isn't quite that simple, though. Too

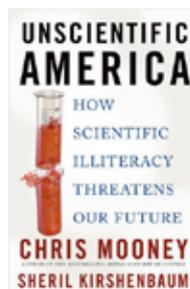
Unscientific America: How Scientific Illiteracy Threatens America's Future

Chris Mooney, Sheril Kirshenbaum

Basic Books, £15.99, pp 224

ISBN 978-0465013050

Rating: ★☆☆☆



often, universities regard engagement with the public as a branch of their own public relations machine. They even instruct you on what tone of voice to use when talking publicly.

One reason why scientists need to talk to people outside the lab is precisely to counteract this tide of nonsense from PR people, who are paid to deceive. The problem for academics is usually time. We already do three jobs: teaching, research, and coping with human resources bollocks. How can we find time for a fourth? That's not easy, especially for the best researchers (those who do research themselves, not just lead a team). Mooney and Kirshenbaum suggest that the solution is to create a "cadre of communication and outreach experts." I don't think this would work. Such people would, by and large, be outsiders, writing uncritical paeans, dictated by big name scientists. A new cadre of PR hangers on does not sound like a great idea. A better—and very much cheaper—solution would be to provide training in free blogging software, and we'll do it ourselves.

The two chapters that I looked forward to reading, on religion and that entitled "The bloggers cannot save us," proved deeply disappointing. The authors are firmly in the camp of what Richard Dawkins called the "Neville Chamberlain school of evolutionists." They maintain that "if the goal is to create an America more friendly to science and reason, the combativeness of the New Atheists is strongly counterproductive." They are particularly critical of P Z Myers, the University of Minnesota developmental biologist who is splendidly clear in his views. Of the communion wafer he famously said, "It's a crackin' cracker." But he and Dawkins are right. When it comes to young earth creationists we have a war on our hands, and nowhere more than in the US. What's more, it's a

winnable war. Mooney and Kirshenbaum are all for appeasement, but appeasement won't work. It might please the more moderate wings of the church, but they already believe in evolution and are regarded by fundamentalists as being just as big an enemy as Myers and Dawkins. And, we must ask, who has done best at getting a wide public readership? Myers's blog, Pharyngula (<http://scienceblogs.com/pharyngula/>), has up to two million page views a month. Dawkins's book *The God Delusion* has sold three million copies. In comparison the bland and often rather condescending corporate science websites get tiny numbers of hits.

In Europe in general, and the United Kingdom in particular, young earth creationists are not the major problem they are in the US, despite being supported by Tony Blair. Perhaps the nearest analogy in Europe is the threat to reason from various sorts of crackpot medicine. The appeasers are widespread. The medical royal colleges and the Department of Health are at the forefront of the Chamberlain approach. But appeasement hasn't worked there either. What has worked is the revelation that university courses are teaching that "amethysts emit high yin energy" (www.dcsceience.net/?p=227). Or, in a lecture on herbal approaches for patients with cancer: "Legally, you cannot claim to cure cancer . . . This is not a problem because 'we treat people, not diseases'" (www.dcsceience.net/?p=2043). This is shocking stuff, but it has been unearthed not by the corporate media but by bloggers.

I think Mooney and Kirshenbaum have it all wrong. They favour corporate communications, which are written by people outside science and which easily become mere PR machinery for individuals and institutions. Such blogs are rarely popular, and at their worst they threaten the honesty of science. More and more individual scientists have found that they can write their own blog. It costs next to nothing, and you can say what you think. A few clicks and the world can read what you have to say. Forget corporate communications. Just do it yourself. It's fun. And think of the money you'd save for doing science if the PR people were fired.

David Colquhoun is professor of pharmacology, University College London d.colquhoun@ucl.ac.uk

Further references are in the version on bmj.com

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The abolition of memory

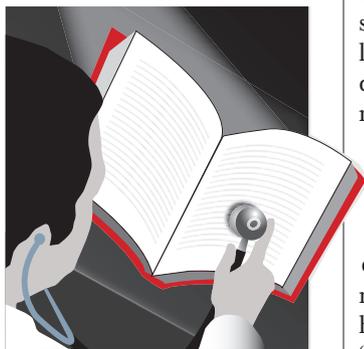
The ambition to understand the workings of the brain, the better to control thoughts and emotions, is an old one—as is the claim that such understanding is just around the corner. In 1880 the American socialist Edward Bellamy (1850-98), best known for his utopian novel *Looking Backward*, implied this claim in his novel *Dr Heidenhoff's Process*.

Dr Heidenhoff practises in Boston but has a slight German accent that reassures his patients of his intelligence and scientific prowess. The process he has discovered is one by means of which he is able to eradicate guilty memories, thus turning a sinner back into an innocent: “Given a patient, who, by excessive indulgence of any particular train of thought, had brought a group of nerve fibres which were the physical seat of such thoughts into a diseased condition, Dr Heidenhoff had invented a mode of applying the galvanic battery so as to destroy the diseased corpuscles, and thus annihilate the class of morbid ideas involved beyond the possibility of recollection, and entirely without affecting other parts of the brain or other classes of ideas.”

Dr Heidenhoff applies his process, which is halfway between psychoanalysis and ECT, to Medeline Brand, a sweet young woman all but engaged to Henry Burr who, however, is seduced by a plausible young bounder called Harrison Cordis. She runs away to Boston, takes to opiates, and tells Henry Burr that, since “she had rifled her maiden regalia to adorn an impostor,” she could not marry him. She is a fallen woman and her guilt is too great ever to be forgiven.

Dr Heidenhoff's process comes to the rescue: “‘Now,’ said the Doctor to her, ‘fix your attention on the class of memories which you wish destroyed; the electric current more readily follows the fibres which

BETWEEN
THE LINES
Theodore Dalrymple



“If memory was abolished, constitutionally bad people would remain at their original and normal degree of badness, instead of going from bad to worse, as they always have hitherto in the history of mankind”

degree of badness, instead of going from bad to worse, as they always have hitherto in the history of mankind. Memory is the principle of moral degeneration. Remembered sin is the most utterly diabolical influence in the universe. It invariably either debauches or martyriszes men and women, accordingly as it renders them desperate and hardened, or makes them prey to undying grief and self-contempt.”

Moreover, even the idea of personal identity is false, because “The gulf between the man of this instant and the man of the last is just as impassable as that between the baby and the man.”

It is possible that Dr Heidenhoff is the origin of Dr Chasuble's remark in *The Importance of being Earnest* that “We are none of us perfect, I myself am peculiarly susceptible to draughts.” For Dr Heidenhoff says in defence of his moral metaphysic: “I myself suffer at times pretty sharply from twinges of the rheumatism which I owe to youthful dissipation. But it would be absurd for me, a quiet old fellow of sixty, to take blame upon myself for what the wild student did.”

Theodore Dalrymple is a writer and retired doctor
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are being excited by the present passages of nervous force.” Afterwards, she falls into a sleep, and when she wakes she can no longer remember her dalliance with Harrison Cordis and is hence free to marry Henry Burr.

While she is asleep, Dr Heidenhoff explains the moral advantages of his process to Henry: “The recollection of these [bad] acts is what impresses the character, and gives it a tendency in a particular direction. And that is why I say, if memory was abolished, constitutionally bad people would remain at their original and normal

MEDICAL CLASSICS

Dracula By Bram Stoker

First published 1897

Dracula was not the first vampire novel but it is certainly the most famous. A classic novel in the Gothic tradition, it brings together manifold ideas and influences of its time. It can be read as a horror novel or serial killer novel—Jack the Ripper was active in London in the late 19th century. It also reflects a trend for “invasion fiction”—H G Wells's *War of the Worlds* was published in the same year.

Its medical themes firmly embed it in the late Victorian period while remaining interesting to modern readers. The vampire's victims, with their deathly, anaemic pallor and shining, feverish eyes, resemble patients with tuberculosis, often in 19th century art a fate that beset “fallen” women or prostitutes (for example, in Alexandre Dumas's 1848 classic *La Dame aux Camellias*). Lucy Westenra, *Dracula*'s first and main victim in the novel, can certainly be regarded as a heroine in that tradition.

Dracula also reflects the contemporary public's fear of spreading epidemics. Syphilis was a public health disaster between 1880 and 1920 (until *Treponema pallidum* was confirmed as the causative organism); and the descriptions of *Dracula* biting his victims—or forcing them to drink his blood, as he does with Mina Harker—are certainly not without a sexual element. And of course *Dracula*'s nocturnal habits and his companions (rats) and environment would certainly remind readers of plague epidemics of earlier centuries—indeed *Nosferatu*, a synonym for vampire, means “plague carrier.”

Two of the characters are doctors. John Seward is the director of an asylum for mentally ill people. He conducts interviews with one of his patients, Renfield, to gain an understanding of the nature of life-consuming psychosis. Renfield consumes animals, starting with flies and progressing gradually to increasingly larger creatures, whose life force he is hoping to ingest. He has a form of “psychic” powers and senses when the vampire is near. Seward documents his conclusions on a phonograph, and transcripts of his recordings fill several chapters.

The second doctor, Abraham van Helsing, “M.D., D.Ph., D.Litt.,” “philosopher and metaphysician, and one of the most advanced scientists of his day,” is a kind of superdoc. It is said that he “knows as much about obscure diseases as anyone in the world.” Well versed in medical and spiritual matters, he soon recognises the cause of Lucy's “anaemia.” He initiates blood transfusions, a procedure that was still in its infancy in the 19th century despite centuries of experimentation. Although his transfusions would certainly have killed any patient—non-sterile and with unmatched blood—he is portrayed as being at the cutting edge of medical progress. He even uses a mixture of “modern” and “complementary” treatments—blood transfusions and hypnosis but also garlic flowers, crucifixes, magic circles, and hosts (to seal Lucy's tomb). His final intervention, a knife through the vampire's heart, results in the cause of the epidemic literally crumbling to dust.

Birte Twisselmann web editor, *BMJ* btwisselmann@bmj.com
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Nosferatu: “plague carrier”

NOSFERATU (1922)/PRANA-FILM/THE KOEAL COLLECTION

A testing time

FROM THE
FRONTLINE
Des Spence



Education is a modern obsession. Even we bought sticky alphabet letters for the children's bath. But the toddler proceeded to eat and choke on the foam, while the older children amused themselves writing expletives. Now it is back to school, and all future happiness and wealth seems to rest on a university degree. Meanwhile, new childhood diagnoses have ballooned: attention deficit hyperactivity disorder, Asperger's syndrome, and dyslexia. Dyslexia is especially common, and parents often say, "Get him [or her] tested, for extra time, more help, and a laptop."

This is no abstract discussion for me. I moved from a soft English school to a Calvinist rural school in Orkney in the mid-1970s. My Afghan coat and mung bean diet were the least of my problems as a 9 year old: "You can't spell your surname—what sort of school were you at?" It wasn't through lack of trying, for I had plenty of remedial English lessons. I hated these; I just wanted to be normal. But my new teacher took me under her wing and helped me find my own way to learn. I now realise that if something wasn't intuitive and logical then I struggled to learn—I still don't read instructions or take instruction. Do I have a specific learning difficulty or indeed dyslexia? I am bemused by people's inability to conceptualise abstract ideas, for this seems natural to me. Surely it is

everyone else who has a specific learning disability.

I don't want to dismiss childhood problems. But I challenge the rationale behind the increasingly "label gun" approach to diagnosis in childhood, for intuitively it makes no sense. Firstly, interventions seem merely to be individual support, which should be available to all children anyway. Secondly, childhood (just like adulthood) is a maturation process, with different stages and paces—labelling is too simplistic to capture these changes. Thirdly, if the "11 plus" exam divided a previous generation, what potential harm are we doing to 9 year olds labelled for life as having a "problem"? Fourthly, a diagnosis has the potential for schools and sometimes families to collude in passing on responsibility to others rather than making a situation work. Lastly, society needs to back off from childhood, as we are now pushing children into the morass of stupidity that defines modern adult life. Specifically, the current obsession in primary school with the three Rs narrows the definition of intelligence, disregarding other attributes such as ability in music, art, and sport, creative language, humour, and imagination as less worthy. For in my mind "different" spells "normal."

Des Spence is a general practitioner, Glasgow destwo@yahoo.co.uk

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A sickening system

STARTING OUT
Kinesh Patel



It was a rather crackly telephone line. "I can't come in tonight," said the junior doctor to the consultant. After a slightly awkward pause she added, quietly, "I've got dysmenorrhoea." Mishearing her words, flustered by the overly detailed description of the problem, and seeking to end the telephone call as quickly as possible, the consultant muttered, "Fine, fine." Turning to me he said, "What's she doing having sex when on night shifts anyway?"

Sick leave is always a thorny issue. How unwell is not well enough to come to work? Is it a cold? Is it full blown flu? And what about the grey area in the middle, often pejoratively referred to as "man flu"?

The other problem in medicine is that the work is relatively structured, with often very little slack in the system. Who will cover the clinic or do the ward round instead? Of course, doctors aren't indispensable,

even though some like to think that they are. But the fact remains that patients suffer when doctors themselves are ill and absent from work. And the nature of the work means that it's not like Tesco, where a replacement can often be found at short notice.

Who should come first? The General Medical Council says that we should "make the care of your patient your first concern." Does that mean that patients' welfare should come before a doctor's health? Is the patient's welfare hindered more by the doctor who has a headache and temperature than by being looked at cursorily by an overworked medical team? It's a difficult question to answer, even without considering the risk of passing an infection on to a hospitalised patient.

The press has been vociferous recently about the £1.7bn (€2bn; \$2.8bn) annual cost to the NHS of sick leave: 10.7 days per employee each year, whereas in

the private sector it is 6.4 days. This is a staggering amount of leave, equating to more than two weeks per person. If this leave were combined with the generous annual leave allowances and taken all at once at the beginning of the year, most employees would actually start working in March. No wonder the NHS is in such financial trouble.

I am too young to say "in my day," but even in the relatively short period of five years that I have worked as a practising doctor the slow but inexorable increase in the amount of time doctors take off work has been obvious. Why this has happened is not entirely clear, but the loss of the medical team as an independent unit and shift working have undoubtedly played their role. The sad reality is that it seems that little can be done to reverse this growing trend.

Kinesh Patel is a junior doctor, London kinesh.patel@gmail.com

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