

E n d n o t e s

These four short articles by Andrew Gunn were originally published as editorials in *gplink*, the newsletter of the Brisbane North Division of General Practice www.bndgp.com.au.

Choice

April 2005

What is it with that word “choice”? Poor health is often blamed on poor choices; and, in order to give us more choice, governments support private health care, private education and private this and that.

Years ago, I worked in a rural Aboriginal community. Little tots would run around laughing but, as time passed, some began to transform into morose, petrol-sniffing alcoholics. It appears that some people choose private health cover, some people choose public waiting lists, and some people choose to become morose, petrol-sniffing alcoholics. Isn't life's variety wonderful?

Classic neurological experiments on choice were conducted decades ago. Subjects flexed their wrist at a time of their choice. Not surprisingly, researchers found that the wrist got flexed a fraction of a second after subjects made a conscious decision to do so.

The tricky bit was that motor centres would spike on an EEG about half a second *before* the choice to flex the wrist was made. It seems that the brain's motor cogwheels get set in motion before a conscious decision to use one's muscles occurs. Choices can be determined before they are made. Spooooky.

I love new fields. Choice is important in economics and largely irrelevant in physics. The world's first conference in econophysics was held in March 2005. Interestingly, physicists beat economists at predicting certain real-world economic phenomena. For instance, economists struggle to explain the vastly uneven distribution of wealth.

The normal distribution curve of human attributes sits uneasily the abnormal distribution curve of wealth. Models derived from the intelligent choices of “rational economic man” dictate a less skewed curve.

Physicists have recently provided a more accurate model. It's based on the random distribution of gaseous energy at thermal equilibrium. No choices are involved. Economists admit the model's predictions are impressive but – and please try not to giggle about this – they complain that it's as if people meet randomly “and one just beats up the other and takes their money”.

Perhaps our patients have fewer choices and far less control over their health and wealth than we commonly assume.

Apologies if you didn't enjoy this column, but I had to write it. Had no choice.

AG

Needles

July 2004

Last week my eldest son's school newsletter included a report, supposedly from the Red Cross, that 17 people had caught HIV from needles left on public seating.

The source was a hoax email preying on people's nervousness about needle and syringe programs (NSPs). This can have deep roots. It's hard to argue against religion because the truth is no match for The Truth.

As it happens, NSPs seem to have saved the community billions of dollars and prevented 25,000 HIV and 21,000 hepatitis C (HCV) infections in Australia up until the year 2000. (MJA 2003 178 (5):197-198)

Worldwide, there has been an average annual *decrease* in HIV prevalence of 18.6% in cities that have had NSPs, compared with an average annual *increase* of 8.1% in cities without NSPs.

Most people vastly overestimate the chances of a discarded needle spreading infection.

In Australia, fewer than 1% of injecting drug users have HIV and, in addition, an accidental prick from a needle freshly infected with HIV carries only about a 1 in 300 risk. This creates a chance of infection from a *freshly* used needle of less than 1:30,000.

In addition, HIV is a fragile virus that generally dies very quickly outside the body. In other words, catching HIV from a random, accidental, community-acquired needle stick injury in Australia is close to impossible.

Admittedly, the risk of HCV transmission is more concerning. Figures of 50% carriage and 3% transmission suggest a 1 in 70 chance of contracting HCV from a freshly used needle. Fortunately, the risk in practice is much lower due to viral deterioration.

One of my HCV positive patients does, however, think he caught it this way – but another patient with a similarly short and cautious history of drug use also has HCV without any accidental injury.

While on the subject, I've had one patient who seemed to acquire HCV by drinking human blood. His victim was willing and I subsequently treated her iron deficiency anaemia. That's a rare mode of transmission – and don't forget that you read about it first here.

AG

E n d n o t e s

(cont.)

Toxic Sludge

July 2005

Years ago, I did an online personality test. I used a fake email address and rejected the website's cookies. They diagnosed paranoia. This trait might explain my reluctance to douse my kids daily in titanium dioxide nanoparticles (also known as sunscreen). But just because I'm paranoid doesn't mean toxic sludge isn't out to get us.

A new study from Europe suggests fertility problems now usually arise from male rather than female factors. The European Society for Human Reproduction and Embryology is concerned that this is due to environmental toxins. Assorted chemicals are copping the blame. For instance, several studies suggest that intrauterine exposure to phthalates – commonly found in plastics and cosmetics – might damage male reproductive development. Maybe pregnant women should throw away their make-up as well their cigarettes.

It seems possible we're going the way of the frog. On the plus side, as a means of population control, widespread male infertility beats mass starvation or war.

Toxic sludge might also affect the age of puberty. This has been gradually falling for generations. I've seen menstruating 8-year-olds and pregnancy has been reported in a 5-year-old.

Improved nutrition underlies most of this trend, although better access to food has a downside. A well-known reason for earlier sexual maturity, at least in girls, is childhood obesity. Fat and oestrogen are entwined, and oestrogen hastens female puberty.

Less well-known are exogenous sources of oestrogen. Soy and excreted contraceptives have received recent publicity, but have you heard about shampoos? Who needs HRT when B&B Super Gro hair shampoo is reported to contain 1.6 grams of oestriol per 100 grams?

Of course, these aren't the only unexpected influences on pubertal timing. For instance, studies perhaps slightly disconcertingly suggest that girls go through puberty sooner when they have a genetically unrelated male in the household – for instance, Mum's new boyfriend.

And then there's melatonin. Italian research suggests that long hours at the TV and computer significantly reduce children's melatonin levels.

One effect of this is earlier puberty. Which could finally explain the shooting skywards – sooner than most of his classmates and three years younger than his father – of my slender, vegetarian, titanium dioxide-deprived and computer-obsessed son.

Death

May 2005

Unrealistic expectations cause problems, but at least most non-lawyers understand that sooner or later they'll die. Until now.

Pope John Paul II, Joh Bjelke-Petersen and my med school friend, Brisbane obstetrician Steve Broe, all narrowly missed this news: the director of the US National Cancer Institute, urologist Dr Andrew von Eschenbach, says "By 2015, we can eliminate cancer suffering and death."

Treatment of the good doctor's own cancer has allegedly been successful, even if his recent media comments suggest the need for another brain scan.

Meanwhile, in Australia, a retired emergency department physician has just given himself a big *Do-Not-Resuscitate* chest tattoo as an 80th birthday present. Bill Cutter says he's seen the outcome of enough resuscitations to know what he'd want if he was the patient. I can understand that.

Placing your life in the hands of agency nurses and beeping machines is a real worry. The average day can be scary enough without that. (Urban Factoid: More people are killed by tea cosies than by flesh-eating zombies, and more are killed by teddy bears than real bears – it's the infections that get you.)

At 44, I'm not ready for a *Do-Not-Resuscitate* tattoo. But while I'm comfortable with a resuscitation attempt, what if it is only partially successful – for instance, if I finish up as a veggie dish rather than lamb's brains?

A tattoo to convey my wishes could be problematic. At the beach, the lifesavers might not be the only ones giving me funny looks if I have a tat splashed across my chest saying *Pull-My-Plug*.

Still, that could beat the indignity, disfigurement and pain of voicing the opposite standpoint.

It appears that millions of people think Terri Schiavo, the severely brain damaged Florida woman, was recently heartlessly murdered when her feeding tube was removed.

But imagine scratching this onto your torso: *Do-not-remove-feeding-tube-instead-spend-millions-keeping-me-alive-for-decades-as-a-vegetable*.

Ouch!

In the wake of the Schiavo case, a lot of people are organising advance health directives. Filing one could prevent your brainless bodily remnant from triggering an even more brainless power struggle.

AG