

COMMENT

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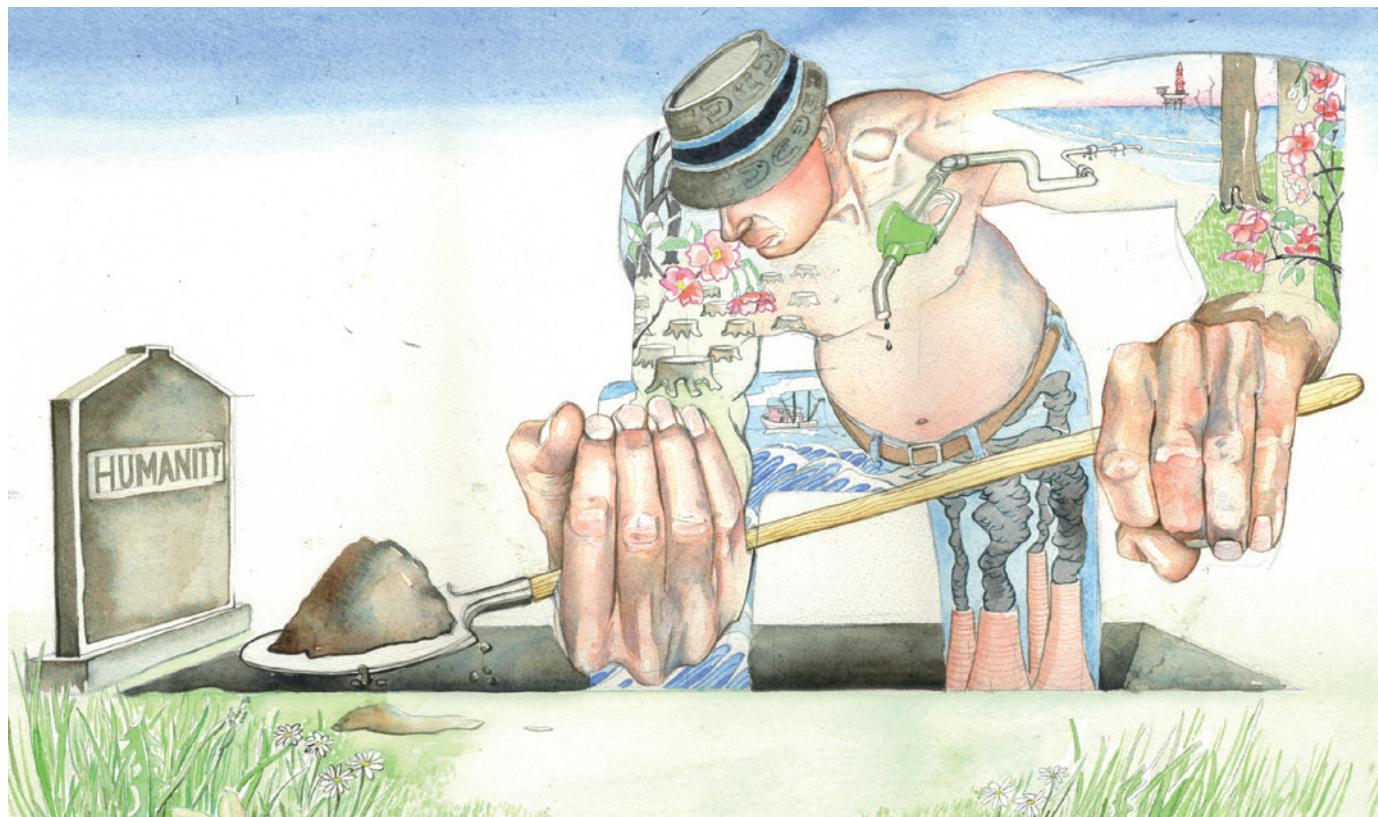
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ILLUSTRATIONS BY DANIEL MACKIE



Buried by bad decisions

Our brains are hard-wired to make poor choices about harm prevention in today's world. But we can fight it, says **Daniel Gilbert**.

The London Association for the Prevention of Premature Burial was founded in 1896 to prevent “premature burial generally, and especially amongst the members”¹. Because nineteenth-century physicians couldn't always distinguish the nearly dead from the really most sincerely dead, premature burial was a problem. But not a big problem. The odds of being buried alive in 1896 were, like the odds of being buried alive today, very close to zero. Nonetheless, the good citizens of England formed action committees, wrote editorials and promoted legislation that ultimately led to expensive safeguards against “the horrible doom of being buried alive”¹. Most of those

safeguards — such as the costly requirement that bodies spend time in ‘attractive waiting mortuaries’ before being buried — are still with us today. The frequency with which modern cadavers use this waiting period to demonstrate that they've been misdiagnosed is approximately never.

Premature burial isn't a big problem, but the way we deal with big problems is. When an aeroplane's fuselage rips open mid-flight, or an offshore oil rig explodes, or a nuclear power plant is crippled by a tsunami, we immediately ask what could have been done

differently, blame those who didn't do it, then allocate funds and pass legislation to make sure it gets done that way the next time. At first blush, this seems sensible. After all, no one is in favour of aviation accidents, reactor meltdowns or oil spills; so when these things happen, why not do everything we can to make sure they don't happen again?

The answer is that because resources are finite, every sensible thing we do is another sensible thing we don't. Alas, research shows that when human beings make decisions, they tend to focus on what they are getting and forget about what we are forgoing. For example, people are more likely to buy an item when they are asked to choose ▶

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▶ between buying and not buying it than when they are asked to choose between buying the item and keeping their money “for other purchases”. Although “not buying” and “keeping one’s money” are the same thing, the latter phrase reminds people of something they know but typically fail to consider: buying one thing means not buying another. So should we do everything in our power to stop global warming? To make sure terrorists don’t board aeroplanes? To keep *Escherichia coli* out of the food supply? These seem like simple questions with easy answers only because they describe what we will do without also describing what we won’t. When both are made explicit — should we keep hamburgers safe or aeroplanes safe? — these simple questions become vexing. Harm prevention often seems like a moral imperative, but because every yes entails a no, it is actually a practical choice.

How are we to make that choice? In the seventeenth century, Blaise Pascal and Pierre de Fermat derived the optimal strategy for betting on games of chance, and in the process demonstrated that wise choices about harm prevention are always the product of two estimates: an estimate of odds (how likely is the harmful event?) and an estimate of consequences (how much harm will it cause?). If we know which harm is most likely and which harm is most severe, then we know which harm to prevent. We should spend less to prevent a natural disaster that will probably leave 3,000 people homeless than a communicable disease that will certainly leave 3 million people dead, and this is perfectly obvious to everyone.

Except when it isn’t.

ANCIENT MINDS

The reason it took a pair of mathematical geniuses to develop a formula for rational choice is that human beings often don’t make choices that way. When left to our own devices, we will pay more to eliminate a small risk of illness than to reduce a large one², and more to insure ourselves against a scary way of dying than against every way of dying³. We will save all the members of a five-person group before we will save six members of a ten-person group⁴, and we will save lives by pushing a trolley into a person but not a person into a trolley⁵. Our brains were optimized for finding food and mates on the African savannah and not for estimating the likelihood of a core breach or the impact of overfishing. Nature has installed in each of us a threat-detection system that is exquisitely sensitive to the kinds of threats our ancestors faced — a slithering snake, a romantic rival, a band of men waving sticks — but that is remarkably insensitive to the odds and consequences of the threats we face today.

For example, our brains devote a great deal of time and real estate to processing



information about other people — about what they think, know, want and intend. Because we specialize in understanding other minds, we are hypersensitive to the harms those minds produce. When people play economic games, for instance, they tend to reject unfair offers from their opponents — but they are much more likely to do so when their opponent is a person than when their opponent is a computer⁵. When people receive electric shocks, they describe them as considerably more painful when they are intentionally administered by a human agent⁶. It is bad to be harmed, but it is worse to be victimized. And so we worry more about shoe-bombers

“We will change our lives to save a child but not our light bulbs to save them all.”

than influenza, despite the fact that one kills roughly 400,000 people per year and the other kills roughly none. We worry more about our children being kidnapped by strangers than about becoming obese, despite the fact that abduction is rare and diabetes is not. Terrorists and child-molesters are agents, viruses and French fries are objects, and agents threaten us in a way that objects never can.

We are especially concerned when the threats those human agents produce are to our dignity, values and honour. Moral rules bind communities together, enable trust and the division of labour and cause people to behave honestly when no one is watching. Because these rules have such a crucial role in the formation and functioning of human social groups, we are obsessed with their violation, which is why *US Weekly* outsells *The New Yorker*. Unfortunately, when a tribe grows to nearly 7 billion people, threats to its sense of decency are not the most serious threats it faces. Climate change is caused by

the burning of fossil fuels, not flags. Because a decision to prevent one kind of harm is always a decision not to prevent another, the irresistible lure of moral violations can distract us from more crucial concerns.

MORALS TO DIE FOR?

Our obsession with morality can also discourage us from embracing practical solutions to pressing problems. The taboo against selling our bodies means that people who have money and need a kidney must die so that people who need money and have a spare kidney can starve. Economic models suggest that drug abuse would decline if drugs were taxed rather than banned⁷, but many people have zero tolerance for policies that permit immoral behaviour even if they drastically reduce its frequency. Licensing prostitutes, trading pollution credits and paying students to stay in school may or may not reduce harm, but many would oppose these ideas even if they were proved effective. It is apparently better for people to suffer and die than to get the wrong message.

Our species’ sociality has always been its greatest advantage, but it may also be its undoing. Because we see the world through a lens of friends and enemies, heroes and villains, alliances and betrayals, virtue and vice, credit and blame, we are riveted by the dramas that matter least and apathetic to the dangers that matter most. We will change our lives to save a child but not our light bulbs to save them all.

What are we to do about the mismatch between the way we think and the problems we should be thinking about? One solution is to frame problems in ways that appeal to our nature. For example, when threats are described as moral violations, apathy often turns to action. Texas highways were awash in litter until 1986, when the state adopted

a slogan — ‘Don’t mess with Texas’ — that made littering an insult to the honour of every proud Texan, at which point littering decreased by 72% (ref. 8). Hotels wasted significant amounts of energy washing barely-used towels until 2008, when researchers placed signs in hotel rooms that either asked guests to “help save the environment by reusing your towels” or told guests that “75% of the guests who stayed in this room participated in our new resource savings program by using their towels more than once”⁹. The second sign suggested that laundering a barely-used towel was a violation of a moral rule that most people obeyed, and that sign increased towel reuse by 33%. Psychologists and economists have found dozens of ways to make problems easier to think about and harder to ignore. There is no shortage of solutions, just of the will to implement them.

The other way to deal with the mismatch between the threats we face and the way we think is to change the way we think. People are capable of thinking rationally about odds and consequences, and it isn’t hard to teach them. Research shows that a simple five-minute lesson dramatically improves people’s decision-making in new domains a month later¹⁰, and yet that is five minutes more than most people ever get. We teach high-school students how to read Chaucer and do trigonometry, but not how to think rationally about the problems that could extinguish their species.

Psychologists have made remarkable progress in understanding how decision-making goes wrong and how it can be set right, and although their research generates bestselling books and garners Nobel Prizes, funding agencies typically give it low priority. Our communal fate rests on decisions that could easily be improved, if only we would decide to do so. It is our way of thinking, and not the undertaker, that threatens to bury us prematurely. ■

Daniel Gilbert is in the Department of Psychology, Harvard University, Cambridge, Massachusetts 02138, USA.
e-mail: gilbert@wjh.harvard.edu

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Democratizing clinical research

Keith Lloyd and Jo White commend a way for patients, clinicians and scientists to set priorities jointly.

Research priorities are rarely set democratically. Whereas clinical science is largely about establishing which treatments work best for whom, sadly, the views of those with most to gain or lose — patients — are generally ignored. Academics, industry and other big players with vital roles in developing treatments tend to set the agenda. But their priorities differ from those of patients and clinicians. For example, the outcomes measured in a trial of a drug may not be those of interest to the people who will actually take it.

The inclusion of patient demands is not a panacea. It can divert scarce research resources and delay important treatments¹. One solution is to try to harmonize the perspectives of patient and clinician. This is what the James Lind Alliance (JLA) Priority Setting Partnerships in Oxford, UK, attempt, perhaps uniquely. Established in 2004 and funded by the UK Medical Research Council and National Institute for Health Research (NIHR), the JLA

brings together patients, carers and clinicians to identify and rank questions about the effects of treatments for a given disease. Clinicians and academics — who may never meet patients — find long-held beliefs challenged and sometimes overturned.

The JLA process has recently been applied to schizophrenia — a mental illness affecting about one person in a hundred worldwide. We were involved in this exercise as clinical academics. This, plus our experience as recipients of grants and from within funding bodies, convinces us that money rarely goes to the studies that those with mental illness would choose. We therefore urge funders to adopt this list of top priorities for schizophrenia (see ‘Top ten treatment uncertainties’), and entreat other countries and organizations to use the technique involved in compiling it to steer other clinical research.

Between 2007 and 2009, we and other collaborators from the JLA Partnership collated 489 potential uncertainties about

SCHIZOPHRENIA RESEARCH PRIORITIES

Top ten treatment uncertainties

1. What is the best way to treat people with schizophrenia that is unresponsive to treatment?
2. What training is needed to recognize the early signs of recurrence?
3. Should there be compulsory community outpatient treatment for people with severe mental disorders?
4. How can sexual dysfunction due to antipsychotic-drug therapy be managed?
5. What are the benefits of supported employment for people with schizophrenia in terms of quality of life, self esteem, long-term employment prospects and illness outcomes?
6. Do the adverse effects of antipsychotic drugs outweigh the benefits?
7. What are the benefits of hospital treatment compared with home care for psychotic episodes?
8. What are the clinical benefits and cost-effectiveness of monitoring the physical health of people with schizophrenia?
9. What are the clinical, social and economic outcomes — including quality of life and the methods and effects of risk monitoring — of treatment by acute day hospitals, assertive outreach teams, in-patient units, and crisis resolution and home treatment teams?
10. What interventions could reduce weight gain in schizophrenia?

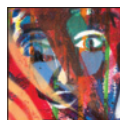
Some treatment uncertainties have been reformulated here as questions.

the treatment of schizophrenia. These came from clinicians, patients and their carers through web- and paper-based questionnaires. We also pulled them from the UK Database of Uncertainties about the Effects of Treatments, which contains instances in which “no up to date systematic reviews exist, or up-to-date systematic reviews show that uncertainty continues”.

These questions were de-duplicated to produce a longlist of 237 issues. Eleven schizophrenia partners — carers, clinicians, patients, funders and voluntary-sector organizations — each ranked their top ten uncertainties. These partners responded either as individuals, or on behalf of an organization, having consulted colleagues and members.

The partnership collated the rankings, recording separate running totals for patient, carer and clinician submissions. This enabled a steering group — a subset of the partners — to examine each individual ranking, as well as the combined ranking, to produce a pooled list of 26 treatment uncertainties.

Finally, this list was discussed at an exhilarating workshop of clinicians, carers, patients, funders and voluntary-sector organizations in January. The JLA facilitated the meeting using a structured variation of small-group discussion called ‘nominal group technique’ (see go.nature.com/xswwtc) to



SCHIZOPHRENIA

Search for origins and treatments
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reach moderated consensus on a top ten.

The process prevented one person dominating the discussion and encouraged all group members to participate. The format was rigorous, but flexible enough to allow people to revise their opinions, raise concerns and to reach consensus about any imbalance perceived to have emerged from the interim stages.

Although the purpose of the JLA process² is to enable patients and those who treat them to have a say in what gets studied, it can also change clinical practice. For example, sexual dysfunction caused by antipsychotic medication emerged as a key patient priority. This is typically a low priority for clinicians prescribing medication and for companies assessing drug effectiveness.

The week after the JLA workshop, a patient came to see one of us (K.L.) in a clinic, and wanted a change of antipsychotic medication because of sexual dysfunction. Without the experience of the JLA process, it is unlikely that this issue would have been afforded as much weight as it was.

The final top ten for schizophrenia is

noteworthy for its divergence from the agenda of the drug industry, and begs many questions. Perhaps most pressing: is it ethical to conduct research, which may include testing new treatments, without considering which outcomes matter most to those who will receive the treatment? And is it, in the long run, to drug companies' benefit to do so? Such questions are particularly pertinent in conditions such as schizophrenia, in which the balance of power between researcher, clinician and patient is so uneven.

What next? The team will repeat the exercise for depression this year and next. Meanwhile, the JLA is encouraging funders and researchers to act on the top ten rather than to continue with agendas devoid of clinician and patient input. For example, the NIHR is now exploring commissioning research on weight gain and sexual dysfunction in schizophrenia. Assumptions that “researcher knows best” have had their time. ■

Keith Lloyd and Jo White are at the College of Medicine, Swansea University, Swansea SA2 8PP, UK.

e-mail: k.r.lloyd@swansea.ac.uk

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