ON THE RECORD

"I'm sorry if I'm making people a little frightened, but I feel it's my role."

Virologist Robert Webster warns that bird flu could kill half the world's population.

"On shuttle missions we often see mosquitoes...They seem very confused and die very quickly."

A space-station astronaut comments on creatures that are unwittingly launched into space.

Sources: ABC News, ARRL

SCORECARD

▲ **Flying saucers**
Patent-spotters unearth a 1973 British Rail patent that seems to be for a futuristic craft running on 'thermonuclear fusion'. Sadly, the project never made it off the ground.

▲ **Compost canard**
Entomologists squelch the rumour that gardening mulch made from trees felled by Hurricane Katrina is packed with destructive Formosan termites from the area.

▼ **Sandy snow**
Dust storms in Northern China cause yellowish snow to fall across South Korea. Health officials warn that breathing in the sandy flakes might have ill effects.

OVERHYPED

The Tunguska blast
The meteorite that exploded above Siberia in 1908 has been credited with felling 60 million trees over 2,000 km². Now it is being blamed for global warming. Vladimir Shaidurov of the Russian Academy of Sciences says that the impact may have disturbed the distribution of atmospheric water vapour and increased global temperatures. But the big blast wouldn't have done this, many climate scientists counter. Among other objections, they argue that the localized explosion could not have kicked off an unstoppable change in the dynamics of Earth's atmosphere.

SIDELINES

Trauma trials leave ethicists uneasy

IMAGE UNAVAILABLE FOR COPYRIGHT REASONS

T. STEWART/CORBIS

SAN DIEGO

A US trial of an experimental blood substitute given to trauma patients who cannot give consent is stirring concern about the way that such 'no consent' trials are run.

It is rare for experimental treatments to be given without consent. In the United States, for example, the practice was authorized in limited circumstances only a decade ago. But such trials are set to increase under an initiative to test treatments for trauma and heart-attack victims. Advocates say that the tests are the only way to gather critical information in emergency situations — but critics argue that patients' rights are not being sufficiently protected.

In the blood-substitute study, communities are supposed to be educated about the programme in lieu of each individual giving prior consent. But ethicists worry that, in at least some of the areas involved, consultation has been inadequate and there is little public knowledge about the risks, and how to avoid taking part.

Initiated in 2003, the study seeks to enrol 720 patients as they are rushed to 32 hospitals nationwide, with about 600 people having been enrolled so far. The oxygen-carrying blood substitute, called PolyHeme, is made by Northfield Laboratories in Evanston, Illinois. It consists of treated haemoglobin from human blood, and is designed to replace the saline solution given by emergency workers to prevent shock from blood loss.

Some ethicists are particularly concerned about blood transfusions being withheld from patients once they are hospitalized, to see how well the blood substitute works. "I have a lot of problems" with various aspects of the work, says attorney Nancy King of the University of North Carolina in Chapel Hill.

King is one of three medical ethicists who last week wrote an open letter criticizing the trial's construction to the *American Journal of Bioethics*[1]. They are concerned that the trial conflates conditions in ambulances, where blood transfusions are not a feasible part of patient care, with conditions in hospitals, where they are.

Northfield officials refused interview requests, directing enquiries to the company's website, which states that "Northfield is committed to conducting its study with the utmost concern for patient safety".

Over the past year, ethicists have become increasingly vocal about various issues relating to the trial. One problem is that the product is often provided in poor communities with high proportions of ethnic minorities, as these can have higher numbers of trauma cases.

The only way to opt out of receiving PolyHeme if injured in areas covered by the trial is to wear a particular blue wristband. But critics say there have been inadequate advertisements and education meetings, and interviews with members of the emergency services and

Chemists shrug off unseemly spotlight

The decision by Dalibor Sames to withdraw two published papers[1,2] and part of a third[3] has drawn unwanted attention to the chemical field of C–H functionalization. But the furore seems unlikely to dim the area's lustre.

Sames says in his retraction[4] that his group at Columbia University in New York has been unable to reproduce the published results since graduate student and co-author Bengü Sezen left the lab. Sezen stands by the results and says that she is prepared to repeat the work under Sames's supervision. Columbia University, meanwhile, has launched an investigation into the matter.

C–H functionalization — the art of replacing carbon-bound hydrogen atoms in organic molecules with something more interesting — is unlikely to be badly damaged. "There are dozens, even hundreds, of exciting papers published every year," says Alan Goldman of Rutgers University in Piscataway, New Jersey, author of a recent survey of the field. "I don't think the retractions will cast any shadow."

Bonds between carbon and hydrogen atoms are ubiquitous in the raw materials from which synthetic chemists make new molecules. Unfortunately, it is a serious headache to cut the strong bond between

Are the rights of trauma patients being eroded?

community liaisons suggest that the level of awareness of the trial is very low.

Another concern is a lack of information about the trial's results. The study is funded by Northfield, which pays the hospital $10,000 per enrolled patient, and the company doesn't want the details disclosed to protect its financial interests. In San Diego, one of the study sites, Northfield unsuccessfully sued the *Reader* newspaper in December to block disclosure of details of the study. The newspaper is itself suing the University of California, San Diego (UCSD), which has enrolled about 25 trauma patients, for information about what it believes are adverse study results. UCSD officials say they are protecting patient privacy and abiding by Northfield's contract.

Northfield is also under fire for not promptly disclosing the results of a previous study that tested PolyHeme in patients with abdominal aortic aneurysms. On 22 February *The Wall Street Journal* reported that 10 of 81 patients suffered heart attacks — with two dying — after receiving PolyHeme. The study was halted in 2001.

Tong Gan, a clinical researcher at Duke University in North Carolina, and other principal investigators on the study have argued for the full results to be published so that scientists can learn from them. Northfield says it did not delay publication and that PolyHeme wasn't responsible for the problems.

But the results prompted at least four hospitals, including Albany Medical College in New York, to temporarily suspend the trauma study. Some have since restarted the trial. "Any institution that continues this trial without additional consultation with communities is doing a profound disservice," says Glenn McGee, director of the Alden March Bioethics Institute at Albany.

Michael Caligiuri, UCSD's director of clinical research programmes, counters that those involved with the trial are doing their best to deal with the ethical issues as they arise. "This is not a perfect system," he says. "We are learning a lot from the PolyHeme study."

In the coming months, a National Institutes of Health (NIH) research project called the Resuscitation Outcomes Consortium (ROC) is likely to spur similar questions as it starts enrolling patients. This $50-million, five-year project at ten hospitals in the United States and Canada will test experimental techniques on trauma and heart-attack patients who cannot give prior consent. The first such study, of a high-salt saline solution for trauma patients, is set to begin later this year.

Paediatric cardiologist Tracey Hoke, the NIH's medical officer for the ROC, insists that lessons from the PolyHeme trial will have been learned: "We intend to fully disclose risks and benefits to the communities." ■

Rex Dalton

1. Kipnis, K., King, N. M. P. & Nelson, R. M. *Am. J. Bioeth.* doi:10.1080/15265160600668644 (2006).

a particular hydrogen atom and the carbon to which it is attached and replace that hydrogen with something else: another carbon, say, or a phenyl group. Most techniques will indiscriminately break all such bonds in any given molecule.

The work at the Sames lab and elsewhere aims to replace this blunt approach with something more delicate: employing reusable catalysts to fashion reactions targeted at specific bonds. Such selectivity would have practical applications in industrial processes to make pharmaceuticals or fuels.

Chemist Robert Bergman at the University of California, Berkeley, is sanguine about the technique breaking out of the lab. "If you asked people ten years ago whether anyone would ever come up with a catalytic method to do this, they would have said no. I don't think it is outrageous to say that in five or ten years there will be commercial applications."

"This should have hit the news because it was right and exciting, instead of hitting the news because it was wrong," laments Travis Williams, a postdoc in the field at Berkeley. "I am sorry that the world is going to think that chemists get it wrong, because, almost always, chemists get it right." ■

Emma Marris

1. Sezen, B. & Sames, D. *J. Am. Chem. Soc.* **126**, 13244–13246 (2004).
2. Sezen, B. & Sames, D. *J. Am. Chem. Soc.* **127**, 5284–5285 (2005).
3. Godula, K. Sezen, B. & Sames, D. *J. Am. Chem. Soc.* **127**, 3648–3649 (2005).
4. Sames, D. *J. Am. Chem. Soc.* **128**, 3102 (2006).