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Paper of the year

## Read all about it: *The Lancet's* Paper of the Year, 2003

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What was the best research paper published during the past 12 months? You could stall for time by asking what I mean by “best”. Perhaps an article describing the year’s most original idea or having the greatest (presumably beneficial) effect on clinical practice? Or merely a paper that sparked your curiosity? Alfred Nobel wanted his prizes to be given to those who “shall have conferred the greatest benefit on mankind” and, in particular, to those who “have made the most important discovery within the domain of physiology or medicine”. The Albert Lasker Medical Research Awards, which some call America’s Nobels, are awarded to basic and clinical scientists “whose work has been seminal to understanding disease and the human being’s capacity to overcome it”. All very worthy, but something is missing.

A Nobel or a Lasker recognises individual achievement. But every winner usually goes on to thank a vast cohort of colleagues. And here is the problem with existing prizes; they do not recognise team work. Strange, because medical research is becoming more, not less, collaborative. Singling out individuals creates scientific heroes and heroines and varnishes national pride. This is good, since it raises public awareness of the value of biomedical research in building a healthy society. But it is also bad, because it devalues multidisciplinary and international collaboration. The fallout from these omissions can be ferocious.<sup>1</sup> In a modest and certainly underfunded way, *The Lancet's* Paper of the Year award aims to correct that deficit.

At the beginning of 2003, we asked the 24 members of *The Lancet's* International Advisory Board to select the best paper they had read during the past 12 months, from Oct 1, 2002, to Sept 30, 2003. We left it to board members to interpret “best” as they saw fit. We wrote: “what we are trying to judge is work that is original, topical, and important to medicine—from your point of view”. All we asked was that they tried to adopt a global perspective—and we emphasised that the paper could be from any source, and definitely not only from *The Lancet*.

Once all the nominations were in, the editors of the journal gathered together over lunch to debate and disagree about which paper should win. I had envisaged a lavish affair lasting most of the day, fuelled by much food and even

more alcohol. Instead, we met at *The Lancet's* offices in a windowless room with a few dog-eared sandwiches, a jug of orange juice, and a flip chart. The atmosphere was tense.

### Nominations and comments

The long-list of selected papers is shown in the panel. It falls into two broad groups—reports of primary research and reviews that raised awareness about neglected issues in medicine and public health. The largest proportion included six papers or collections of papers dealing with the results of randomised clinical trials. Their effect on practice and thinking was considerable. Perhaps the trial that excited most interest among us concerned a vaccine that has the potential to eliminate cervical cancer. The results of the human papillomavirus vaccine were “stunning”, according to the board member who nominated this paper. The benefits could be “massive”. We agreed.

Laboratory-based investigation was the second largest category of study. Post-genomic research made a strong showing, but the article that attracted most support from our advisory board was the first description of a coronavirus as the cause of severe acute respiratory syndrome. The authors were praised for their “incredible speed and dedication”—their work was published only a few days ahead of their competitors. SARS was “the medical news story of the year”. As one adviser wrote:

“The outbreak of SARS demonstrated how effective a multidisciplinary team can be in tackling a new epidemic with the available tools. It was a feat of medical science that the characteristics of SARS and a possible aetiological agent were identified within two months . . . One cannot help but wish that the same energy and drive were exhibited at the time that the HIV epidemic was first detected.”

Epidemiological studies were less popular, possibly indicating a widespread disenchantment with techniques that have thrown up so many false-positive results in recent years. There was one exception: the Million Women Study. This paper attracted a great deal of attention among board members and editors alike. Here is just one example of the literary applause:

“Few studies change medical practice immediately but the Million Women Study will have done so within days. The question it asks could hardly be more important . . . The study raises much more general questions about why the magnitude of such an important and clear cut adverse effect

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## Nominations for *The Lancet's* Paper of the Year, 2003

### According to date of publication

- Judith M Graat and colleagues**, for  
Effects of daily vitamin E and multivitamin-mineral supplementation on acute respiratory tract infections in elderly persons. *JAMA* 2002; **288**: 715–21
- Laura A Koutsky and colleagues**, for  
A controlled trial of a human papillomavirus type 16 vaccine. *N Engl J Med* 2002; **347**: 1645–51
- Noah A Rosenberg and colleagues**, for  
Genetic structure of human populations. *Science* 2002; **298**: 2381–85
- The ESPRIT team**, for  
Oestrogen therapy for prevention of reinfarction in postmenopausal women. *Lancet* 2002; **360**: 2001–08
- Randall S Singer and colleagues**, for  
Antibiotic resistance—the interplay between antibiotic use in animals and human beings. *Lancet Infectious Diseases* 2003; **3**: 47–51
- Aglaja Stirn**, for  
Body piercing: medical consequences and psychological motivations. *Lancet* 2003; **361**: 1205–15
- J S M Peiris and colleagues**, for  
Coronavirus as a possible cause of severe acute respiratory syndrome. *Lancet* 2003; **361**: 1319–25
- Suzie J Otto and colleagues**, for  
Initiation of population-based mammography screening in Dutch municipalities and effect on breast-cancer mortality. *Lancet* 2003; **361**: 1411–17
- Erich Huang and colleagues**, for  
Gene expression predictors of breast cancer outcomes. *Lancet* 2003; **361**: 1590–96
- Karin Hübner and colleagues**, for  
Derivation of oocytes from mouse embryonic stem cells. *Science* 2003; **300**: 1251–56
- Heart Protection Study Collaborative Group**, for  
MRC/BHF Heart Protection Study of cholesterol-lowering with simvastatin in 5963 people with diabetes. *Lancet* 2003; **361**: 2005–16
- Robert E Black and colleagues**, for  
The child survival series of five papers running in *The Lancet* from June 28, 2003, to July 26, 2003. Together with **A Tomkins and colleagues** for a series of eight papers on reducing child mortality in poor countries, published in the *Transactions of the Royal Society of Tropical Medicine and Hygiene* during 2003. *Lancet* 2003; **361**: 2226–34; **362**: 65–71; 159–64; 233–41; 323–27
- Philip A Poole-Wilson and colleagues**, for  
Comparison of carvedilol and metoprolol on clinical outcomes in patients with chronic heart failure in the Carvedilol Or Metoprolol European Trial (COMET). *Lancet* 2003; **362**: 7–13
- Jenny C Chang and colleagues**, for  
Gene expression profiling for the prediction of therapeutic response to docetaxel in patients with breast cancer. *Lancet* 2003; **362**: 362–69
- Million Women Study Collaborators**, for  
Breast cancer and hormone-replacement therapy in the Million Women Study. *Lancet* 2003; **362**: 419–27
- Kiyoshi Yanagisawa and colleagues**, for  
Proteomic patterns of tumour subsets in non-small-cell lung cancer. *Lancet* 2003; **362**: 433–39
- Vendhan Gajalakshmi and colleagues**, for  
Smoking and mortality from tuberculosis and other diseases in India. *Lancet* 2003; **362**: 507–15
- Marc A Pfeffer and colleagues**, for  
Four articles that made up the CHARM study and which were published in *The Lancet* on Sept 6, 2003. *Lancet* 2003; **362**: 759–66; 767–71; 772–76; 777–81
- R Beaglehole and D Yach**, for  
Globalisation and the prevention and control of non-communicable disease: the neglected chronic diseases of adults. *Lancet* 2003; **362**: 903–08
- Hong D Chen and colleagues**, for  
Specific history of heterologous virus infections determines anti-viral immunity and immunopathology in the lung. *Am J Pathol* 2003; **163**: 1341–55

was not recognised earlier . . . I always had intuitive reservations about the overall benefits of HRT. I can now preach what I have practised.”

The final category of nominee contained papers that raised issues too often pushed off the global agenda of medicine. *The Lancet's* child survival series was a popular choice. Its international and cross-disciplinary nature, together with its clear call for greater priority for child health within global-health agencies, was widely appreciated.

But none of these papers won.

### The winner was

Noah A Rosenberg and colleagues' article *Genetic structure of human populations*, published in *Science* on Dec 20, 2002. Photographs of the authors are shown at the beginning of this report. The nomination, by one board member, read:

“The paper by Rosenberg et al has two messages of utmost importance: one general biological, even humanistic, and one methodological. The general biological lesson is that the overwhelming source of human genetic variation is between individuals and not between ethnic groups. In the paper this becomes even clearer by the finding that there are no absolute genetic differences between ethnic groups: the differences that exist are in relative frequencies only. The methodological lesson is that for genetic risk assessment it follows that investigators can use standard epidemiological study designs, provided self-reported ethnic background is taken into account: for such risk assessment one should not worry about ‘genetic admixture’. The most enlightening aspect of the paper, however, is the insight that it gives in the ‘Genetic structure of human populations’—the very title of the paper.”

Editors liked this paper too. Authorship was global. The work linked molecular science to public health. The implications for medicine seemed substantial.

We have no money to give to the brilliant Dr Rosenberg and his skilful colleagues. There will be no awards ceremony, no medal, no celebratory dinner, not even a glass of warm champagne. Just the honour. Well done.

### Surprises, criticisms, and the future

Although it is perfectly possible that three-quarters of the best biomedical papers published in 2003 were to be found in *The Lancet*, there are other explanations for this remarkable result. For example, our advisory board members might simply have ignored our instructions or misunderstood the whole purpose of this project. Unlikely, but possible. You, the reader, could reasonably be wondering—where is the *British Medical Journal*? Where is *Nature*? Was there nothing of interest in either publication all year? Perhaps these absences are the most troubling results of all. We have sent the editors of both journals a very nice Christmas card as consolation. Better luck next year.

The editors of *The Lancet* are sufficiently middle-aged to find the subject of body piercing rather eye-watering. Europe and the USA are now leading the world in trying out new and usually hidden parts of the body for ornamentation. We are innovating like never before. But this paper was not chosen for its technological originality. As our adviser noted, the article was “the one that I have heard most talked about for all the time I have been associated with and been a reader of *The Lancet* . . . It does not bore you quickly and I actually found that I read everything, and read it to the end. Unfortunately this is unusual . . .”. A surprising, and delightful, choice.

Most board members responded to our invitation to join this adventure with enthusiasm. “A great idea”, said one. But when it came to the deadline, there were reluctant nay-

sayers. Two people claimed to be too busy to choose. We believe their heavy work schedule masked a classic male fear of commitment. We are not angry. We are doctors. We understand. One board member nominated a paper on which he was the senior author. Not exactly cricket, we thought. And two of our board joined forces to resist our gentle end-of-year entertainment. There was a serious and disturbing epistemological problem with the whole endeavour. They wrote:

“We feel strongly that advances in medical knowledge only rarely can be conceptualised as single best papers. There are enough papers with outstanding, even unassailable, scientific methods that it would be artificial to choose among them. As for topics, there are many different kinds of excellence. Some papers are about health problems with a high burden of suffering and others about rare conditions; some are about promising new observations and others penetrating syntheses of existing knowledge; some help guide public health practices, others clinical practice, and still others are basic observations about the biology of disease. The weight of evidence, on which clinical and public health decisions depend, consists almost always of many different kinds of contributions and rarely an individual paper. Singling out one for recognition is, in our opinion, artificial. We suppose that there are exceptions from time to time, such as the Watson/Crick paper on the structure of DNA. Probably those exceptions are less common these days, with good reasons, because the research enterprise is larger and more robust than it was when the DNA discovery was made. We understand that others see value in ‘best in the world’ recognition, especially for individual investigators (not papers). Witness the wide attention given to the Nobel Prize. But we think Nobel Prizes illustrate the problem. They are for only one kind of contribution, basic science research. For example, Sir Austin Bradford-Hill, through his work in biostatistics and especially the first modern RCT [randomised controlled trial], has had profound effects on clinical research in this century, yet never received a Nobel Prize. So it is just too out of character for us to pretend that we see the world in the way this project does and to send a selection would be disingenuous. We know you do not want that from us. Perhaps outstanding papers should be recognised in the many different categories we mention, something like the Academy Awards in film-making.”

We felt rather abashed by this thoughtful critique. But we soon got over it.

The more numerically minded among you will object that our selections are mere impressions, unsupported by evidence (citation counts, web downloads, etc). To that, we would say—yes, that is the whole point. After a year of listening respectfully to our statistical peer reviewers, we editors wanted to let go a little. You know, have some fun.

So, there you are. How could we have organised this shatteringly prestigious award to make it even more successful than it already is? What would have been your choice for Paper of the Year, 2003? And, by the way, if you have the odd £1 million (dollars will do) to contribute in award money, we would be pleased to hear from you. Onto Paper of the Year, 2004. Happy holidays.

#### Conflict of interest statement

I have a bagful of conflicts, and I would prefer to keep them to myself.

#### Acknowledgments

Joe Santangelo wrote to, politely encouraged, persistently cajoled, and finally threatened members of *The Lancet's* International Advisory Board to nominate papers. He wins the prize to do the same again next year.

#### References

- 1 Damadian R. This year's Nobel Prize in medicine: a personal letter to my fellow medical doctors about this shameful wrong. *New York Times*, Nov 3, 2003: A9.