Study design	Laparoscopic cholecystectomy (841 articles)	Stress incontinence surgery (943 articles)
Randomised controlled trial	15	11
Non-randomised trials/prospective cohort studies	21	20
Retrospective cohort studies	19	45
Cohort with non-parallel comparison	21	0

Table: **Number of articles on outcomes of two surgical procedures by study design**

stress incontinence surgery.[4] Less than 5% of reported studies used a prospective analytical design (table). Standards for assessing the methodological quality of observational studies are indeed a priority. We have been developing an instrument for use with both experimental randomised and observational studies. Others may be carrying out similar work.

Nick Black
Health Services Research Unit, Department of Public Health and Policy, London School of Hygiene & Tropical Medicine, London WC1E 7HT, UK

1 Horton R. Surgical research or comic opera: questions, but few answers. *Lancet* 1996; **347:** 984.
2 Black NA. Why we need observational methods to evaluate the effectiveness of health care. *BMJ* 1996; **312:** 1215–18.
3 Downs SH, Black NA, Devlin HB, Royston CMS, Russell RCG. A systematic review of the effectiveness and safety of laparoscopic cholecystectomy. *Ann R Coll Surg* 1996; **78:** 241–323.
4 Black NA, Downs SH. The effectiveness of surgery for stress incontinence in women: a systematic review. *Br J Urol* (in press).

Author replies:

The last serious altercation between *The Lancet* and surgeons took place in 1831 over the working conditions of ships' doctors. As now, the response from surgeons was decisive. By command of a raging President of the Royal College of Surgeons, a posse of London police officers dragged the unfortunate editor from college premises and proceeded to throw him, his clothes reduced to rags, onto the street. Little, it seems, has changed.

Defensive flourishes and ad hominem attacks aside, we all agree on the facts. Randomised trials in surgery are few, case series are many. But why? And if case series are more useful to surgeons than epidemiologists would have us believe, a proposition that I argued in favour of and one that Bell, Carter, Ruckley, and McCulloch reiterate, how can we improve their quality? It is time for surgeons interested in the future of clinical surgical research to gather their collective forces and investigate these questions further. *The Lancet* would be keen to publish the results of their deliberations. Perhaps reticent grant-awarding bodies might then open their cheque books.

Such an initiative would, if I interpret them correctly, receive the support of Russell, Grant, and Kennedy. It would also provide an opportunity to draw attention to Black's important emphasis on the wider strengths and weaknesses of observational research methods. Here, John's point is critical. One advantage of the case series is that innovative surgical techniques can be carefully studied and improved on before being subjected to a randomised trial. The tension between the need for innovation and the necessity for formal validation is growing. On this point, alarmingly, Bell, Carter, and Ruckley seem to set aside a basic surgical tenet. To sit on a small but tense abscess that causes so much pain to the surgical corpus seems a strange cure. Would not swift drainage be more appropriate? I hardly dare suggest the instrument best suited for such an operation.

Richard Horton
The Lancet, 42 Bedford Square, London WC1B 3SL, UK

Chernobyl and hypothyroidism

SIR—Initial reports of adverse health effects from the Chernobyl accident have focused on childhood thyroid cancer.[1,2] Thus, it is logical to assess any impact of radioactivity released from Chernobyl on other thyroid disorders, including hypothyroidism. Previously, low-level radioactive iodine releases from the 1979 partial meltdown at Three Mile Island, Pennsylvania, USA, were linked to a rise in congenital hypothyroidism within 100 miles of the reactor; cases in the downwind region increased from nine to 20 in the 9 months after the accident, compared with a drop from eight to seven upwind.[3]

Chernobyl fallout raised ^{131}I in pasteurised milk in 30 US cities reporting data each month in 1986 from customary levels of 3 to 10 pCi/L during May and June of that year.[4] Within continental USA, levels of ^{131}I in milk varied considerably by region. The Pacific northwest received the greatest amounts of fallout. From May 10 to May 31, when radioactivity from Chernobyl peaked in the USA, the average ^{131}I reading for 14 cities (11 states) in the northwest quadrant of the country was 22·17, compared with 7·70 for 14 southeastern cities (11 states). The city with the highest average ^{131}I level was Spokane, Washington, at 85·8 pCi/L.[4] The typical 1986 fetal thyroid in the northwest states received about three times the iodine dose absorbed in earlier years.

Area (states)	Cases		Rate per 100 000		% change
	1984–85	1986–87	1984–85	1986–87	
Northwest/ high fallout	113	136	20·84	25·69	23·3
Southeast/ low fallout	200	204	16·03	15·87	−1·0
USA (32 states)	1029	1140	20·47	22·16	8·3

Table: **Change in newborn hypothyroid rates in selected US states, 1984–85 *vs* 1986–87**

In 32 states representing 68% of US births, the 1986–87 rate of confirmed primary hypothyroid cases per 100 000 births rose 8·3% over the 1984–85 figure (20·47 to 22·16, $p<0·05$), according to state newborn screening programmes. Changes in newborn hypothyroid rates in low-fallout and high-fallout areas after the Chernobyl disaster are compared in the table. The rate for the seven northwest states (Colorado, Idaho, Kansas, North Dakota, Oregon, Utah, Washington; 82·0% births in 11 states) with available data from 1984–87 rose 23·3%, while the rate for nine southeastern states (Alabama, Arkansas, Florida, Kentucky, Louisiana, Mississippi, South Carolina, Tennessee, Virginia; 77·2% births in 11 states) fell 1·0% ($p<0·08$).

Although 1986 iodine levels in the US environment were much lower than in the area near Chernobyl, the results are nonetheless intriguing. The most recent report by the Committee on the Biological Effects of Ionizing Radiations states there is no completely safe threshold for radioactivity's effects on human health.[5] Unfortunately, no documentation on hypothyroid trends after Chernobyl in the former Soviet Union and eastern Europe has yet been produced, and no comparison with trends in the USA can be made.

Newborn hypothyroidism represents only a small fraction of persons with the disease. However, mandatory hypothyroid screening for newborns in the USA and several European nations, along with thyroid assessment programmes in the Chernobyl area, present an opportunity to better understand the effects of exposure to radioactivity on thyroid function.

Joseph J Mangano
Radiation and Public Health Project, 786 Carroll Street, #9 Brooklyn, New York 11215, USA

1 Stsjazhko VA, Tsyb AF, Tronko ND, Souchkevitch G, Baverstock KF. Childhood thyroid cancer since accident after Chernobyl. *BMJ* 1995; 310: 801.
2 Balter M. Chernobyl's thyroid cancer toll. *Science* 1995; 270: 1758–59.
3 MacLeod GK. A role for public health in the nuclear age. *Am J Public Health* 1982; 72: 237–39.
4 US Environmental Protection Agency. Environmental radiation data. Montgomery AL, EPA, 1986: reports 45–48.
5 Committee on the Biological Effects of Ionizing Radiations. Health effects of exposure to low levels of ionizing radiation: BEIR V. Washington DC: National Academy Press. 1990.

Hantaan and Puumala virus antibodies in blood donors in Samara, an HFRS-endemic region in European Russia

SIR—A mild form of haemorrhagic fever with renal syndrome (HFRS) (nephropathia epidemica [NE]), is caused by Puumala virus in Scandinavia, central Europe, and European Russia. More severe disease associated with Hantaan virus occurs in Korea, China, and the far eastern part of Russia. Samara is a highly endemic region for HFRS in European Russia (figure). More than 1000 patients were admitted to hospital there with the disease in 1988–92.

We investigated hantavirus antibodies in 206 healthy blood donors from Samara (155 male, 51 female; median age 41, range 19–60) with an indirect ELISA based on *Escherichia coli* recombinant nucleocapsid proteins of the Hantaan, Seoul, Dobrava, and Puumala serotypes. ELISA wells were sensitised with 0·2 μg recombinant protein and sera were tested in 1/50 dilution. Sera from patients with NE and Korean haemorrhagic fever were used as controls. Hantavirus-specific antibodies were detected by HRP-conjugated goat anti-human IgG and activity was detected by spectrophotometer (OD_{450}). 15 (7·2%) had anti-hantavirus antibodies (absorbance >0·2); seven (3·4%) sera reacted to Puumala (median 0·38, range 0·26–1·89) but not to Hantaan (median 0·08, range 0·02–0·17); three (1·5%) were strongly positive to Hantaan (median 0·82, range 0·37–1·85) but not to Puumala (median 0·01, range 0·0–0·02); and five (2·4%) cross-reacted with both the Puumala and Hantaan antigens (median 0·26, range 0·20–0·44; median 0·21, range 0·20–0·47, respectively). Samples reactive to Hantaan were equally reactive to Dobrava and Seoul antigens.

The Samara region along with the nearby region of Bashkirtostan are the highest endemic areas for HFRS west of the Ural mountains. Our data show that both Hantaan-like and Puumala viruses circulate in this region. This is in contrast to a previous report that Puumala virus is the only cause of HFRS in European Russia.[1] Our evidence shows that some sera react with Hantaan-like antigens only. These findings are unexpected because sera from local patients with HFRS react strongly with Puumala antigens. However, since only Puumala virus (strain CG 1820) is used in immunofluorescence assays by local laboratories, some Hantaan-associated cases of HFRS may have been overlooked. A rat-borne form of the disease caused by Seoul virus may well account for such reactivity. Another explanation may be that the Hantaan-positive people were infected with Hantaan viruses while visiting regions where these viruses are prevalent. Despite clinical similarities of NE of Scandinavia and western Russia, there seems to be a higher frequency of severe and complicated forms of the disease in the latter.[2,3] Assays that can distinguish between serotypes are needed to elucidate whether Hantaan-like viruses are responsible for morbidity in Samara. Such information will be of importance when designing vaccination programmes for the possible prevention of HFRS in Samara.

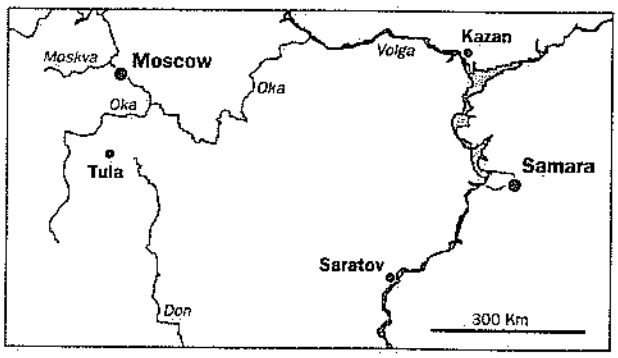

Figure: **European Russia**

Oleg A Alexeyev, Fredrik Elgh, Alexander V Zhestkov, Göran Wadell, Per Juto
*Department of Virology, University of Umeå, S-90185 Umeå, Sweden; and Departments of Infectious Diseases and Occupational Diseases, Samara State Medical University, 443099 Samara, Russia

1 Hemorrhagic fever with renal syndrome, Russian Federation. *Wkly Epidemiol Rep* 1993; 68: 189–92.
2 Alexeyev OA, Settergren B, Billheden J, Ahlm C, Suzdaltsev A, Tsaig M. Laboratory findings in patients with hemorrhagic fever with renal syndrome in western Russia. *Infection* 1993; 21: 412.
3 Settergren B, Leschinskaya E, Zagidullin I, Fazlyeva R, Khunafina D, Niklasson B. Hemorrhagic fever with renal syndrome: comparison of clinical course in Sweden and in the Western Soviet Union. *Scand J Infect Dis* 1993; 23: 549–52.

Bronchoalveolar lavage in rapid diagnosis of leptospirosis

SIR—Zaki and colleagues (Feb 24, p 535)[1] report leptospirosis associated with an outbreak of acute febrile illness and pulmonary haemorrhage in Nicaragua in 1995. In Réunion Island (a tropical overseas French territory in the Indian Ocean), the frequency of leptospirosis, thought to be the most widespread zoonosis in the world, is very high.

Leptospirosis in man arises incidentally and is an occupational disease. The usual portals of entry are abraded skin, especially about the feet, in bare-footed workers harvesting in the sugar-cane fields where rodents and dogs are very common.[2] Public-health campaigns are regularly launched to reduce the incidence of leptospirosis, by educating the exposed population.[1] Usually, patients present with acute renal failure, jaundice, and haemorrhagic features, but atypical forms without jaundice seem to be more frequent in Réunion Island than in other countries.[3] Moreover, pure pulmonary forms with a high rate of adult respiratory distress syndrome and Weil's syndrome are frequently encountered in our intensive care unit (ICU).

We have introduced routine bronchoalveolar lavage (BAL) in the ICU, to investigate community and nosocomial acquired pneumonias in accordance with internationally defined criteria.[4] Therefore, BAL was also done in ICU patients presenting with acute renal failure and diffuse bilateral patchy infiltrates on chest radiographs. From July, 1994, to March, 1996, five male patients (mean age 33·8 years) with suspected severe leptospirosis were investigated. Three presented with acute renal failure and jaundice, all had alveolar patchy infiltrates on chest radiographs, and two died. Typical intra-alveolar haemorrhage was identified in all cases. Haemodynamic heart failure was ruled out. In all cases, direct examination with dark-field methods showed long and helicoidal agents, strongly suggesting leptospiras. Unfortunately, we did not have direct and serological identifications from BAL culture