

now consist almost entirely of meta-analyses of publications from the world literature. Similarly, the *ex-cathedra* prescriptive activities ('systematic reviews'; 'Cochrane reviews') of 'evidence-based medicine' and 'Cochrane centres' (see the website home page: <http://www.Cochrane.org>) are largely based on the belief that there is a hierarchy of valid evidence in which controlled trials most closely approximate 'the truth', followed by cohort studies, followed by case-control studies (all or some of which can be melded in meta-analyses), followed by the rest, with anecdotal evidence at the bottom of the heap.<sup>17</sup> There is no hierarchy: each of the research strategies described here have strengths and weaknesses, and it is the best evidence, however derived, that must be given the greatest weight in deciding on causality.

The late Alvan Feinstein once remarked that if some insuperable scientific obstacle interferes with one's preconceptions, the temptation to ignore it and pretend it does not exist may be irresistible. Can this state of affairs be remedied? If it is to be, an essential requirement is that experienced clinical insight must be restored to the leadership in causal research. The associations at issue are usually subtle, and clinical judgment is essential if they are to be properly interpreted. In the absence of clinical judgment, epidemiology runs the risk of becoming stupid epidemiology.

Elsewhere I have stated that: "If we can move away from the paradigm of the randomised controlled trial as the most superior methodology under all circumstances, and if we can learn to accept that some questions cannot be answered, we also need to reassert the ascendancy of clinical medicine, in its broadest sense, in causal thinking within epidemiology".<sup>17</sup> That need has become urgent, and if this article helps to fulfil it then it will have served its purpose.

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Apologies to the late Douglas Adams, author of *The Hitchhiker's Guide to the Galaxy* (Pan Books, 1979). Parts of this essay are taken verbatim, or in modified form, from an expert report (An Overview of Recent Evidence Concerning the Risk of Venous Thromboembolism Among Women Using "Third Generation" and "Second Generation" Oral Contraceptives) submitted by the author as testimony in a trial before a British court [High Court of Justice, Queens Bench Division, Case No. 0002638, Neutral Citation No. [2002] EWFC 1420 (QB), before The Honourable Mr Justice Mackay]. Among other things, that report included a section on principles of causality in epidemiology.

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#### UN wall charts

The United Nations (UN) has produced two new wall charts – World Contraceptive Use 2007 and World Abortion Policies 2007 – that might be of interest to health professionals. The website also includes a number of very useful articles on sexual and reproductive health. Visit the UN website for further information.

Source: [www.unpopulation.org](http://www.unpopulation.org)

#### HPV immunisation programme in Scotland

From September 2008 to June 2009, around 90 000 girls in Scotland will receive three separate injections over a 6-month period as part of Scotland's Human Papilloma Virus (HPV) National Immunisation Programme to help protect teenage girls from the future risk of cervical cancer. Over 15 000 information packs

are being issued by Health Protection Scotland (HPS) to a range of health professionals across Scotland from June 2008. The pack, which has been developed by HPS and NHS Health Scotland to help health professionals implement and deliver the immunisation programme from 1 September this year, will include examples of the campaign's marketing materials, Q&As for parents and carers and their daughters, and detailed medical information including a fact sheet and a copy of the Green Book Chapter on HPV.

Source: [www.hps.scot.nhs.uk](http://www.hps.scot.nhs.uk)

#### Pro-life' pharmacies and birth control

Previously in News Roundup it was reported that certain UK pharmacists were unwilling to sell emergency contraception.<sup>1</sup> News from the USA reveals that a pharmacy that opened in the state of

Virginia this summer will not sell condoms, birth control pills or emergency contraception. R Alta Charo, a University of Wisconsin lawyer and bioethicist, told the *Washington Post*: "We may find ourselves with whole regions of the country where virtually every pharmacy follows these limiting, discriminatory policies and women are unable to access legal, physician-prescribed medications. We're talking about creating a separate universe of pharmacies that puts women at a disadvantage."

#### Reference

- 1 Pharmacist refuses to sell emergency contraception [News Roundup]. *J Fam Plan Reprod Health Care* 2005; **31**: 324.

Source: [http://www.washingtonpost.com/wp-dyn/content/article/2008/06/15/AR2008061502180\\_pf.html](http://www.washingtonpost.com/wp-dyn/content/article/2008/06/15/AR2008061502180_pf.html)

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#### References

- 1 Shapiro S. Causation, bias and confounding: a hitchhiker's guide to the epidemiological galaxy. Part 1. Principles of causality in epidemiological research: time order, specification of the study base and specificity. *J Fam Plan Reprod Health Care* 2008; **34**: 83–87.
- 2 Shapiro S. Causation, bias and confounding: a hitchhiker's guide to the epidemiological galaxy. Part 2. Principles of causality in epidemiological research: confounding, effect modification and strength of association. *J Fam Plan Reprod Health Care* 2008; **34**: 185–190.
- 3 Kernan WN, Viscoli CM, Brass LM, Broderick JP, Brott T, Feldmann E, et al. Phenylpropanolamine and the risk of hemorrhagic stroke. *N Engl J Med* 2000; **343**: 1826–1832.
- 4 Boston Collaborative Drug Surveillance Program. Reserpine and breast cancer. *Lancet* 1974; **ii**: 669–671.
- 5 Shapiro S. Meta-analysis/shmeta-analysis. *Am J Epidemiol* 1994; **140**: 771–778.
- 6 Shapiro S, Parsells JL, Rosenberg L, Kaufman DW, Stolley PD, Schottenfeld D. Risk of breast cancer in relation to the use of rauwolfia alkaloids. *Eur J Clin Pharmacol* 1984; **26**: 143–146.
- 7 Suissa S, Blais L, Spitzer WO, Cusson J, Lewis M, Heinemann L. First-time use of newer oral contraceptives and the risk of venous thromboembolism. *Contraception* 1997; **56**: 141–146.
- 8 Suissa S, Spitzer WO. Oral contraceptives and the risk of venous thromboembolism: impact of duration of use. *Contraception* 1998; **57**: 64–68.
- 9 Suissa S, Spitzer WO, Rainville B, Cusson J, Lewis M, Heinemann L. Recurrent use of newer oral contraceptives and the risk of venous thromboembolism. *Hum Reprod* 2000; **15**: 817–821.
- 10 Heinonen OP, Slone D, Shapiro S. *Birth Defects and Drugs in Pregnancy* (8th edn) Littleton, MA: Publishing Sciences Group, 1977.
- 11 Smith DC, Prentice R, Thompson DJ, Herrmann WL. Association of exogenous estrogens and endometrial carcinoma. *N Engl J Med* 1975; **293**: 1164–1167.
- 12 Ziel HK, Finkle WD. Increased risk of endometrial carcinoma among users of conjugated estrogens. *N Engl J Med* 1975; **293**: 1167–1170.
- 13 Horwitz RI, Feinstein AR. Alternative analytic methods for case-control studies of estrogens and endometrial cancer. *N Engl J Med* 1978; **299**: 1089–1094.
- 14 Shapiro S, Kaufman DW, Slone D, Rosenberg L, Miettinen OS, Stolley PD, et al. Recent and past use of conjugated estrogens in relation to adenocarcinoma of the endometrium. *N Engl J Med* 1980; **303**: 485–489.
- 15 International Agency for Research on Cancer (IARC). *Hormonal Contraception and Post-Menopausal Hormone Therapy (IARC Monographs on the Evaluation of Carcinogenic Risk to Humans Vol. 72)*. Lyon, France: IARC, 1999.
- 16 International Agency for Research on Cancer (IARC). *Combined Oestrogen-Progestin Contraceptives and Combined Oestrogen-Progestin Menopausal Therapy (IARC Monographs on the Evaluation of Carcinogenic Risk to Humans Vol. 91)*. Lyon, France: IARC, 2008. <http://monographs.iarc.fr/ENG/recentpub/mono91.pdf> [Accessed 4 February 2008] OR IARC 1989?
- 17 Shapiro S. Looking to the 21st century: have we learned from our mistakes, or are we doomed to compound them? *Pharmacoepidemiol Drug Saf* 2004; **13**: 257–265.