

physicians to population ratio of 1:25 000).<sup>1</sup> The Australian Medical Workforce Advisory Committee recommendation is 1:10 000. Although much has been written about the shortage of rural general practitioners, there is little about rural specialist physicians. However, evidence from Western Australia showed that advanced trainee physicians interested in rural practice were diverted to city-based practice during their training.<sup>3</sup> Here, we outline a state-wide approach to encourage advanced trainee physicians to complete their training in rural Victoria.

The University of Melbourne Department of Rural Health in Shepparton provided support for rural Victorian physicians to develop a state-wide network, the Victorian Rural Physicians Network, under the Victorian State Committee of the Royal Australasian College of Physicians (RACP). A pilot survey in the 14 major rural Victorian centres demonstrated capacity for at least nine Advanced Physician Trainee positions across rural Victoria. The RACP accredited five positions initially, with others to be reviewed for accreditation if required. These positions were funded largely by the joint Federal-State Government Advanced Specialist Training Program in Rural Australia.

Four trainees completed 12 months of rural training in 1999–2000, and three are now working as rural physicians. These trainees were recruited through advertisements in the RACP newsletter and personal contacts. The trainees provided substantial benefits, both in service delivery, as their presence reduced the load on other doctors in the same hospital, and in medical education, as they provided more education and supervision for junior doctors and doctors from overseas. In 2001, a similar approach to recruitment identified eight potential applicants, but none came to interview.

In 2002, three new strategies were therefore introduced:

- Flexible, joint rural–metropolitan positions were created;
- A rural physicians' conference was organised;<sup>4,5</sup> and
- A management consultant was employed to contact personally all 99 Victorian basic physician trainees expected to enter advanced training.

The response to the new approach is shown in the Box. A third of contactable trainees indicated an interest in rural practice at the end of their basic training. Ten applications were received for the rural training positions, and seven trainees were appointed (three with-

draw). We believe that our new strategies have merit, and that the personal touch has created goodwill which may improve the response for 2004.

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## The effect of female age on the likelihood of a live birth from one in-vitro fertilisation treatment

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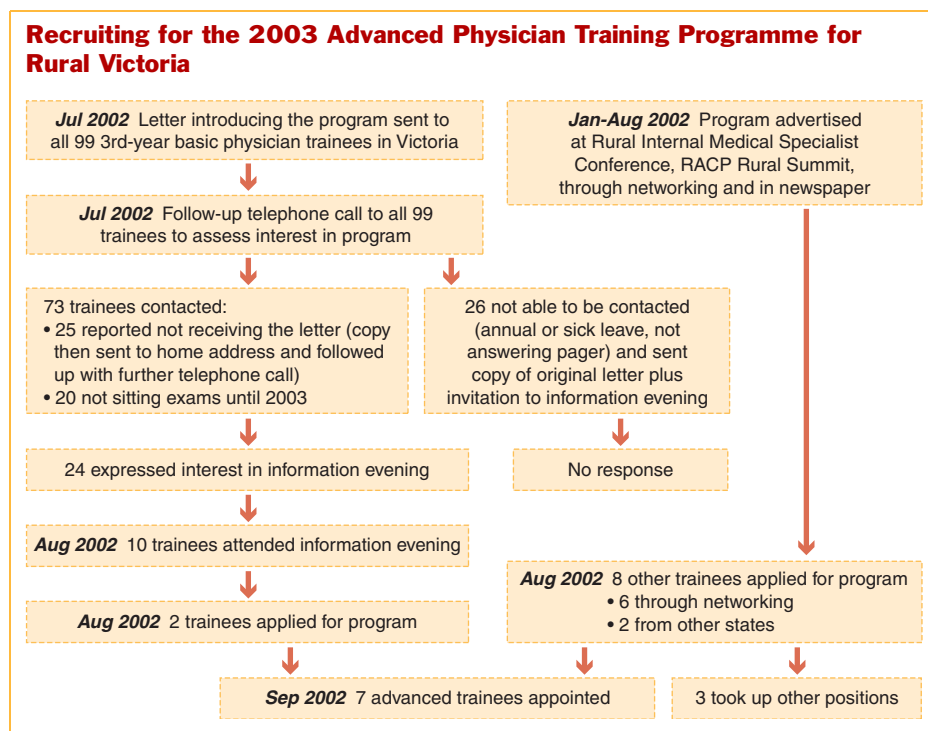
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TO THE EDITOR: Jansen's study<sup>1</sup> of the effect of maternal age on IVF outcome yields information that has not been available. However, the presentation of the data raises two questions.

Firstly, are the births reported all attributable to IVF intervention? A couple is considered infertile if they are unable to achieve conception after a year of unprotected intercourse, or the mother is unable to carry a pregnancy to a live birth.<sup>2</sup> In reports of infertility, there is a natural conception rate of about 25%–30% per annum,<sup>3–6</sup> and Jansen's study, in effect, covers a 3-year period (or 4 years if you include the period for assessing the outcome of the pregnancies).

We need to know whether natural conception has contributed; whether the couples continued to have unprotected intercourse during the course of the study; and what means was used to identify a pregnancy as an IVF pregnancy (as distinct from a natural conception, if that distinction was made).

Jansen notes that there was a group of women who dropped out after treatments were initiated and before egg retrieval, and a further group for whom eggs could not be retrieved. It is unclear whether the former included those who had a natural conception. In terms of evaluating the success of IVF, more



information on these groups would be valuable.

The second question relates to comparative embryo survival rates. Jansen gives the number of live births per egg retrieval procedure, and fresh and frozen embryo transfer is combined in the live-birth result. Separating live embryo transfer from frozen embryo transfer, which is done in the Victorian *Infertility Treatment Authority annual reports 1998–2001*, would indicate that the transfer of a fresh embryo has about a 9.5% chance of resulting in a live birth, and the transfer of a frozen embryo has about a 3.1% chance of resulting in a live birth. In the current discussion of embryos being available for research, this information about embryo survival rates would be informative.

**Competing interests:** I am a member of the Ethics Panel of the Victorian Infertility Treatment Authority.

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### Robert P S Jansen

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**IN REPLY:** The pregnancies and live births I reported are all attributable to IVF intervention. The physiological and pharmacological reasons for this certainty follow.

Firstly, neither an egg-retrieval treatment nor an embryo-transfer treatment (both of which require hormone administration from the start of menstruation) can be embarked on if a woman is pregnant. This is established not just by the fact of menstrual bleeding, but by showing low levels of oestradiol and progesterone. Thus, no treatment cancellations or retrieval failures were for reasons of pregnancy.

In an egg-retrieval treatment cycle, preovulatory eggs are removed from

mature follicles with high efficiency, and so are not available to be ovulated, which virtually precludes natural conception in the retrieval cycle.

As described in my article, transfer of cryostored embryos occurs during a month in which the ovaries are suppressed by the cyclical regimen of ethinyl oestradiol and a progestin (used to develop the endometrium predictably). The effect is that of the sequential oral contraceptive regimens of the 1960s,<sup>1</sup> and ovulation is reliably inhibited.

Tonti-Filippini's estimate of a 25%–30% annual natural pregnancy likelihood with just 12 months' infertility would be more or less correct for couples in their 20s, but does not pertain to our population (median age, 36 years; median duration of infertility, 3.5 years). The arithmetic that predicts an expected, approximately 5% annual natural conception for such a population is given in Jansen.<sup>2</sup>

The time during which natural pregnancy could have occurred began with the month after the egg-retrieval cycle and ended, as reported, with the month before either (a) an embryo transfer resulted in a live birth, or (b) the last stored embryo from that retrieval was transferred. There were no natural conceptions that we know of, but, even if there were, such pregnancies would not and could not have been attributed to IVF treatment. Thus, the published figures are reliable.

I reported the implantation rate per embryo for women under the age of 35 as 24.7%. Subtracting the reported 10.5% miscarriage risk yields a live-birth rate of 24.7% minus (24.7% × 0.105), or about 22% per embryo transferred, which is indistinguishable from the expected 20% natural monthly fertility rates among normal couples of this age group.<sup>3</sup> Similar calculations yield 11%

live births per embryo for those 35–39 years, and 4% live births for those over 40 years. With present practices at Sydney IVF (Day 5 blastocyst transfers, generally single embryos), the chance of a baby per embryo transferred is 41% (<35 years), 24% (35–39 years) and 12% (>40 years).

The embryo implantation and live birth data Tonti-Filippini reveals for live births per embryo in Victoria are therefore very low compared with the IVF results I report.

**Competing interests:** As stated with my article, I am a Director of Sydney IVF Limited and own shares in the company.

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## The effect of recalling paracetamol on hospital admissions for poisoning

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**TO THE EDITOR:** Paracetamol availability is an important public health issue. Kisely et al have further investigated the impact of two paracetamol recall periods on analgesic poisoning using a dataset derived from hospital admissions.<sup>1</sup> We are concerned about the robustness of data that uses ICD codes, because of significant coding problems that occur with poisoning admissions.

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