

Striving for excellence in abortion services

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Abstract

The legalisation of abortion allowed the publication of surgical outcome data demonstrating low complication rates. South Australian data from the outcomes of surgery conducted at the Pregnancy Advisory Centre illustrate the monitoring of complication rates such as uterine perforation, continuing pregnancy and incomplete abortion to improve surgical outcomes. While quality improvement systems produce positive results, there are many barriers to their uptake in Australia. Hostility towards abortion has the potential effect of retarding the adoption of improved techniques.

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AS ABORTION WAS LEGALISED in many countries, publishing the complication rates of abortion surgery became possible. Early publications clearly demonstrated that legal abortion was a very low-risk procedure.^{1,2} Surgical and anaesthetic techniques have improved over time, and the risks associated with abortion have continued to fall. With or without the use of formal quality improvement systems, abortion is steadily becoming safer. This trend is illustrated by mortality rates following abortion reported by the United States Centres for Disease Control which fell from 4.1 per 100 000 in 1972 to 0.4 per 100 000 by 1987.^{3,4} In contrast, it has been estimated that the mortality rate following clandestine abortion is between 100 and 1000 per 100 000 procedures.⁵

There are still opportunities for improvement in quality and safety. Abortion is a high-volume

What is known about the topic?

The data collected by the South Australian Pregnancy Advisory Centre enables benchmarking and illustrates improvements in the quality of abortion services over time.

What does this paper add?

This paper presents a comparison of international published complication rates with those achieved in South Australia, and discusses advances in care. The barriers to diffusion of best practice in this area are discussed. These barriers include marginalisation of abortion services, restricted continuing education for clinicians, and lack of data collection by abortion services.

What are the implications for practitioners?

The author suggests that the collection, benchmarking and publication of measurable outcomes of care all require support from the managers of abortion services. Practitioners also require support from their professional organisations (and from each other) to provide forums in which technical expertise can be shared, outcomes discussed and training undertaken. ◆

day surgery procedure which lends itself very well to the type of analysis used in quality improvement systems. The Pregnancy Advisory Centre in South Australia has been collecting statistics on the outcomes of abortion surgery since its inception in 1993 and now has data on the outcomes of over 34 000 procedures. These data provide an illustration of the way in which a quality improvement system can utilise outcome measurement to reduce complication rates.

Quality improvement systems

In health care settings, quality improvement systems typically involve identifying measurable outcomes of care and collecting data on the frequency with which these outcomes occur. These statistics are then compared either with the same outcomes in other services (benchmarking) or within the same service over time (trend data).⁶

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At the Pregnancy Advisory Centre, outcome data has been benchmarked and trends recorded for over a decade. This information is regularly reviewed by clinicians. Any changes in clinical practice which could reduce the frequency of adverse events, or increase the likelihood of positive outcomes are considered. Changes in practice are trialled and their effect is tested by continuing to measure the same outcomes.

Measurable outcomes in abortion services

Different outcomes are important to different stakeholders. Outcomes which the service would wish to improve need to be selected for measurement. Some outcomes which are important to consumers are rarely collected or published. Issues which are identified in customer satisfaction surveys conducted by the Pregnancy Advisory Centre include how long women wait for their operation, whether they experience postoperative pain or nausea, and whether the people caring for them are kind and respectful. Some people are particularly concerned about confidentiality.⁷

Benchmarking relies upon comparable data from several services. While some of the Australian Council on Healthcare Standards gynaecology indicators, day surgery indicators, anaesthetic indicators and hospital wide clinical indicators would be appropriate for measuring performance, these are not generally collected by Australian abortion services. Instead, the Pregnancy Advisory Centre has used outcomes published in the international medical literature for benchmarking. Outcomes which are most often published are the rare but serious complications such as uterine perforation and more common adverse events such as continuing pregnancy or incomplete abortion.⁸⁻¹¹

Data collection at the Pregnancy Advisory Centre

All procedures conducted at the Pregnancy Advisory Centre are entered into the outcomes database at the time of the procedure, and com-

plications are recorded as they are identified. There are multiple methods for identifying adverse outcomes. All clients are encouraged to contact the service if they experience postoperative problems and are provided with a 24-hour telephone number for this purpose. Women presenting for a termination who have had a previous termination are asked whether they had any problems following the earlier procedure. All clients are discharged with a letter asking any doctor treating them to report complications to the centre. All public health units in South Australia share one risk management organisation, and significant postoperative events treated at other public hospitals are usually reported through this system.

These methods for identifying and recording complications have not varied since 1993. They are more reliable in collecting data on some outcomes than others. Retained products of conception requiring a return to the operating theatre at the Pregnancy Advisory Centre would always be identified, however cases treated at other hospitals might not be reported. Postoperative infections are often treated by general practitioners and are not always reported to the centre. Uterine perforations requiring surgical repair are treated in other hospitals. These significant events are almost always (but not invariably) reported through the risk management system as well as being reported directly to the centre by treating clinicians.

It is quite unlikely that a continuing pregnancy would remain unreported. Some of these are diagnosed at the time of the initial procedure using ultrasound. Those which remain undiagnosed for some time must return to the Pregnancy Advisory Centre because it is the only service providing second trimester procedures (for indications other than congenital defects) in the state. Where the pregnancy continues to delivery, this is understood to be very significant by treating practitioners and legal representatives, and these events have been reported to the Centre from multiple sources. While it is possible that the Pregnancy Advisory Centre could remain unaware of a continuing pregnancy following a termination procedure, this is improbable.

In this paper, three surgical outcomes — continuing pregnancy, uterine injuries and retained products of conception — are considered in detail, together with background rates from the literature, practice modifications, and changes in rates over time.

Continuing pregnancy

A range of rates have been reported for pregnancies which continue after an abortion procedure. These were 2.3 per 1000 among 33 090 procedures conducted between 1975 and 1978 in the US,¹² 1.8 per 1000 among 23 000 procedures in Turkey⁹ and, more recently, 2.4 per 1000 in a smaller series of 828 procedures conducted in Oxford.¹³

At the Pregnancy Advisory Centre there were 6 continuing pregnancies following 34 108 procedures conducted between July 1992 and June 2004, or less than 0.2 per 1000. We attribute this low rate to the use of ultrasound in the operating theatre since 1993 (almost the entire series). This is used to visualise any pregnancy remaining at the end of the procedure, and prompts the surgeon to make additional efforts to remove it. Overall, the continuing pregnancy rate that has been achieved at the Pregnancy Advisory Centre is tenfold lower than those reported in the world literature of 1.8–2.4 per 1000. Use of postoperative ultrasound has

not totally eliminated continuing pregnancies: occasionally unusual anatomy prevents a pregnancy from being removed using suction and curettage, or a gestational sac is overlooked on postoperative scanning.

Uterine perforation

Perforation of the uterus is also a rare event. Reported rates have been 0.8 per 1000 in Singapore among 49 230 first trimester abortions conducted from 1980 to 1993,¹⁰ and 1.7 per 1000 in Holland among 84 850 procedures conducted between 1982 to 1992.¹¹ Only 0.2 per 1000 of the uterine injuries reported in this Dutch series resulted in any damage to other internal organs. Uterine perforations also occur with a similar frequency when similar surgery is performed to remove products of conception after spontaneous abortion (miscarriage).¹⁴

It is probable that many perforations remain undetected and heal uneventfully without additional treatment. In a series of 706 cases where an abortion was followed by laparoscopic sterilisation, there was the opportunity to visualise the uterus, and perforations were then observed in nearly 20 per 1000 cases.¹⁵

Among the first 13 907 first and second trimester abortions conducted at the Pregnancy Advisory

I Preoperative misoprostol treatment*

Metoclopramide 10mg administered with the first dose of misoprostol reduces nausea/vomiting.

Misoprostol 200 µg tablets may be administered orally. Alternatively, tablets may be administered sublingually after moistening with water. This results in higher serum levels and is more effective.

Doses of misoprostol should be withheld whenever a woman is contracting strongly.

Dosage

Gestation 5 to 10 weeks: one tablet before surgery

Gestation 11 to 13 weeks and 14 weeks in non-parous women: two doses of two tablets half an hour apart. Theatre half an hour after the last dose.

Gestation 15 to 16 weeks and 14 weeks in parous women: three doses of 2 tablets half an hour apart. Theatre one hour after last dose at 14 weeks, two hours after the last dose at 15 weeks and three hours after the last dose at 16 weeks.

Gestation 17 to 22 weeks and 16 weeks when the cervix is tight

— before laminaria tents (first stage): two tablets at home at 7 am with maxolon, two tablets at 7.30, two tablets on admission at 8 am. Theatre 3 hours after last dose.

— before dilation and evacuation (second stage): two tablets at home at 7 am with maxolon, two tablets on admission, two tablets half an hour later. Theatre 3 hours after last dose.

*Updated Pregnancy Advisory Centre dose schedule, current at time of printing.



Centre there was a perforation rate of nearly 0.9 per 1000. Analysis of these cases revealed that previous gynaecological surgery was a risk factor for perforation.¹⁶ Surgical methods were revised to include more extensive use of misoprostol (a prostaglandin) for preoperative cervical ripening and laminaria (osmotic dilators) for cervical dilation, and less use was made of mechanical dilation during surgery. Mechanical dilation was limited to 10mm in primiparous women, and this was further reduced by 2mm for every delivery and 2mm for every caesarian section. For procedures over 16 weeks' gestation, up to 1000µg of misoprostol was given in divided doses before dilation and insertion of laminaria and next day before evacuation of the uterus (see Box 1). These changes in surgical technique were followed by a fall in the perforation rate to 0.5 per 1000 in 20201 subsequent procedures.

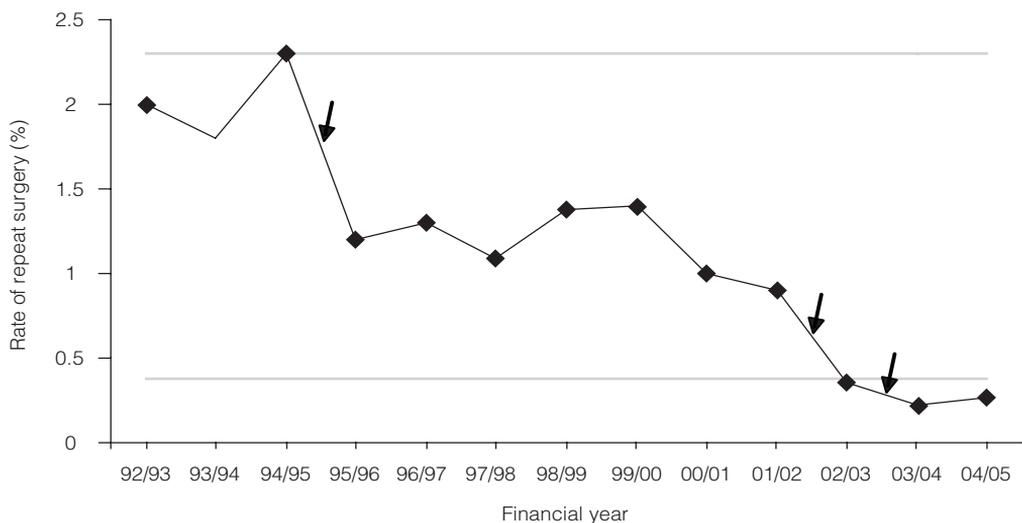
Repeat surgery

Incomplete evacuation of the uterus may result in cramping pain and heavy bleeding after an abor-

tion. In some instances the retained tissue is passed spontaneously, however retained products of conception have traditionally been removed by repeating the dilation and suction curettage procedure. Reported rates of repeat surgery vary. In a series of over 56 000 terminations conducted in Denmark, the rate of re-evacuation was 15 per 1000.⁸ A large US series of 170 000 first trimester cases recorded a re-evacuation rate of only 3.4 per 1000,¹ and in more recent reports of smaller series, 52 per 1000 women had repeat surgery after first trimester abortions in Oxford¹³ and 23 per 1000 in Massachusetts.¹⁷ Re-evacuation of the uterus does not necessarily mean that the initial abortion procedure was incomplete. Post-operative bleeding and pain present diagnostic difficulties, as illustrated by several series in which the rate of repeat surgery was reported to be considerably higher than the rate at which retained products of conception were discovered and removed.^{1,18}

At the Pregnancy Advisory Centre the rate of repeat surgery has fallen dramatically over time.

2 Dilatation and curettage repeat rate at the Pregnancy Advisory Centre, Adelaide, South Australia



Arrows show introduction of procedures aimed at reducing the rate of repeat surgery. *1995 intervention:* women counselled to take pain medication and await spontaneous passage of retained products. *2002 intervention:* sublingual misoprostol 200 µg three times per day over 2 days as first line treatment for suspected retained products. *2003 intervention:* 200 µg misoprostol before surgery. Dotted lines show selected high (see Paul et al¹⁷) and low (see Hakim-Elahi et al¹) benchmarks for comparison. ◆

In 1994 it was over 20 per 1000. The first intervention to reduce this rate was to adopt the policy of counselling women to take medication for pain and await spontaneous passage of retained products, rather than offering repeat surgery as a first-line treatment. This was adopted early in 1995 and was followed by a fall in repeat surgery to about 15 per 1000 (Box 2).

Further reductions in the rate of repeat surgery have been achieved following increasing use of sublingual misoprostol. This prostaglandin will often cause passage of products of conception. It has been widely used for treatment of retained pregnancy tissue following failed pregnancy (spontaneous abortion) when it can empty the uterus without surgery.^{19,20} From the start of 2002, women with suspected retained products returning to the Pregnancy Advisory Centre were offered a course of six 200 µg misoprostol tablets (taken three times per day over 2 days) as first-line treatment (see arrow). This was effective in many cases and the repeat surgery rate fell below 10 per 1000.

Misoprostol is also used to prime the cervix before surgical dilation.²¹ At the beginning of 2003 the practice of giving every woman one 200 µg misoprostol tablet before surgery was introduced at the Pregnancy Advisory Centre (see arrow). The rate of repeat surgery then fell to 3 cases in 2707 procedures, or 1.1 per 1000 in the next 12 month period. This was not the intended purpose of giving misoprostol before surgery, but it produced welcome results.

Barriers to the diffusion of best practice

Health professionals working in this area experience barriers to the acceptance of abortion as a health issue deserving quality improvement approaches like any other. Marginalisation of abortion services creates significant obstructions to quality improvement and the adoption of improved techniques, for example obstruction to the use of mifepristone (RU-486) in Australia.

Medical practitioners who perform abortions are poorly supported in terms of training and

professional development. Trainee gynaecologists may complete 8 years in a specialist training program without ever having conducted a pregnancy termination. A large fraction of abortions are performed by procedural GPs. As the Royal Australian College of General Practitioners develops more mechanisms for the professional development of procedural GPs, continuing medical education opportunities may emerge to support the work of these GP–surgeons.

Where abortion services are a small part of a larger health service, there may be no mechanism for collecting outcome data and service providers may not have any opportunity to meet together to discuss outcomes or opportunities for improvement. Where improvements are proposed, these may not be endorsed. A passive or obstructive stance by management may reflect a lack of interest in customer service and quality improvement generally, hostility to abortion on the part of managers, or the desire to focus effort on less contentious services at the expense of ignoring the needs of women having abortions. These problems are not unique to Australia; researchers investigating the adoption of best practice guidelines²² in Scottish abortion services recently reported that “clinical staff were highly motivated to implement the guideline but were hindered by organisational constraints”.²³

All of these elements provide resistance to ordinary quality improvement activities and to the diffusion of new techniques which take place routinely in other surgical services.

Conclusion

Abortion is a common experience for Australian women, with one in five having chosen to abort.²⁴ Women who choose abortion should feel confident that the risks they accept are as low as they can be using current best practice. One method for achieving this aim is through the application of quality improvement systems. The effectiveness of quality improvement using measurable outcomes of care is illustrated by reductions in the rate of adverse events which have been achieved at the Pregnancy Advisory Centre.

The collection, benchmarking and publication of measurable outcomes of care all require support from the managers of abortion services. Practitioners also require support from their professional organisations (and from each other) to provide forums in which technical expertise can be shared, outcomes discussed and training undertaken.

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Competing interests

Ea Mulligan is employed as a salaried staff specialist by the Pregnancy Advisory Centre.

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