

## A B S T R A C T

**Objective:** Strategies are available to reduce maternal-fetal transmission of HIV and depend on adequate prenatal screening. At present, a significant proportion of Canadian pregnant women remain unscreened. We reviewed our screening practices before and after the implementation of a departmental policy on universal counselling for HIV screening and the distribution of a patient educational brochure developed at our centre (interventions).

**Methods:** Charts of all new antenatal patients seen during February-April in 1996 (n=186) and 1998 (n=212) were reviewed. Maternal demographics and evidence of HIV counselling and screening were collected and analyzed.

**Results:** Following our interventions, HIV counselling and screening rates increased from 13% to 72%. Patient acceptance of testing was high. The majority of missed opportunities for HIV testing were patients transferred urgently from other institutions.

**Conclusion:** HIV counselling and screening can be improved by implementation of local strategies. We have demonstrated the feasibility of this approach in a tertiary care unit.

## A B R É G É

**Objectif :** Il existe certaines stratégies pour réduire le risque de transmission materno-fœtale du VIH. Cependant, leur application requiert un dépistage prénatal adéquat. Or, une importante proportion de Canadiennes enceintes ne font encore l'objet d'aucun dépistage. Nous avons examiné les pratiques de dépistage du VIH avant et après 1) la mise en œuvre d'une politique ministérielle visant à généraliser le counseling portant sur le dépistage du VIH et 2) la diffusion d'une brochure de sensibilisation des patientes produite dans nos centres (interventions).

**Méthode :** Nous avons examiné les dossiers de toutes les patientes vues en clinique prénatale de février à avril 1996 (n=186) et 1998 (n=212), puis recueilli et analysé des données démographiques sur les mères et sur l'incidence du counseling à l'égard du VIH et du dépistage du virus.

**Résultats :** Après nos interventions, les taux de counseling et de dépistage du VIH ont augmenté de 13 à 72 %. Les patientes ont accepté d'être testées dans un nombre élevé de cas. La majorité des cas où le dépistage n'a pas eu lieu concernaient des patientes transférées d'urgence d'autres établissements.

**Conclusion :** On peut améliorer le counseling à l'égard du VIH et le dépistage du virus par la mise en œuvre de stratégies locales. Nous avons démontré la faisabilité d'une telle approche dans un centre de soins tertiaires.

# Prenatal HIV Screening in a Tertiary Care Centre

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Important strategies have been developed to reduce maternal-fetal transmission of HIV-1. The most significant of these was the demonstration in 1994 that perinatal administration of zidovudine reduces the rate of vertical transmission from 25.5% to 8.3%.<sup>1</sup> Management of maternal co-infections, maternal nutritional interventions, by-passing route of exposure with the use of caesarean sections in selected populations, and early initiation of aggressive combination antiretroviral therapy to maximally suppress viral replication are also believed to reduce the rate of transmission.

Prenatal identification of HIV-infected women is crucial to the delivery of optimal care to both mother and fetus. Therefore, professional organizations such as the Society of Obstetricians and Gynecologists of Canada (SOGC), the Canadian Pediatric Society (CPS), the American College of Obstetricians and Gynecologists (ACOG), and the Canadian Medical Association (CMA), support offering HIV screening and counselling to all pregnant women. This approach has been supported by a series of studies clearly demonstrating reductions in HIV-1 maternal-fetal transmission, even in low prevalence settings.<sup>2</sup> Unfortunately, despite the publication of guidelines by the abovementioned organizations, as well as provincial recommendations and policies, only a minority of pregnant women are offered HIV testing. A

survey of family physicians and general practitioners in Hamilton, Ontario, showed that only 8% always discuss HIV testing during prenatal care.<sup>3</sup> Suboptimal screening rates are unacceptable since most children in Canada who acquire the infection do so through perinatal transmission.

We examined HIV-1 universal counselling and screening rates in the antenatal clinic of a tertiary care centre before and after the adoption of a departmental policy supporting universal testing and counselling accompanied by an educational patient brochure.

## METHODS

The Ottawa Hospital-General Campus is a tertiary care maternity centre with over 3,000 deliveries per year. Daily antenatal clinics at the hospital include both low and high risk gravidae (risk assigned on the basis of associated obstetrical or medical complications) cared for by general obstetricians/gynecologists or maternal-fetal medicine specialists. The clinics are staffed by specialized obstetrical nurses working exclusively in obstetrics and gynecology, as well as by social workers and psychologists available as needed for patients requiring their direct expertise, for example in the evaluation of specific psychosocial stressors and implementation of appropriate therapies and the provision of support.

In June 1997, a policy of universal HIV counselling (by nurses, residents and/or attending physicians) and voluntary testing of antenatal patients was adopted. All staff members were informed verbally and in writing about the policy, and supported its implementation. Testing was presented as part of the routine prenatal investigation. In addition, an educational brochure about preventing perinatal transmission of HIV was introduced and provided to patients at

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the time of counselling. Of note, these interventions were implemented prior to the Ontario Ministry of Health's policy recommending universal prenatal HIV counselling and screening.

To determine the impact of this intervention (HIV counselling, testing and educational brochure), we compared the rate of HIV testing of antenatal patients during the time periods before (February-April 1996) and after (February-April 1998) the policy was implemented. All new antenatal visits were identified from the hospital database. A list of antenatal patients referred to our centre from the community for consultation and care but not necessarily seen in the antenatal clinic was also generated for each period through the MED 2020 health record database.

The patient population was classified into 3 categories: low risk, high risk (mostly Maternal-Fetal medicine) and urgent patient transfers (mostly to Maternal-Fetal Medicine) from other health care facilities. Most patients in this last category became inpatients.

Each patient record was audited by a single investigator (MD) to find an HIV serology report or documentation of discussion/counselling regarding HIV testing. Related consultations with the infectious disease service were also noted. Data were collected regarding maternal demographics (age, marital status, gravidity, parity, tobacco and illicit drug use), pregnancy history and medical history including prior transfusions and hepatitis B status. Risk factor information was also collected from the medical record for HIV seropositive women.

**RESULTS**

A total of 186 records of patients first seen in 1996 and 212 seen in 1998 were reviewed. Of those in the 1996 period, we reviewed 111 low risk, 41 high risk and 34 transfers. In the 1998 period, 34 high risk, 144 low risk and 34 transfers were examined.

Maternal age, gravidity, parity, gestational age at first clinic visit, marital status and tobacco use were similar in the two groups (Table I). Illicit drug use was acknowledged by 1% of subjects in 1996

**TABLE I**  
**Maternal Demographics from Both Periods February to April 1996 and 1998\***

|                         | 1996 | 1998 |
|-------------------------|------|------|
| Maternal age (years)    | 28.4 | 29.6 |
| Gravidity               | 2    | 3    |
| Parity                  | 1    | 3    |
| Gestational age (weeks) | 19.5 | 19.1 |
| Marital status          | 88%  | 85%  |
| Tobacco use             | 24%  | 22%  |
| Illicit drug use        | 1%   | 3%   |
| Transfusion rates       | 9%   | 5%   |

\* No significant differences were present between the two periods.

and 3% in 1998 (NS). Previous transfusion rates were also similar, 9% in 1996 and 5% in 1998 (NS).

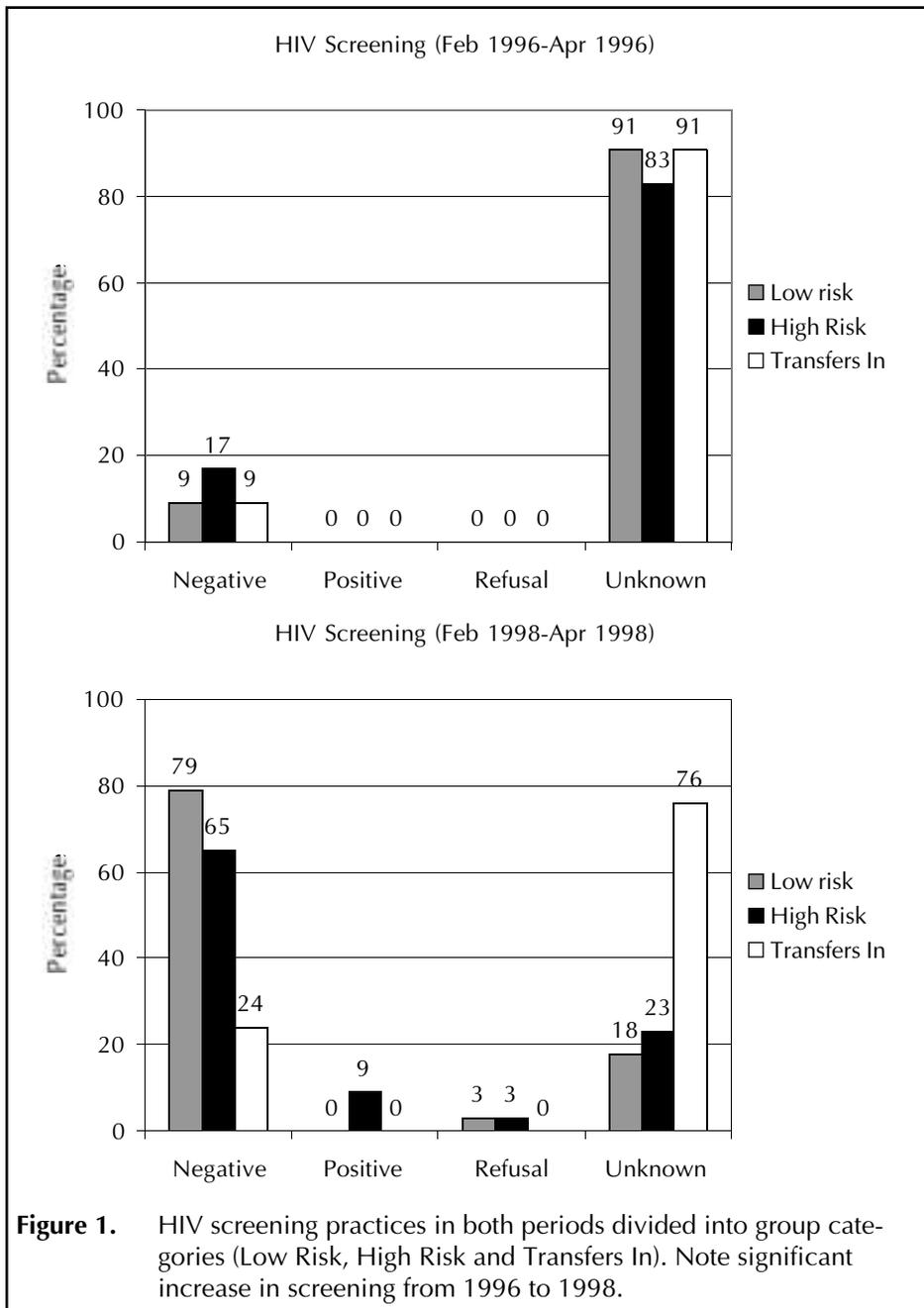
In 1996, 13% of antenatal patients were screened for HIV infection. No instances of patient refusal of screening were found. No HIV positive test results were obtained during this period. In contrast, HIV counselling was documented in 72% of antenatal patients in 1998. This allowed identification of 3 seropositive pregnant women who had no prior knowledge of their infection. No documented risk factors for the acquisition of HIV infection were found in these 3 women other than heterosexual contact. During this same period, refusal of screening occurred in 6 women (Figure 1).

The great majority of patients (78%) with no record of HIV counselling or testing were urgent transfers for serious pregnancy complications. Most of these were directly admitted to the hospital, thereby bypassing the routine clinic visits. HIV counselling and screening practices did not vary significantly between the other two groups (Figure 1).

**DISCUSSION**

Our data demonstrate the feasibility of universal HIV counselling and voluntary screening in a busy antenatal tertiary care unit. As previously reported, patient acceptance of HIV screening is very high.<sup>4,5</sup> Factors which may have played a role in the significant increase in screening can be divided into two categories: physician-related and patient-related. Commonly reported physician-related barriers for HIV screening include: lack of time and support staff, and the perception that screening may not be of benefit to the patient.<sup>6</sup> We attempted to deal with

these concerns by ensuring that the entire team, particularly nurses and house residents, actively participated in HIV counselling. We also believe that the institution of a departmental policy informed members of the benefits of screening even in low HIV-prevalence settings. Interestingly, the issue of universal prenatal HIV counselling and screening had been raised by a few staff physicians and the need for such intervention was discussed at the departmental meeting where all members present supported its implementation. This was followed by the organization of an educational event where an expert in the management of HIV in pregnancy was invited to speak to the entire medical staff. Of note, nurses and allied health professionals were also invited to attend. This created a framework where all physicians and nurses felt comfortable with this practice as it represented a guideline by which they would not feel vulnerable offering HIV screening (potentially incurring patient's anger) since everyone would be participating, thereby making this a Standard of Care. Discussions regarding the implementation of this policy and the important justifications for it also occurred with the antenatal clinic team (mostly nurses) and the policy was well received and supported. In addition, the direct involvement of local individuals in the development of our departmental policy and in the elaboration of the patient's brochure may also have played a very important role in facilitating the implementation of universal antenatal HIV counselling and screening. This is further supported by Logan et al. who demonstrated that strategies closer to the users and well integrated to health care delivery appear to be more effective.<sup>7</sup>



It is also plausible that departmental discussions of this policy increased awareness and knowledge among obstetricians. However, the exact role that this may have played versus the influence of attitudes cannot be ascertained. Prior investigators have clearly demonstrated that despite adequate knowledge of the benefits of antenatal AZT, screening remained sub-optimal. In a survey of Toronto area physicians, despite publications and dissemination of guidelines from the Ontario Ministry of Health, only 58% of family physicians and

63% of obstetricians discussed antenatal HIV testing, 0 to 50% of the time.<sup>8</sup>

Reported patient-related barriers to screening include patient perception that she is not at risk, fear of rejection by friends and family, and fear of the diagnosis.<sup>9</sup> Protection of confidentiality and presenting HIV screening as a routine antenatal test both have been shown to lead to greater patient acceptance.<sup>10</sup> Indeed, our study supports these findings. The counselling and the patient educational brochure may have alleviated some of the

fears concerning the diagnosis of HIV infection and concerning confidentiality. Furthermore, a specialized team of physicians, nurses, social workers and psychologists is available in our centre to counsel, treat and support HIV-infected individuals. This information being made available to the patient prior to testing may also have helped relieve some of the fears, particularly related to rejection.

It is estimated (LCDC) that currently in the general population, at least 15,000 infections are undiagnosed in Canada and an unacceptable proportion of pregnant women are still not screened.<sup>10</sup> A recent estimate of screening in Ontario revealed that between January and May 1999, over 26,000 women were tested either through prenatal screening or routine HIV diagnostic program. During this same period, only 45% (approximately) of the pregnant population were tested for HIV, thereby illustrating the magnitude of missed opportunities.<sup>11</sup> This is of significant concern as women represent an increasingly important proportion of AIDS cases diagnosed in Canadian adults. Furthermore, 79% of HIV seropositive cases reported in women to LCDC by December 1998 occurred in those of childbearing age. It is therefore not surprising that perinatal transmission remains the most common mode of acquisition of HIV infection in children in Canada.<sup>12</sup>

Our experience clearly demonstrated the feasibility of universal counselling and voluntary testing in the antenatal population, but it also raised an important problem – that of ensuring this in transferred patients. It was apparent in our data that these patients, usually high risk, frequently did not have documentation of HIV counselling in their records. This may partly reflect difficulties in transmitting all prenatal records, particularly in situations where the emphasis may be on another very important pregnancy complication such as premature labour, a common reason for referral. Alternatively, it is also possible that physicians and nurses in the community were not yet fully aware of the benefits of HIV counselling in pregnancy and therefore had not implemented this policy in their own practice. Finally, there may be assumption from one health care provider

that the other (whether referring the patient or accepting) will be responsible for the counselling. This situation leads to high risk patients not being screened adequately as counselling is not universal. This may prevent any possible intervention to reduce HIV transmission to their fetuses such as performing a cesarian section prior to labour, which might have an even greater impact in this population given the nature of the complications (e.g., prematurity which is associated with immaturity of the fetal/neonatal immune system).

Institutional implementation of a policy of prenatal screening for HIV along with other routine antenatal blood tests, with appropriate nursing support and educational materials, as demonstrated in our data, can improve screening practices dramatically. If 90% of Canadian pregnant women were screened and treated in accordance with current best practices, a minimum decrease of 65% in the number of infected newborns would be achieved.<sup>12</sup> This would represent 31 infections prevented annually. The antenatal care provider has a unique opportunity to pre-

vent HIV transmission and protect the health of HIV-infected women in their care. Our data support the feasibility and effectiveness of an institutional policy of universal counselling and screening in a busy clinical setting.

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**“I Live Day By Day...”**

...people like me don't look funny or bubble but we will eventually die of the disease that will destroy our minds.” The words are spoken by Christopher Young, former editor of the Ottawa Citizen, and the disease he is referring to is Alzheimer Disease, with which he was diagnosed less than 2 years ago.

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\* Canadian Study of Health and Aging