

Three-year Follow-up Study of Women Who Participated in a Cervical Cancer Screening Intervention While in Prison

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ABSTRACT

Objective: This study describes rescreening following a prison cervical cancer screening intervention: the numbers of women who received rescreening during the three-year follow-up period; their timing of rescreening in relationship to intervention follow-up recommendations; and socio-demographic factors associated with rescreening.

Methods: Socio-demographic information was collected from Corrections Branch records. Clinical and risk factor information was obtained by a self-administered questionnaire. Pap screening histories were collected from Cervical Cancer Screening Program (CCSP) client records using the client ID number for Pap smears taken during the intervention period, during the three-year follow-up period, and during the 30-month period preceding the intervention period. Results were entered in Excel and responses summarized with frequency tables; bivariate analysis of categorical variables was done using chi-square tests of independence.

Results: During the three-year follow-up period, only 28 (21%) of 138 women who participated in a prison cervical cancer screening intervention were rescreened within 6 months of the recommendation received at intervention Pap test. Women with fewer than 5 multiple names (aliases) were more likely to be rescreened ($p=0.02$). Educational level approached statistical significance ($p=0.05$), with women with least education receiving highest rescreening. There was no relationship between rescreening and ethnicity, injection drug use, having borne children and current methadone treatment.

Conclusion: Only 50% of women who participated in a specifically designed prison screening intervention were rescreened during the subsequent three years. Further work is needed to design, implement and evaluate follow-up initiatives of community cervical cancer screening programs for women who are at higher risk of developing cervical dysplasia.

Key words: Prisoners; women; uterine cervical dysplasia; screening

La traduction du résumé se trouve à la fin de l'article.

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An important goal of cervical cancer screening programs is to improve participation, especially among women at high risk for cervical cancer. Certain groups, such as women of colour, older women, those with less severe diagnoses and lower literacy, are less likely to adhere to the follow-up recommendations in cervical screening programs.¹⁻⁴ Incarcerated women are also at high risk for cervical dysplasia⁵ as the prevalence of human papillomavirus (HPV) infection is high⁶ and other risk factors such as smoking and infection with other sexually transmitted agents may serve as cofactors in HPV-related cervical carcinogenesis.⁷ Incarcerated women receive Pap screening less frequently⁸ and have more screening abnormalities compared to the general population.⁹ However, literature is lacking about adherence to follow-up recommendations for cervical cancer screening among women who have been in prison.

We designed, implemented, and evaluated a prison Pap screening intervention, and reported the results elsewhere.¹⁰ This paper examines whether participation in the prison screening intervention had any effect on follow-up screening practices. It describes who received rescreening during the three-year period following participation in the intervention, and their timing of rescreening in relation to intervention follow-up recommendations. For comparison purposes, Pap screening in this population is also examined for the 30 months preceding the intervention period.

METHODS

In British Columbia, the Burnaby Correctional Centre for Women (BCCW) housed women serving both federal and provincial sentences (≥ 2 and < 2 years, respectively), and those remanded to custody awaiting sentencing. A total of 650 women at BCCW were initially eligible for the prison Pap screening intervention: they were incarcerated during the 20-week period between October 2000 and February 2001.¹⁰ Of these women, 138 received a Pap smear during this intervention period; they comprised the study group for this follow-up paper.

The prison Pap screening intervention included the establishment of a nurse-led Pap clinic for one-on-one education about cervical cancer and its early detection, Pap

testing, reporting of Pap test results and arranging for appropriate treatment. Available to all women in BCCW, clinics were held several times weekly, with scheduled appointments for Pap tests and discussion of results. The nurse practitioner engaged in a variety of creative activities to promote awareness of the clinic, such as wearing a plastic pelvic model on her head, offering candy to the women, and 'hanging out' in the living units in order to establish rapport and a trust relationship with the inmates. Community follow-up was done for women released from prison.

Information on socio-demographic characteristics was collected from Corrections Branch inmate records, and included age, ethnicity, education, type of incarceration, length of incarceration, and multiple names/aliases. History of working in the sex trade was obtained by self-administered questionnaire completed by 133 (96% response) of these women. Clinical information was also collected by this questionnaire, and included parity and personal history of colposcopy, methadone use and injection drug use. Pap screening histories were collected from Cervical Cancer Screening Program (CCSP) client records and included Pap smears taken during the intervention period, during the follow-up period from March 2001 to February 2004, and during the 30-month period preceding the intervention. The CCSP is a provincial screening program which was established in 1949 as the first organized population-based program in the world to screen for cervical cancer. Information was also collected on the rescreening recommendation as reported for the intervention Pap smear, the dates of the most recent Pap smear preceding the intervention and the first subsequent follow-up Pap smear after the intervention, and the location of the clinic where the follow-up Pap smear was taken.

The CCSP recommends a follow-up Pap smear at an interval based on the current smear result and the patient's cytology history: patients with mild atypia are usually given a 6-month repeat recommendation; patients with negative or benign changes are given a 12-month repeat recommendation or a 24-month repeat recommendation if the 3 previous consecutive smears were normal.¹¹

TABLE 1

Percentage of Incarcerated Women Who Received Cervical Cancer Screening in the Pre-intervention Period† and Who Were Rescreened During the Follow-up Period‡ by Socio-demographic Factors

Factor		Total Number*†	Screened in the Pre-intervention Period		Rescreened in the Follow-up Period	
			%	p-value	%	p-value
Age (years)	<20	8	50	n.s.	63	n.s.
	20-29	66/64	68		52	
	30-39	48	48		52	
	40+	16	63		31	
Ethnicity	Caucasian	78/77	58	n.s.	48	n.s.
	Aboriginal	38/37	63		57	
	Asian	5	40		60	
	Other	15	67		47	
Education (grade)	<9	18	33	0.02	72	0.05
	9-10	45/44	56		48	
	11-12	56/55	71		49	
	13+	13	46		31	
Multiple aliases‡	Yes	54/53	63	n.s.	38	0.02
	No	84/83	57		58	
Ever borne children	Yes	99/98	65	n.s.	47	n.s.
	No	34/33	41		61	
Prior colposcopy	Yes	31/30	58	n.s.	50	n.s.
	No	80/79	56		52	
	Unknown	20	70		45	
Current methadone use	Yes	32	69	n.s.	50	n.s.
	No	100/98	55		50	
Past injection drug use	Yes	95/93	60	n.s.	49	n.s.
	No	38	55		53	
Intend on using injection drugs	Yes	18	33	n.s.	50	n.s.
	No	90/89	64		54	
	Unknown	24/23	58		39	
Sex trade worker	Current	27	44	n.s.	55	n.s.
	Previous	32/31	59		42	
	No	74/73	64		48	
Sentence type	Remand	50	64	n.s.	50	n.s.
	Sentenced	88/86	57		50	
Months since pre-intervention screening	<6	7	na	n.s.	71	n.s.
	6-12	21	na		57	
	13-24	39	na		54	
	25-36	22	na		50	
	37+ or not screened	47	na		40	
Screened within previous 30 mos.	Yes	80	na	n.s.	55	n.s.
	No	56	na		43	
Repeat smear§ (months)	6	28	na	n.s.	61	n.s.
	12	88	na		44	
	24	20	na		60	
Total		138/136	60		50	

* 30 months preceding the intervention period; n=138.

† 3 years following the intervention period; n=136, excludes 2 inmates who received the recommendation for colposcopy during the intervention period.

‡ 5 or more aliases.

§ CCSP recommendation, as stated in the results letter sent to the primary caregiver.

na: not applicable.

Missing values: ethnicity=2; education=6; ever borne children=5; prior colposcopy=7; current methadone use=6; past injection drug use=5; intend on using injection drugs=6; sex trade worker=5.

Descriptive statistics were used to determine the rescreening rates by socio-demographic and clinical factors for women rescreened during the follow-up period. Rescreening rates were also determined separately for women who were rescreened early or no later than 6 months after the recommended time interval, and those who were late (rescreened more

than 6 months after the recommended time interval or were not rescreened). The chi-square test was used to test for differences by socio-demographic and clinical factors. Finally, a similar analysis was done to identify socio-demographic and clinical factors associated with Pap testing in the 30 months preceding the intervention.

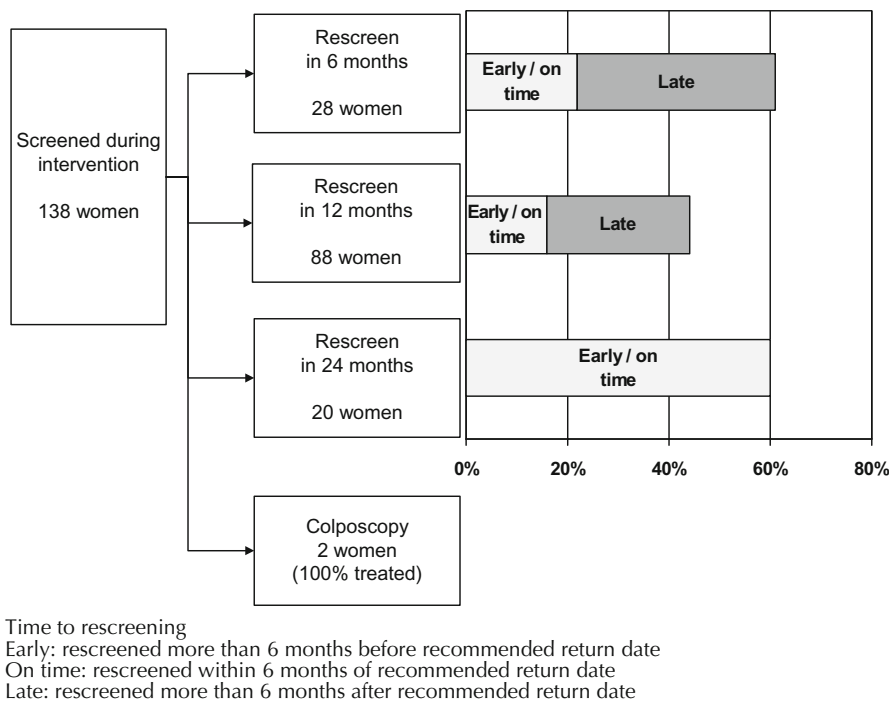


Figure 1. Percentage rescreened by recommendation received at intervention Pap test

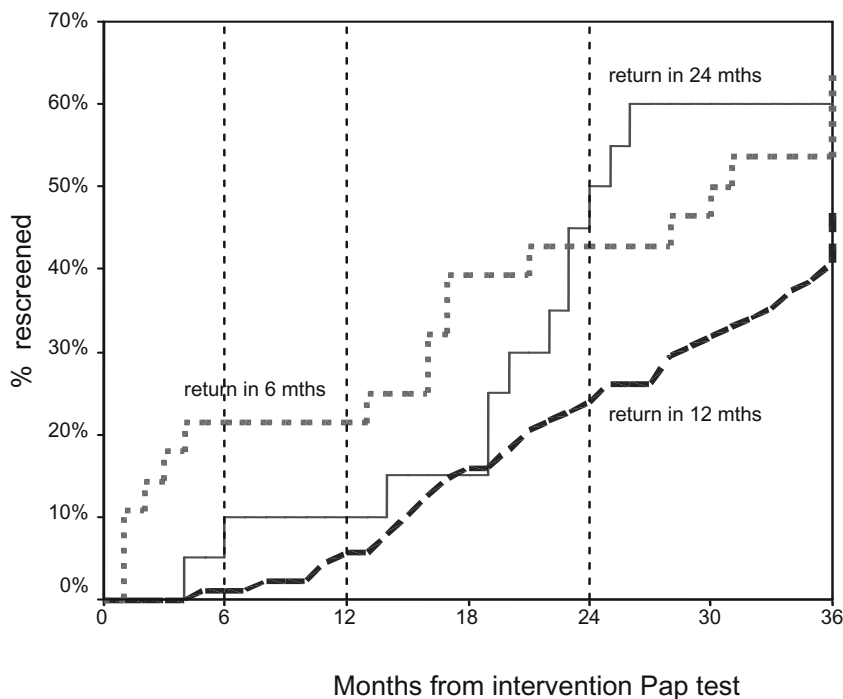


Figure 2. Percentage rescreened by recommendation received at intervention Pap test

received their follow-up Pap smear outside of prison. The majority of these 136 women were under 40 years of age, without 5 or more aliases, parous, with no history of colposcopy, not currently on methadone, with a history of injection drug use and were sentenced but with less than 4 weeks of time served in prison. Nearly one half reported grade 10 education or less and a history of sex trade work, and over one quarter self-reported as Aboriginal.

Table I also shows the socio-demographic and clinical factors associated with rescreening during the follow-up period and screening during the 30 months preceding the intervention. The only significant factor associated with rescreening during the follow-up period was having multiple aliases: those with fewer than 5 multiple names were more likely to be rescreened ($p=0.02$). Educational level approached statistical significance ($p=0.05$), with highest rescreening for those with least education. There was no relationship between rescreening and ethnicity, injection drug use, having borne children and current methadone treatment. Also, only one factor was significantly associated with screening during the 30-month period preceding the intervention: women with grades 11-12 education were more likely to have had a recent prior Pap test ($p=0.02$). An intention of not using injection drugs after release from prison approached statistical significance ($p=0.06$).

Only 28 women (21%) followed the CCSP rescreening recommendation (i.e., rescreened within 6 months of the recommended time interval). Four (3%) were rescreened early (6 months or more before the recommended time interval), 36 (26%) were rescreened late (6 months or more after the recommended time interval), and 68 (50%) were not rescreened during the three-year follow-up period. Figure 1 presents a flow chart of percentages of women rescreened by the CCSP recommendation.

Figure 2 presents the time to rescreening by the CCSP recommendation. It shows that women receiving a 12-month recommendation (i.e., those who had not yet established a cytology pattern of 3 negative smears in 5 years)¹¹ were less likely to return for rescreening during the three-year follow-up period. The highest pro-

RESULTS

Table I shows the distribution of socio-demographic and clinical characteristics for the study group, excluding 2 women who received the CCSP recommendation for

colposcopy based upon their intervention Pap smear (colposcopies were completed 13 and 14 months later, respectively). Of the remaining 136 women, 68 (50%) returned for Pap rescreening by the end of the follow-up period, 40 (59%) of whom

portion of women who were rescreened as recommended had received a recommendation for rescreening within 24 months. Although the data are not shown, factors associated with late rescreening (i.e., after the CCSP recommended interval) included a recommendation for rescreening at 6 or 12 months ($p < 0.01$) and having borne children ($p = 0.01$). Other factors approaching statistical significance included post-secondary education ($p = 0.05$), having 5 or more aliases ($p = 0.06$), and longer time since pre-intervention screening ($p = 0.07$).

DISCUSSION

A total of 68 women (50%) returned for screening during the three years of follow-up. Only 61%, 44% and 60% of those recommended for rescreening at 6 months, 12 months and 24 months, respectively, were rescreened during this period. Nearly 60% of these women were in the community at the time of their follow-up Pap test. Because of the 'revolving door' nature of prison life, we suggest that follow-up initiatives for this high-risk population should include community health interventions. This would include being aware of multiple names to avoid loss to follow-up in the community.¹² Of the remainder who were rescreened while in prison, we were unable to determine if they had remained in prison until their rescreen or had been released after their intervention Pap smear and subsequently rearrested. However, this does confirm that incarceration provides an opportunity for preventive health care in women who might not otherwise receive it.

It is known that older women are less likely to participate in Pap smear screening programs.¹¹ However, age was not significant in our study, although younger women tended to have higher rescreening rates. The lack of significance for age may be due to the small sample size and hence low power.

Contrary to existing literature on cervical cancer screening in minority populations,^{13,14} ethnicity was not associated with follow-up of cervical cancer screening recommendations among women participants. This is compatible with our earlier finding that Aboriginal women in prison did not have significantly less cervical can-

cer screening when compared to Caucasian prisoners.¹⁰ We were surprised that a history of injection drug use was not associated with lower rescreening.

Disappointingly, methadone program participation was not associated with improved Pap re-screening. Several studies confirm that methadone in prison for women sentenced to long prison sentences reduces prison recidivism,¹⁵ but there are no published studies on the impact of prison methadone programs on preventive health measures for women sentenced to short prison sentences. However, the numbers of women on methadone in our study were small ($n = 32$) and we have no data on whether these women were 'successful' on methadone after release from prison. The benefit of methadone treatment with respect to follow-up cervical cancer screening might be seen if followed for longer than three years.

A major strength of this study was the availability of Pap screening data from a centralized cytology database registry, enabling us to follow cytology screening behaviour over time. In addition, all women who participated in a prison Pap smear intervention program consented to our accessing their cytology data three years later, and most (96%) completed the socio-demographic survey. To our knowledge, this is the only publication to report on patterns of adherence to follow-up screening among women who received Pap smear screening in prison.

One limitation of this study is its relatively small sample size. However, this is a descriptive study and not meant for hypothesis testing which is more dependent upon sample size.

Second, this study was conducted in a women's prison in British Columbia and hence our findings may not be generalizable to other high-risk women outside of prison. Finally, we may have overreported those who have never or last been screened more than 5 years ago because of the lower likelihood of correctly identifying women with multiple aliases when administrative databases are linked by name. To reduce this error, we manually reviewed the CCSP cytology histories of all 53 women known to have more than 5 names, and relevant data were entered manually into our study data.

CONCLUSIONS

Even for incarcerated women who received a specifically designed prison intervention program, only 50% had been rescreened in the subsequent three years. Further work is needed to design, implement and evaluate follow-up initiatives of community cervical cancer screening programs for women who are at higher risk of developing cervical dysplasia.

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RÉSUMÉ

Objectif : Cette étude porte sur le redépistage après une intervention de dépistage du cancer du col utérin en prison; on y précise le nombre de femmes redépistées pendant la période de suivi de trois ans; le moment du redépistage par rapport aux interventions de suivi recommandées; et les facteurs sociodémographiques associés au redépistage.

Méthode : Les données sociodémographiques ont été recueillies dans les dossiers de la Direction générale des affaires correctionnelles. Les données cliniques et les facteurs de risque ont été obtenus au moyen d'un questionnaire auto-administré. Les antécédents de dépistage par frottis de Papanicolaou ont été extraits des dossiers des clientes du programme de dépistage du cancer du col utérin à l'aide du numéro d'identification des clientes, et ce, pour les frottis effectués pendant la période d'intervention; au cours de la période de suivi de trois ans; et au cours des 30 mois précédant la période d'intervention. Les résultats ont été entrés dans un tableau Excel, et les réponses, résumées dans des tableaux statistiques; l'analyse bivariée des variables de catégories a été effectuée à l'aide de tests d'indépendance du khi-carré.

Résultats : Pendant la période de suivi de trois ans, 28 seulement (21 %) des 138 femmes ayant participé à l'intervention de dépistage du cancer du col utérin en prison avaient été redépistées 6 mois ou moins après la recommandation reçue lors du test de Papanicolaou d'intervention. Les femmes ayant moins de 5 pseudonymes étaient plus susceptibles d'avoir été redépistées ($p=0,02$). Le niveau d'instruction était proche du seuil de signification statistique ($p=0,05$) (les femmes les moins scolarisées affichant le plus haut taux de redépistage). Il n'y avait aucune relation entre le redépistage et l'appartenance ethnique, l'usage de drogue injectable, le fait d'avoir donné naissance, ou le fait de suivre un traitement à la méthadone.

Conclusion : Seulement 50 % des femmes ayant participé à une intervention de dépistage en prison spécialement conçue avaient été redépistées au cours des trois années suivantes. Il faudrait poursuivre le travail pour concevoir, mettre en œuvre et évaluer des initiatives de suivi des programmes communautaires de dépistage du cancer du col utérin à l'intention des femmes les plus à risque de contracter une dysplasie du col de l'utérus.

Mots clés : détenues; femmes; dysplasie du col de l'utérus; dépistage

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