BC Cancer Agency
CARE + RESEARCH
An agency of the Provincial Health Services Authority

BC Cervical Cancer Screening Program

New start age and frequency of cervical cancer screening

There are 2 major changes to the screening guidelines:

(1) Start age of screening has been postponed to 25;

(2) Frequency of screening has been decreased to every 3 years.

These changes have been justified by a number of important observations.

1. Cervical cancer in young women (under age 24) is exceedingly rare.

- Incidence of cervical cancer in this age group is 1.35 per 100,000. This translates into 1 cancer diagnosed every 8 years at age 20, and fewer than 2 cases per year at age 24.[1]

2. Cervical cancer screening in young women can be harmful.

- Screening increases the number of colposcopy referrals and treatments by loop electrosurgical excision procedure (LEEP), which increases the risk of adverse pregnancy outcomes:

Outcome (# of studies)		Cases	Controls	Pooled Relative Risk (95% CI)
2nd trimester loss (4)		1.6%	0.4%	1.6%
Preterm birth < 34 weeks (5)		48/1,670 (2.9%)	6,053/267,889 (2.3%)	48/1,670 (2.9%)
Preterm premature rupture of membranes (6)		108/2,102 (5.1%)	7,940/314,891 (2.5%)	108/2,102 (5.1%)
Preterm birth < 37 weeks	vs. no dysplasia (15)	473/5,457 (8.6%)	54,036/1,172,059 (4.6%)	473/5,457 (8.6%)
	vs. dysplasia untreated	109/1,092 (10.0%)	17,696/242,946 (7.2%)	109/1,092 (10.0%)

Adopted from Kyrgiou et al, Cochrane Database Syst Rev 2015 Sep 29;9, and Conner et al, Obstet Gynecol 2014;123(4):752-61

- The greater the depth and number of LEEPs, the higher the risk:

		Preterm births (%)	Odds ratio for preterm birth (95% CI)
Depth of LEEP	<12 mm	54/1,022 (5.3%)	1.00 (reference)
	13-15 mm	49/1,118 (4.4%)	0.82 (0.55-1.23)
	16-19 mm	47/650 (7.2%)	1.44 (0.96-2.16)
	>20 mm	72/801 (9.0%)	1.76 (1.21-2.55)
	<10 vs. > 10 mm	Not reported	2.61 (1.28-5.34)
Number of LEEPs	2 vs. 0	31/273 (11.4%)	3.78 (2.58-5.53)
	2 vs. 1	Not reported	1.88 (1.27-2.78)

Adopted from Noehr et al, Obstet Gynecol 2009;114(6):1232-8, and Kyrgiou et al, Lancet 2006;367(9509):489-498

3. Cervical cancer screening in young women (age 20-24) has **not** been shown to reduce cervical cancer risk.

- Women screened in their early 20's (20-24) do not have a lower risk of cervical cancer diagnosed at ages 25-29, compared to those who have never been screened in their early 20's.[2]

- Initiating cervical cancer screening at age 25 compared to age 21 yields a very small incremental increase in the number of cervical cancer cases (0.23-0.33 per 1000 women screened).
- Decreasing the frequency of screening from every year to every 3 years yields a very small incremental increase in the number of cervical cancer cases (from 0.58 to 0.62 per 1000 women screened, i.e., a difference of 0.04 per 1000, or 1 in 25,000).
- However, postponing the start age and reducing the frequency of screening will dramatically reduce the number of colposcopic examinations:

ESTIMATED OUTCOMES PER 1,000 WOMEN SCREENED, ACCORDING TO START AGE AND INTERVAL OF SCREENING

Outcome	Screening Interval	Age				
		21	22	23	24	25
Colposcopy	Annual	360.6	322.3	283.8	245.3	206.6
	3 year	134.3	135.0	135.0	92.5	92.8
CIN 2/3	Annual	20.4	20.0	19.5	18.8	18.0
	3 year	13.7	14.9	15.9	12.2	13.0
Cancer	Annual	0.25	0.31	0.39	0.48	0.58
	3 year	0.39	0.46	0.54	0.52	0.62

Adopted from Kulasingam et al, US Preventive Services Task Force 2011

4. Screening at a young age and at frequent intervals requires many tests to prevent 1 case of cervical cancer

- Reducing screening frequency from every year to every 3 years (while starting screening at age 20) will reduce the number of lifetime tests by 1/3 and the number of tests required to prevent one case of cervical cancer (from 3,030 to 1,042), at the expense of a 2% absolute decrease in the reduction of cervical cancer risk (from 93 to 91%, compared to no screening).
- Increasing the start age to 25 further decreases the total number of lifetime tests, with only a 1% absolute decrease in the reduction of cervical cancer risk (from 91-90%).

Age range	Interval (years between screens)	Lifetime tests	% reduction in cervical cancer	Tests per cervical cancer prevented
20-64	1	45	93%	3,030
20-34;35-64	1;3	25	92%	1,695
20-64	3	15	91%	1,042
25-64	3	13	90%	917
20-34;35-64	1;5	21	85%	1,563
25-64	5	8	82%	621

IARC Working Group, BMJ 1986;293(6548):659-64

Conclusion

Even if annual screening could be offered to all women starting at an early age, there will still be cases of cervical cancer (among those not screened, and/or vaccinated). The rationale for changing the guidelines (later age, less frequent screening) is not a matter of cost. The benefits from earlier and frequent screening (exceedingly small incremental benefits from earlier and more frequent screening) have been weighed against the risks (harms from screening young women, including increased colposcopies, treatments, risks to future pregnancies, and unsustainable costs to the health care system). British Columbia has the mandate through its provincial cervical cancer screening program to ensure that outcomes and costs will continue to be evaluated following implementation of the new guidelines.

[1] Krueger H, Kwon J, Sadownik L, OgilvieG. What is the most appropriate age to start screening women for cervical cancer?. BCMJ. 2013; 55(6): 282-6.

[2] Sasieni P, Castanon A and Cuzick J. Screening and adenocarcinoma of the cervix. International Journal of Cancer. 2009; 125(3): 525-9.