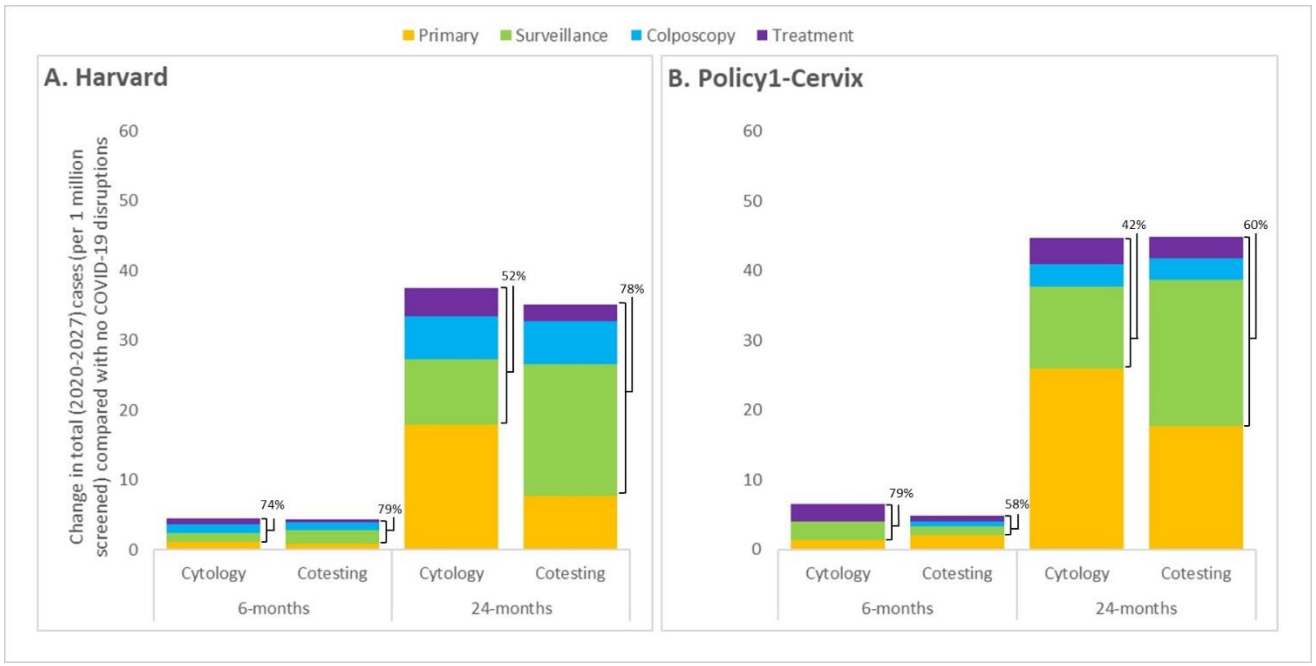
Supplementary Table 1. COVID-19 disruption scenarios

			Duration of disruption (months)			
Screening modality*	**Scenario**	**Reduction in attendance**	**Primary Screening**	**Surveillance‡**	**Colposcopy**	**Excisional treatment**
Primary cytology	0a	0%	0	0	0	0
	1a	100%	6	6	6	6
	2a	100%	6	6	6	1
	3a	100%	6	6	1	1
	4a	100%	6	1	1	1
	5a	100%	24	24	24	24
	6a	100%	24	24	24	1
	7a	100%	24	24	1	1
	8a	100%	24	1	1	1
Primary cotest†	0b	0%	0	0	0	0
	1b	100%	6	6	6	6
	2b	100%	6	6	6	1
	3b	100%	6	6	1	1
	4b	100%	6	1	1	1
	5b	100%	24	24	24	24
	6b	100%	24	24	24	1
	7b	100%	24	24	1	1
	8b	100%	24	1	1	1

*Screening practice compliance with primary screening assumes the time interval until a woman re-attends for her next routine screen was sampled from the distribution based on data from Kaiser Permanente Northern California (KPNC): 1-year, 3.6%; 2-year, 14.4%; 3-year, 63.3%; 4-year: 13.3%; 5-year, 5.4%. Following referral, compliance to a colposcopy visit was 78.9% and compliance to excisional treatment was 78.2% (6). All scenarios were simulated in the context of age- and sex-specific HPV vaccination coverage was based on NIS-TEEN interviews, including historical vaccination coverage using the quadrivalent vaccine starting in 2007 for girls and 2010 for boys, and the nonavalent HPV vaccine from 2015 onwards, based on updated U.S. guidelines. The average time between recommendation and receiving 1) surveillance test(s) was 12 months (based on guidelines), 2) colposcopy was 3 months, and 3) excisional treatment was 2 months. For example, if a woman received a recommendation for excisional treatment in January 2020, was due to receive her excisional treatment in March 2020 (COVID disruption lasted 6 months from March to August), the woman would receive her excisional treatment 8 months after the initial recommendation in September. †Screening with co-testing assumes women aged 21-29 years were screened with primary cytology and women aged 30-65 years were screened with primary cytology and human papillomavirus (HPV) cotesting. ‡Surveillance includes all tests that are recommended to women that are not considered primary/routine testing and not colposcopy or treatment. For example, surveillance could include follow-up of an HPV-positive, cytology-negative women, or follow-up for a woman initially testing negative on a colposcopy or post-treatment for a precancer. Note: Analyses did not assume any impacts to the probability of symptomatic cancer detection or access to stage-specific cancer treatments.

Supplementary Figure 1. Projected total (2020-2027) number of detected cervical cancer cases for women aged 21-84 years due to the impact of COVID-19-related disruptions at different steps in the cervical cancer screening process in the context of primary cytology-based screening or cotest-based screening for two CISNET-Cervical disease simulation models. COVID-19-related disruptions varied by the duration of the disruption (6 months (left bars) or 24 months (right bars)) and step(s) in the screening process the disruption(s) impacted: i) primary screening only, ii) primary screening and surveillance, iii) primary screening, surveillance and colposcopy visits, or iv) primary screening, surveillance, colposcopy visits and excisional treatments. Women aged 21-65 years were screened using cytology with or without an option to switch to cytology and human papillomavirus (HPV) "cotesting" starting at age 30 years. See **Supplementary Table 1** for alternative COVID-19-related strategies and assumptions. Note: MISCAN-Cervix did not simulate all scenarios; therefore, outputs were not included in the figure.



Supplementary Table 2. Cumulative proportion of “women-tests” disrupted by each screening step for multiple birth cohorts of women for the Harvard and Policy1-Cervix models (percentages rounded to nearest whole number).

Scenario by model*	Primary	Surveillance‡	Colposcopy	Treatment
Harvard Model				
Primary cytology (6-month disruption)	85 %	10 %	4 %	1 %
Primary cytology (24-month disruption)	86 %	10 %	4 %	1 %
Primary co-test (6-month disruption)	69 %	23 %	8 %	1 %
Primary co-test (24-month disruption)	69 %	22 %	8 %	1 %
Policy1-Cervix Model				
Primary cytology (6-month disruption)				
Primary cytology (24-month disruption)	84%	13%	3%	1%
Primary co-test (6-month disruption)				
Primary co-test (24-month disruption)	75%	20%	5%	1%

*Women aged 21-65 years were screened using cytology with or without an option to switch to cytology and human papillomavirus (HPV) “cotesting” starting at age 30 years. ‡Surveillance includes all tests that are recommended to women that are not considered primary/routine testing and not colposcopy or treatment. For example, surveillance could include follow-up of an HPV-positive, cytology-negative women, or follow-up for a woman initially testing negative on a colposcopy or post-treatment for a precancer. The US cotesting strategy inherently places a larger proportion of women on surveillance compared with primary cytology.