Appendix 1. Exclusions for Population-based Research to Optimize the Screening Process (PROSPR) MultilEvel opTimization of the ceRvIcal Cancer Screening process in diverse Settings & populations (METRICS) Cohort Members with an Abnormal Cervical Cancer Test

	Total in Cohort n = 764,715	KPWA n = 321,173	PH n = 225,907	MGB n = 217,635
Exclusions	Total n = 747,174	Total n = 317,279	Total n = 218,790	Total n = 211,105
<21 years old or >79 years old throughout study period	n = 31,104	n = 22,167	n = 1,712	n = 7,225
No Pap/HPV test	n = 325,236	n = 158,255	n = 81,590	n = 85,391
Only abnormal Pap test outside of age range	n = 1,205	n = 281	n = 751	n = 173
Only normal/ineligible abnormal Pap test	n = 379,168	n = 134,570	n = 127,032	n = 117,566
Cervical cancer prior to abnormal Pap test	n = 266	n = 99	n = 78	n = 89
Hysterectomy prior to abnormal Pap test	n = 99	n = 8	n = 57	n = 34
Pregnant at abnormal Pap test	n = 7,043	n = 392	n = 6,364	n = 287
Only diagnostic abnormal Pap test or left the cohort the day of the abnormal Pap test	n = 1,746	n = 297	n = 1,123	n = 326
Did not remain in the cohort through the end of the initial management period (Year 0)	n = 1,307	n = 1,210	n = 83	n = 14
Included Study Cohort	n = 17,541	n = 3,894	n = 7,117	n = 6,530

Exclusions were applied sequentially in the order listed.

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Appendix 2. Demographic and Test Characteristics of Population-based Research to Optimize the Screening Process (PROSPR) MultilEvel opTimization of the ceRvIcal Cancer Screening process in diverse Settings & populations (METRICS) Cohort Members at Index Abnormal Cervical Cancer Test by Site and Initial Management Period

	KPWA			PH			MGB		
Initial Management Period[1]	**Colposcopy ≤3 mos after abnormal result**	**Colposcopy 3-12 mos after abnormal result**	**No Colposcopy within 12 mos of abnormal result**	**Colposcopy ≤3 mos after abnormal result**	**Colposcopy 3-12 mos after abnormal result**	**No Colposcopy within 12 mos of abnormal result**	**Colposcopy ≤3 mos after abnormal result**	**Colposcopy 3-12 mos after abnormal result**	**No Colposcopy within 12 mos of abnormal result**
Total Patients with Qualifying Abnormal Test	2,976	378	540	2,724	2,565	1,828	3,654	957	1,919
Total Year 0 Cancer Diagnoses[2]	49	<5	<5	54	15	<5	17	<5	<5
Total Eligible Patients for Analysis[3]	2,927	374	539	2,670	2,550	1,825	3,637	954	1,918

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Patient Characteristics at Abnormal Test	n (Row %)	n (Row %)	n (Row %)	n (Row %)	n (Row %)	n (Row %)	n (Row %)	n (Row %)	n (Row %)
Age (years)									
21-29	702 (74.4)	117 (12.4)	124 (13.2)	736 (35.1)	793 (37.8)	570 (27.2)	1,060 (53.4)	330 (16.6)	595 (30.0)
30-39	920 (79.7)	106 (9.2)	129 (11.2)	1,027 (42.3)	900 (37.2)	504 (20.7)	1,298 (58.8)	306 (13.9)	604 (27.4)
40-49	628 (76.9)	76 (9.3)	113 (13.8)	606 (41.9)	525 (36.3)	314 (21.7)	694 (57.6)	164 (13.6)	346 (28.7)
50-59	451 (73.9)	49 (8.0)	110 (18.0)	224 (30.2)	239 (32.2)	280 (37.7)	397 (54.1)	101 (13.8)	236 (32.2)
60-69	205 (73.0)	20 (7.1)	56 (19.9)	62 (22.0)	80 (28.4)	140 (49.7	155 (48.9)	43 (13.6)	119 (37.5)
70-79	21 (61.8)	6 (17.7)	7 (20.6)	15 (33.3)	13 (28.9)	17 (37.8)	33 (54.1)	10 (16.4)	18 (29.5)
Race/Ethnicity									
Hispanic	209 (73.6)	31 (10.9)	44 (15.5)	1,855 (41.6)	1,749 (39.2)	853 (19.1)	803 (58.5)	271 (19.7)	299 (21.8)
Asian / Pacific Islander, Non-Hispanic	360 (76.1)	45 (9.5)	68 (14.4)	40 (44.4)	28 (31.1)	22 (24.4)	196 (58.9)	43 (12.9)	94 (28.2)
Black, Non-Hispanic	161 (70.6)	28 (12.3)	39 (17.1)	572 (29.2)	624 (31.8)	765 (39.0)	362 (51.9)	103 (14.8)	233 (33.4)

White, Non-Hispanic	1,975 (76.9)	244 (9.5)	349 (13.6)	195 (37.9	144 (28.0)	176 (34.2)	2,165 (56.1)	491 (12.7)	1,206 (31.2)
None of the Above / Multiple Races	162 (78.6)	20 (9.7)	24 (11.7)	5 (38.5)	5 (38.5)	<5 (23.1)	95 (50.5)	36 (19.2)	57 (30.3)
Unknown	60	6	15	<5	0	6	16	10	29
Health Insurance									
Commercial	2,725 (76.5)	351 (9.9)	486 (13.6)	97 (33.5)	73 (25.2)	120 (41.4)	2,390 (56.9)	534 (12.7)	1,274 (30.4)
Medicare	122 (72.2)	15 (8.9)	32 (18.9)	89 (26.7)	93 (27.8)	152 (45.5)	175 (48.9)	61 (17.0)	122 (34.1)
Medicaid/Other/Uninsured	80 (73.4)	8 (7.3)	21 (19.3)	2,476 (38.8)	2,373 (37.2)	1,539 (24.1)	1,055 (54.8)	353 (18.3)	518 (26.9)
Unknown	0	0	0	8	11	14	17	6	<5
Comorbidity Score									
0-1	2,368 (76.0)	309 (9.9)	438 (14.1)	2,234 (39.3)	2,158 (37.9)	1,299 (22.8)	2,894 (55.2)	777 (14.8)	1,571 (30.0)
2+	207 (73.7)	28 (10.0)	46 (16.4)	436 (32.2)	392 (29.0)	526 (38.9)	611 (59.9)	153 (15.0)	256 (25.1)
Unknown	352	37	55	0	0	0	132	24	91
BMI (kg/m^2)									
<18.5	46 (71.9)	7 (10.9)	11 (17.2)	30 (38.0)	20 (25.3)	29 (36.7)	102 (51.8)	24 (12.2)	71 (36.0)
18.5–24.9	1,303 (77.3)	158 (9.4)	225 (13.4)	649 (37.9)	625 (36.5)	440 (25.7)	1,780 (56.8)	436 (13.9)	916 (29.3)

25.0–29.9	710 (74.2)	103 (10.8)	144 (15.1)	861 (38.3)	820 (36.5)	567 (25.2)	979 (56.6)	258 (14.9)	494 (28.5)
≥30.0	865 (76.8)	105 (9.3)	157 (13.9)	1,128 (37.9)	1,082 (36.3)	769 (25.8)	729 (54.0)	223 (16.5)	397 (29.4)
Unknown	<5	<5	<5	<5	<5	20	47	13	40
Yost Quintile (State)									
1	290 (75.3)	45 (11.7)	50 (13.0)	1,160 (38.5)	1,070 (35.6)	780 (25.9)	816 (57.9)	264 (18.7)	329 (23.4)
2	516 (76.2)	69 (10.2)	92 (13.6)	709 (36.9)	744 (38.8)	467 (24.3)	440 (54.5)	130 (16.1)	238 (29.5)
3	589 (76.9)	64 (8.4)	113 (14.8)	336 (38.7)	311 (35.8)	221 (25.5)	461 (56.5)	110 (13.5)	245 (30.0)
4	775 (77.2)	92 (9.2)	137 (13.7)	232 (36.7)	213 (33.7)	188 (29.7)	605 (53.6)	159 (14.1)	364 (32.3)
5	672 (75.2)	87 (9.7)	135 (15.1)	87 (39.0)	69 (30.9)	67 (30.0)	1,147 (56.5)	248 (12.2)	634 (31.3)
Unknown	85	17	12	146	143	102	168	43	108
Abnormal Test Characteristics									
Risk Status at Abnormal Test									
Surveillance/Alternate Risk	536 (63.9)	120 (14.3)	183 (21.8)	746 (28.0)	1120 (42.1)	795 (29.9)	1,386 (48.3)	531 (18.5)	950 (33.1)
Average Risk	1,193 (81.3)	116 (7.9)	159 (10.8)	1,019 (44.1)	826 (35.8)	465 (20.1)	1,486 (63.9)	256 (11.0)	583 (25.1)

Unknown Risk	1,198 (78.2)	138 (9.0)	197 (12.9)	905 (43.6)	604 (29.1)	565 (27.2)	765 (58.1)	167 (12.7)	385 (29.2)
Abnormal Test Result									
High-Grade (≥HSIL)	1,030 (77.7)	121 (9.1)	174 (13.1)	932 (65.0)	273 (19.0)	230 (16.0)	598 (66.4)	110 (12.2)	193 (21.4)
Low-Grade (≤LSIL)	1,857 (77.9)	238 (10.0)	289 (12.1)	1,690 (31.8)	2,155 (40.5)	1,471 (27.7)	2,774 (57.5)	722 (15.0)	1,330 (27.6)
Persistent Mild Abnormality	40 (30.5)	15 (11.5)	76 (58.0)	48 (16.3)	122 (41.5)	124 (42.2)	265 (33.9)	122 (15.6)	395 (50.5)
Initial Management Characteristics									
Most Severe Pathology in Year 0[4]									
AIS / CIN III / CIN II / HSIL	438 (89.8)	50 (10.3)	0	739 (64.7)	404 (35.4)	0	458 (80.9)	108 (19.1)	0
LSIL / CIN I	676 (90.6)	70 (9.4)	0	1,220 (47.3)	1,359 (52.7)	0	623 (82.3)	134 (17.7)	0

HPV / Condylomata / Atypia	633 (91.1)	62 (8.9)	0	196 (45.8)	232 (54.2)	0	240 (82.5)	51 (17.5)	0
Normal	805 (87.2)	118 (12.8)	0	493 (51.0)	474 (49.0)	0	2,084 (78.9)	558 (21.1)	0
Insufficient / Unknown / No Biopsy	375 (83.5)	74 (16.5)	0	22 (21.4)	81 (78.6)	0	232 (69.3)	103 (30.8)	0
No Procedure	0	0	539 (100.0)	0	0	1,825 (100.0)	0	0	1,918 (100.0)
Treatment Completed in Year 0[5]									
No	2,321 (73.2)	310 (9.8)	539 (17.0)	1,900 (32.1)	2,192 (37.1)	1,825 (30.8)	3,081 (52.8)	840 (14.4)	1,918 (32.9)
Yes	606 (90.5)	64 (9.6)	0	770 (68.3)	358 (31.7)	0	556 (83.0)	114 (17.0)	0

[1] Initial Management Period reflects time to first procedure as either within 3 months (≤91 days), 3-12 months (92-365 days), or not within 12 months (see Figure 1). Additional procedures may have occurred at later in that time period or beyond. Age, risk status, abnormal test result, most severe pathology in Year 0, and whether treatment was completed in Year 0 were significantly different ($p<0.001$) by initial management across all sites; race/ethnicity, health insurance, and comorbidity score were significantly different ($p<0.001$) by initial management at PH and MGB; BMI was significantly different ($p<0.001$) by initial management at PH; and Yost quintile was significantly different ($p<0.001$) by initial management at MGB.

[2] Cancer diagnoses were identified through pathology reports and central cancer registries. Cancer diagnoses made among patients for whom a procedure was not documented during the Initial Management Period (Months 0-12) were identified exclusively from central cancer registries.

[3] Patients diagnosed with cancer in Months 0-12 were excluded from Total Eligible Patients for Analysis because these cancers were detected before the start of follow-up.

[4] Most severe pathology result recorded for all procedures that occurred in Initial Management Period (Months 0-12).

[5] Treatment included LEEP, cone, or unspecified excisional procedure as well as cryotherapy or laser ablation.

Appendix 3. Surveillance, Epidemiology, and End Results (SEER) Stages for Cancers Diagnosed During the Initial Management Period and Follow-up Period After Abnormal Cervical Cancer Test

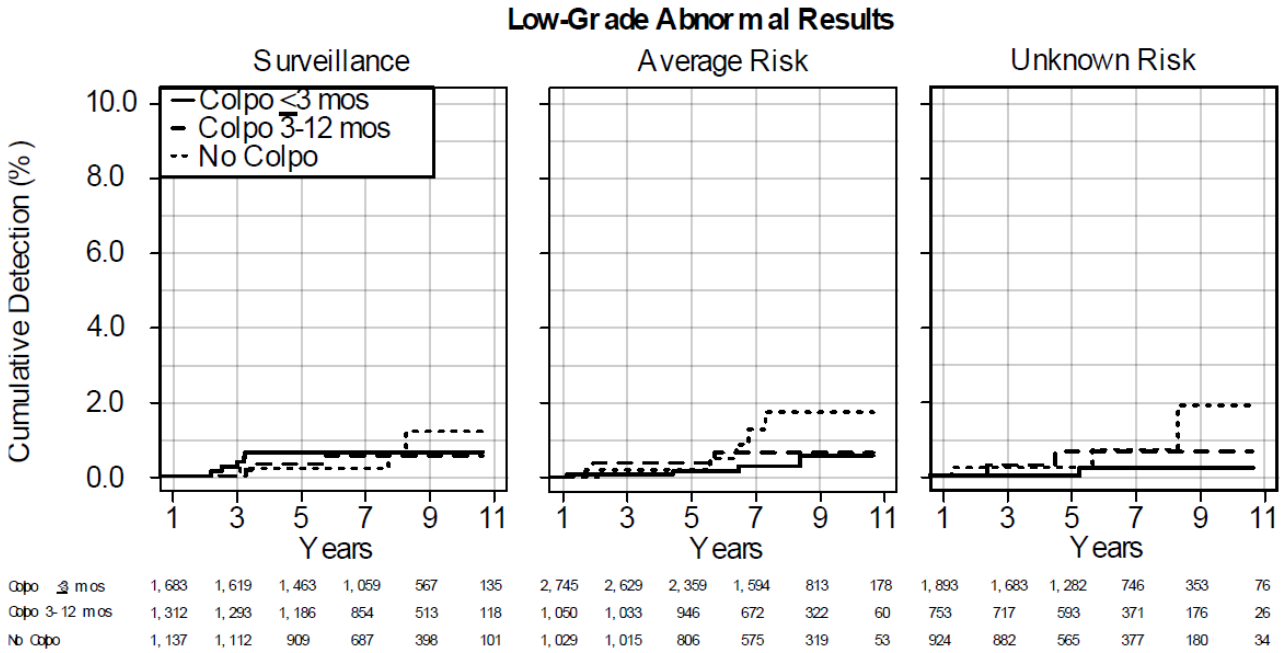
SEER Stage[1]	Total	Colposcopy ≤3 mos After Abnormal Result	Colposcopy 3-12 mos After Abnormal Result	No Colposcopy Within 12 mos of Abnormal Result
Cancers Diagnosed in Months 0-12[2]	147	120	22	5
Localized	74 (70.5)	60 (72.3)	13 (76.5)	<5 (20.0)
Regional	26 (24.8)	20 (24.1)	<5 (23.5)	<5 (40.0)
Distant Site(s)/Node(s)	<5 (3.8)	<5 (2.4)	0	<5 (40.0)
Unknown/Unstaged	43	38	5	0
Cancers Diagnosed during Follow-Up[3]	65	27	13	25
Localized	30 (76.9)	15 (93.8)	6 (85.7)	9 (56.3)
Regional	8 (20.5)	<5 (6.3)	0	7 (43.8)
Distant Site(s)/Node(s)	<5 (2.6)	0	<5 (14.3)	0
Unknown/Unstaged	26	11	6	9

[1] Reflects the Surveillance, Epidemiology, and End Results (SEER) stage of the cervical cancer diagnosed.

[2] Includes cervical cancers diagnosed 0-12 months (≤365 days) from the abnormal cervical cancer test.

[3] Includes cervical cancers diagnosed at least 12 months (>365 days) from the abnormal cervical cancer test through cohort exit.

Appendix 4. Time to cervical cancer diagnosis after index abnormal cervical cancer test and initial management period, stratified by cytology result severity and risk status. Kaplan-Meier estimates for cumulative detection of cervical cancer after an abnormal cervical cancer test and the initial management period, stratified by result severity. Cumulative detection estimates stratified by risk status are shown for low-grade abnormalities (n = 12,525).



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