SUMMARY OF SAFETY AND EFFECTIVENESS DATA (SSED)

I. GENERAL INFORMATION

Device Generic Name: Human Papillomavirus (HPV) DNA Detection Kit

Device Trade Name: Alinity m HR HPV

Device Procode: MAQ

Applicant's Name and Address:
Abbott Molecular, Inc
1300 East Touhy Avenue, Des Plaines, IL 60018 USA

Date(s) of Panel Recommendation: None

Premarket Approval Application (PMA) Number: P230003/S006

Date of FDA Notice of Approval: 09/10/2025
The original PMA P230003 was approved on November 1st , 2023 and is indicated for:

Alinity m HR HPV is a qualitative in vitro test for the detection of Human Papillomavirus DNA in cervical specimens collected by a health care professional using an endocervical brush/spatula placed in ThinPrep PreservCyt Solution or an endocervical broom placed in SurePath Preservative Fluid. This test identifies high-risk (HR) HPV types 16, 18, 45, while reporting the concurrent detection of the other HR genotypes (31/33/52/58) and (35/39/51/56/59/66/68).

Alinity m HR HPV is indicated for use in routine cervical cancer screening as per professional medical guidelines, including triage of ASC-US cytology, co-testing (adjunctive screening) with cytology, and HPV primary screening of women to assess the risk for cervical pre-cancer and cancer. Patients should be followed-up in accordance with professional medical guidelines, results from prior screening, medical history, and other risk factors.

The SSED to support the indication is available on the CDRH website and is incorporated by reference here.
Premarket Approval (PMA) Alinity m HR HPV for use on the Alinity m System – P230003 | FDA
The current supplement was submitted to expand the indication for the Alinity m HR HPV assay to include self-collected vaginal swab specimen in healthcare setting.

II. INDICATIONS FOR USE

Alinity m HR HPV is a qualitative in vitro test for the detection of Human Papillomavirus DNA. Cervical specimens should be collected by a health care professional using an endocervical collection brush/spatula placed in ThinPrep PreservCyt Solution or endocervical broom placed in SurePath Preservative Fluid.

Self-collected vaginal specimens, obtained in a healthcare setting, can be tested as an alternative specimen type when cervical sampling is either contraindicated or cervical specimens otherwise cannot be obtained.

This test identifies high-risk (HR) HPV types 16, 18, 45, while reporting the concurrent detection of the other HR genotypes (31/33/52/58) and (35/39/51/56/59/66/68).

Alinity m HR HPV is indicated for use in routine cervical cancer screening as per professional medical guidelines, including triage of ASC-US cytology, co-testing (adjunctive screening) with cytology, and HPV primary screening of women to assess the risk for cervical pre-cancer and cancer. Patients should be followed-up in accordance with professional medical guidelines, results from prior screening, medical history, and other risk factors.

III. CONTRAINDICATIONS

None

IV. WARNINGS AND PRECAUTIONS

The warnings and precautions can be found in the Alinity m HR HPV assay labeling.

V. DEVICE DESCRIPTION

The Alinity m HR HPV assay utilizes real-time PCR to amplify and detect DNA from 14 HR HPV genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68) and human genomic DNA sequences that have been extracted from cervical specimens. Cervical specimens collected in ThinPrep PreservCyt Solution or SurePath Preservative Fluid can be used with Alinity m HR HPV assay.

The Alinity m HR HPV assay consists of two assay-specific components:
- Alinity m HR HPV AMP Kit (two trays, AMP TRAY 1 and 2)
- Alinity m HR HPV CTRL Kit

Additional necessary components include:

- Alinity m Sample Prep Kit 1
- Alinity m Tubes and Caps
- Alinity m System Solutions

•Alinity m System

The steps of the Alinity m HR HPV assay consist of sample preparation, PCR assembly, amplification/detection, and result calculation and reporting. All steps of the Alinity m HR HPV assay procedure are executed automatically by the Alinity m System. No intermediate processing or transfer steps are performed by the user.

Principles of Procedure

1. Sample Preparation (Nucleic acid extraction and purification)

Nucleic acids from specimens are extracted using the Alinity m Sample Prep Kit 1 and Alinity m System Solutions. Nucleic acid extraction (lysis) disrupts the biological matrix to release the nucleic acid materials and allows for nucleic acids to adhere to the surface of magnetic microparticles. The magnetic microparticle technology facilitates nucleic acid capture, wash and elution. Nucleic acids bound to the surface of the magnetic microparticles are washed multiple times to remove any substances from the sample (i.e., lipids, proteins, therapeutic drugs) and from earlier sample preparation (i.e., ethanol, proteinase) that may potentially interfere with the later amplification and detection processes. Purified nucleic acids are released from the magnetic microparticle surface by mixing microparticles with an elution buffer. The resulting purified nucleic acids are then combined with the liquid unit-dose activator reagent (AMP TRAY 1), lyophilized unit-dose Alinity m HR HPV amplification/ detection reagents (AMP TRAY 2) and transferred into a reaction vessel.

2. Nucleic acid amplification

The lyophilized, unit-dose Alinity m HR HPV amplification/detection reagents are reconstituted following mixing with liquid unit-dose activator reagent, mixed with purified nucleic acids from the tested specimens. Alinity m Vapor Barrier Solution is then added to the reaction vessel which is then transferred to an amplification/detection unit for PCR amplification, and real-time fluorescence detection of HR HPV. Purified specimen nucleic acids are amplified by real-time polymerase chain reaction (PCR) using a mix composed of thermostable DNA polymerase, dNTPs, $MgCl_2$, and short oligonucleotide primers targeting the 14 HR-HPV targets and an endogenous human beta globin (BG) sequence. Amplification and detection of the BG sequence is a sample validity control for cell adequacy, sample extraction and amplification efficiency. The Alinity m HR HPV amplification/detection reagent also contains Uracil-DNA Glycosylase (UDG) as a control for contamination from amplicons containing uracil, which may be present in molecular laboratories.

3. Nucleic acid detection

Alinity m HR HPV assay primers allow for amplification of the 14 HR HPV genotypes (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68). Within a single PCR well, the Alinity m HR HPV probes are labeled with different fluorophores that allow for genotype specific detection of HPV16, 18, and 45 while the remaining 11 HR HPV genotypes are detected as Other HR HPV A (HPV31/33/52/58 genotypes) or Other HR HPV B (HPV35/39/51/56/59/66/68). Amplification of BG is detected also reported separately using a uniquely labeled fluorescent probe. Real-time detection and discrimination of PCR products is accomplished by measuring the fluorescence for the HPV targets and BG, respectively.

4. Assay Controls
Assay controls are tested at or above an established minimum frequency to help ensure that instrument and reagent performance remain satisfactory. During each control event, a negative control and a positive control are processed through sample preparation and real-time PCR procedures that are identical to those used for specimens.

Assay is run on the Alinity m System which is a fully integrated and automated molecular diagnostics analyzer which utilizes real-time PCR technology in clinical laboratories. It is an integrated system for performing sample preparation and performing fluorescence-based real-time PCR to provide quantitative and qualitative detection of nucleic acid sequences. It provides sample-to-result uninterrupted processing workflow.

The Alinity m System enables continuous and random-access sample processing by using multiple sample processors and PCR thermal cycler/reader modules in parallel. Each individual sample occupies either one sample process lane or PCR Amplification and Detection (Amp-Detect) lane. Parallel lanes are provided to enable 300 tests in approximately eight hours.

Each Alinity m System utilizes four independent Assay Processing Units (APUs) to achieve the throughput and random-access requirements. Each APU consists of one extraction unit and one Amp-Detect unit, which automate the steps for nucleic acid purification/extraction and real-time PCR, respectively. This results in the ability to process up to twenty-four (24) different assay types simultaneously (i.e., up to 12 different assay types for purification/extraction and up to 12 different assay types for amplification and detection).

<u>Interpretation of the Alinity m HR HPV test results</u>

HPV16, 18, and 45 are detected using unique fluorophores and can be individually detected and reported in a specimen sample. The remaining 11 HR HPV genomes are amplified using unique oligonucleotide primers, but are detected and reported as two different groups, Other HR HPV A (HPV31/33/52/58) and Other HR HPV B (HPV35/39/51/56/59/66/68). Table 1 below summarizes reported result and interpretation by the Alinity m HR HPV assay on the Alinity m System.

Table 1:Summary of possible Alinity genotype results and specimen interpretation

Alinity m HR HPV Result	Interpretation
Negative	Negative
HPV16	HR HPV Positive (16 Positive)
HPV18	HR HPV Positive (18 Positive)
HPV45	HR HPV Positive (45 Positive)
Other HR HPV A	HR HPV Positive (A Positive)
Other HR HPV B	HR HPV Positive (B Positive)
HPV16; HPV18	HR HPV Positive (16;18 Positive)
HPV16; HPV45	HR HPV Positive (16;45 Positive)
HPV16; Other HR HPV A	HR HPV Positive (16;A Positive)
HPV16; Other HR HPV B	HR HPV Positive (16;B Positive)
HPV18; HPV 45	HR HPV Positive (18;45 Positive)
HPV18; Other HR HPV A	HR HPV Positive (18;A Positive)
HPV18; Other HR HPV B	HR HPV Positive (18;B Positive)
HPV45; Other HR HPV A	HR HPV Positive (45;A; Positive)
HPV45; Other HR HPV B	HR HPV Positive (45;B Positive)
Other HR HPV A; Other HR HPV B	HR HPV Positive (A;B Positive)
HPV16; HPV18; HPV45	HR HPV Positive (16;18;45 Positive)
HPV16; HPV18; Other HR HPV A	HR HPV Positive (16;18;A Positive)
HPV16; HPV18; Other HR HPV B	HR HPV Positive (16;18;B Positive)
HPV16; HPV45; Other HR HPV A	HR HPV Positive (16;45;A; Positive)
HPV16; HPV45; Other HR HPV B	HR HPV Positive (16;45;B Positive)
HPV16; Other HR HPV A; Other HR HPV B	HR HPV Positive (16;A;B Positive)
HPV18; HPV45; Other HR HPV A	HR HPV Positive (18;45;A Positive)
HPV18; HPV45; Other HR HPV B	HR HPV Positive (18;45;B Positive)
HPV18; Other HR HPV A; Other HR HPV B	HR HPV Positive (18;A;B Positive)
HPV45; Other HR HPV A; Other HR HPV B	HR HPV Positive (45;A;B Positive)

VI. ALTERNATIVE PRACTICES AND PROCEDURES

There are several alternatives for the detection of cervical cancer precursors, including testing by cytology alone, co-testing with HPV alongside or as a follow-up to cytology, or HPV testing with clinician-collected cervical specimen as a first line screening test for cervical cancer. Each alternative has its own advantages and disadvantages. A patient should fully discuss these alternatives with a physician to select the method that best meets expectations and lifestyle.

The patient's age, medical history and thorough physical examination will provide further information on the risk of cervical disease, as well as the need for referral to colposcopy. The Alinity m HR HPV Assay should only be used in conjunction with this clinical information in accordance with appropriate clinical patient management guidelines.

VII. MARKETING HISTORY

The product is currently distributed/marketed in 34 countries. The product has not been withdrawn to date from the market in any country for reasons related to the safety or effectiveness of the device. The Alinity m HR HPV AMP Kit and Alinity m HR HPV CTRL Kit are identical in formulation and use similar application specification files to the US kits and are marketed outside the US as listed in Table below.

Table 2: Alinity m HR HPV AMP Kit (List No. 09N15-090) and Alinity m HR HPV CTRL Kit (List No. 09N15-080): OUS Countries where Marketed

Argentina	Finland	Pacific Island Group
Australia	France	Poland
Austria	Germany	Portugal
Belgium	Greece	Romania
Bosnia/Herzegovina	India	Saudi Arabia
Botswana	Italy	Singapore
Brazil	Kazakhstan	Slovenia
Bulgaria	Latvia	South Africa
Chile	Malawi	Spain
Colombia	Malaysia	Sweden
Costa Rica	Mexico	Switzerland
Croatia	Montenegro	Taiwan
Czech Republic	Morocco	Tanzania
Dominican Republic	Mozambique	Thailand
East Africa	Netherlands	United Kingdom
El Salvador	New Zealand	Vietnam
Estonia	Norway	

VIII. POTENTIAL ADVERSE EFFECTS OF THE DEVICE ON HEALTH

The following section outlines the potential adverse effects (e.g., complications) associated with the use of the Alinity m HR HPV assay. As with any in vitro diagnostic test, the potential adverse effects are associated with incorrect test results or result interpretations. Failure of this device to perform as expected or failure to correctly interpret results may lead to incorrect HPV test results and subsequently, improper patient management decisions in cervical cancer screening. False negative results may lead to delays in the timely diagnosis of cervical cancer, allowing an undetected condition to worsen and potentially increasing morbidity and mortality. False positive results could lead to unnecessarily more frequent screening and procedures such as colposcopy and biopsy.

IX. SUMMARY OF NON-CLINICAL STUDIES

A. Laboratory Studies

1. Limit of Detection at the Clinical Cutoff for Vaginal Swab Specimen

HPV positive samples were prepared by spiking HPV16 (SiHa)and HPV18 (HeLa) cell lines in clinical vaginal matrix. Additionally, similar HPV positive samples were prepared in simulated HPV-negative C33A cell matrix. The assay analytical sensitivity for HPV16+ (SiHa), and HPV18+ (HeLa) was found to be equivalent in these two matrices. The LoD at the clinical cutoff of the remaining 12 genotypes were determined with plasmids spiked in C33A cell matrix. For each genotype, three reagent lots were used. For each reagent lot and concentration, a minimum of 20 replicates were tested over three days. Table below summarizes the most conservative LoD for each genotype (i.e., the reagent lot showing the poorest sensitivity).

Table 3: Summary of the LoD at the Clinical Cutoff for Each Genotype

Panel Member	LoD (per Rx)
HPV16, (SiHa)	10
HPV16, plasmid	120
HPV18, (HeLa)	2.3
HPV18, plasmid	15
HPV31, plasmid	75
HPV33, plasmid	150
HPV35, plasmid	120
HPV39, plasmid	300
HPV45, plasmid	30
HPV51, plasmid	600
HPV52, plasmid	625
HPV56, plasmid	160
HPV58, plasmid	300
HPV59, plasmid	100
HPV66, plasmid	40
HPV68, plasmid	1200

Copies/assay for plasmids, Cells/assay for SiHa and HeLa cell lines.

2. Interfering Substances

A study was performed to assess potential assay interference from substances that may be present in vaginal specimens. Each potential interfering substance was tested with negative and positive samples containing SiHa (HPV 16) and HeLa (HPV 18) at approximately 3X LoD in C33A cell matrix. The results are presented in the table below. The concentrations of the potentially interfering substances represent the highest level of the substance that did not show any interference with the Alinity m HR HPV Assay.

Table 4: Summary of Interference Substance Testing

Substance Tested	Concentration tested
Mucus*	2.5% w/v
Leukocytes	1×10^6 cells/mL
Whole Blood	10% v/v
Semen	5% v/v
Estradiol	1.3 ng/mL
Progesterone	20 ng/mL
Nor forms Deodorant Suppositories	0.5% w/v
Clotrimazole Vaginal Cream	1% w/v
Monistat-1	1% w/v
Terconazole-3 Vaginal Cream	1% w/v
Metronidazole Gel, 1%	0.5% w/v
Zovirax	1% w/v
Preparation-H	0.5% w/v
KY Jelly Personal Lubricant	1% w/v
KY Warming Liquid	1% w/v
VCF Contraceptive Gel	0.5% w/v
Hydrocortisone	0.5% w/v
Summer's Eve Medicated Douche	1% w/v
Vagisil Dry Wash	0.5% w/v

* Vaginal specimens with mucus concentrations above 2.5% may cause assay interference.

3. Vaginal Specimen Stability

Specimen stability study results demonstrated that vaginal specimens collected using the simpli-COLLECT HPV collection kit may be shipped for up to 7 days and subsequently stored at 2–8°C for a total duration (including shipping time) of 15 days, or alternatively stored at 15–30°C for a total duration (including shipping time) of 8 days before resuspension in specimen buffer. For vaginal specimens collected using the Evalyn Brush, the specimens may be shipped for up to 7 days and then stored at 2–30°C for a total duration (including shipping time) of 15 days before resuspension in specimen buffer.

B. Animal Studies

None

C. Additional Studies

None

X. SUMMARY OF PRIMARY CLINICAL STUDY(IES)

To establish a reasonable assurance of safety and effectiveness for the Alinity m HR HPV assay with the self-collected vaginal specimen, Abbott performed a multi-center prospective clinical study comparing assay performance with self-collected vaginal specimens to assay performance with clinician-collected cervical specimens. The clinical study evaluated self-collection using the Alinity m Dry Swab Specimen Collection Kit or the Evalyn Brush. A summary of the clinical study is presented below.

A. Study Design

This multi-site study enrolled 1,808 participants across two populations: 985 women undergoing routine cervical cancer screening, screening population (February-May 2023, 10 sites) and 823 women previously referred to colposcopy, enriched population (February-October 2023, 30 sites).

Each participant first self-collected two vaginal samples, in randomized order, using the simpli-COLLECT HPV collection kit and Evalyn Brush, followed by clinician collection of cervical sample in PreservCyt LBC medium (Hologic Inc.). Cervical biopsies were additionally obtained during colposcopy procedures for the enriched population.

All vaginal and cervical samples were shipped to the testing laboratory. Vaginal samples were shipped dry without preservative and resuspended in specimen buffer prior to testing.

Biopsy samples underwent histological evaluation by a certified pathologist.

1. Clinical Inclusion and Exclusion Criteria

(a) Screening Population Inclusion/Exclusion Criteria

Participants were eligible if they met all of the following criteria:

- Is 25 years of age or older
- Is attending a participating clinic for routine cervical cancer screening following screening guidelines.
- Has an intact cervix.
- Is willing and able to provide documented informed consent.
- Is willing and able to allow collection of one cervical specimen and two self-collected vaginal specimens.

Participants were ineligible if they met any of the following criteria:

- Unable to read and comprehend study instructions.
- Has a known history of excisional or ablative therapy (e.g., LEEP, cone biopsy, cervical laser surgery, or cryotherapy) to the cervix in the last 12 months prior to the visit.
- Is pregnant at the time of visit.

- Had a complete or partial hysterectomy, either supracervical or involving removal of the cervix.
- Had a cervical cytology specimen collected within the last 4 months.
- Is currently participating, or recently (within 6 months) participated in any trial for cervical cancer or HPV diagnostics.
- Is currently participating or planning to participate in any clinical trial for HPV treatment.
- Previous participation in this study.

(b) Enriched Population Inclusion/Exclusion Criteria

Participants were eligible if they met all of the following criteria:

- Is 25 years of age or older
- Has had a colposcopy referral based on an abnormal result of routine cervical cancer screening that included HR HPV testing (HPV primary screening, co-testing, or ASC-US cytology triage) performed within 12 weeks (84 days) preceding the colposcopy visit (either abnormal cytology, or HPV positive test result, or both).
- Has an intact cervix.
- Is willing and able to provide documented informed consent.
- Is willing and able to allow collection of one cervical specimen and two self-collected vaginal specimens.
- Is willing and able to undergo colposcopy, endocervical curettage (ECC) and biopsy as needed.

Participants were ineligible if they met any of the following criteria:

- Unable to read and comprehend study instructions
- Is pregnant at the time of visit.
- Has any known medical condition that, in the opinion of the investigator, would result in increased risk of bleeding at biopsy.
- Has a known history of excisional or ablative therapy (e.g., LEEP, cone biopsy, cervical laser surgery, or cryotherapy) to the cervix in the last 12 months prior to the visit.
- Had a complete or partial hysterectomy, either supracervical or involving removal of the cervix.
- HR HPV referral test is known to be the FDA-approved molecular comparator.
- Is referred to colposcopy based on a cytology-only screening program.
- Is currently participating, or recently (within 6 months) participated in any trial for cervical cancer or HPV diagnostics.
- Is currently participating or planning to participate in any clinical trial for HPV treatment.
- Previous participation in this study.

2. Follow-up Schedule

No follow-up was scheduled pertaining to the establishment of performance of the assay on self-collected vaginal specimen. The study protocol did not include any

follow-up observations of enrolled participants.

3. Clinical Endpoints

With regards to safety, as an in vitro diagnostic test, the Alinity m HR HPV assay involves sampling cells from the vagina using a swab. The test, therefore, presents no more safety hazard to an individual being tested than other tests where vaginal samples are collected in this manner (e.g., STI devices). Safety issues regarding false positive and negative test results are discussed in section XIV part B and C.

With regards to effectiveness:

- The Positive Percent Agreements (PPA) for HR HPV, HPV16 and HPV18 combined (HPV16+18), and 12 other HR HPV, and Negative Percent Agreement (NPA), along with two-sided 95% confidence intervals (95% CI), were calculated for the self-collected vaginal samples against the paired clinician-collected cervical samples in both the screening and enriched populations, using the results obtained with the Abbott Alinity m HR HPV assay.
- The clinical sensitivity in detecting ≥CIN2 and ≥CIN3 and the clinical specificity and false positive rate in detecting ≤CIN1 for self-collected vaginal (SV) samples and clinician-collected cervical (CC) samples were calculated in the enriched population. Additionally, ratios of sensitivity (SV:CC), of specificity (SV:CC) and of false positive rate (SV:CC) were calculated. Disease status for the participants in the enriched population was based on results from participant's histology (biopsy) evaluation result.

B. Accountability of PMA Cohort

1,808 participants were enrolled and divided into screening (985 participants) and enriched (823 participants) populations. In the screening population, 968 simpli-COLLECT HPV collection kit swab (SC) and 960 Evalyn Brush (EB) specimens had valid Alinity mHR HPV assay results. In the enriched population, 788 simpli-COLLECT HPV collection kit (SC) and 777 EB (Evalyn Brush) specimens had valid Alinity mHR HPV assay result. Histology results were available for 820 participants in the enriched population.

C. Study Population Demographics and Baseline Parameters

Characteristics of the study population are present in the tables below. HPV positivity rates were highest in the 25-29 age group for both the screening and enriched populations. A total of 181 (181/820, 22.1%) women had ≤CIN1 or a colposcopy without a histological outcome. Resulting histology indicated 44 women with ≥CIN2 (44/820; 5.4%) including 15 women with ≥CIN3 (15/820; 1.8%).

Table 5: HR HPV Percent Positivity by Age Category in the Screening Population.

		N Alinity m HR HPV Positive (%‡)		
Age Category	Participants†	Cervical	SC	EB
25 - 29	100	17 (17.0%)	25 (25.3%)	22 (22.4%)
30 - 39	282	36 (12.8%)	66 (23.4%)	62 (22.1%)

40 - 49	275	26 (9.5%)	48 (17.6%)	42 (15.4%)
50+	313	28 (8.9%)	56 (17.9%)	43 (14.0%)
Total	970	107 (11.0%)	195 (20.1%)	169 (17.6%)

†Number with a valid result for at least one of the self-collected specimens.
‡Expressed as percent of the total results for the indicated specimen type.

Table 6: HR HPV Percent Positivity by Age Category in the Enriched Population.

		N Alinity m HR HPV Positive (%‡)		
Age Category	Participants†	Cervical	SC	EB
25 - 29	159	128 (81%)	130 (83%)	130 (83%)
30 - 39	290	210 (72%)	215 (75%)	215 (75%)
40 - 49	173	127 (73%)	126 (74%)	123 (73%)
50+	171	116 (68%)	126 (74%)	121 (73%)
Total	793	581 (73%)	597 (76%)	589 (76%)

†Number with a valid result for at least one of the self-collected specimens.
‡Expressed as percent of the total results for the indicated specimen type.

D. Safety and Effectiveness Results

1. Safety Results

With regards to safety, as an in vitro diagnostic test, the Alinity m HR HPV assay involves sampling cells from the vagina using a swab or brush. The test, therefore, presents no more safety hazard to an individual being tested than other tests where vaginal samples are collected in this manner.

Safety issues regarding false positive and negative test results are discussed in section XIV part B and C.

Adverse effects that occurred in the PMA clinical study:

The only intervention requested as part of the study was the collection of minimally invasive self-collected vaginal specimen and no adverse effect regarding self vaginal collection was observed during the study. Treatment of cervical precancer and potential adverse events related to colposcopy (potentially resulting from local clinical practice protocols) were managed by the clinician offering the treatment and were not evaluated within the study as dictated by the study scope.

2. Effectiveness Results

In the screening population, 968 participants (collected with SC) and 960 participants (collected with EB) had valid paired CC and SV results. In the enriched population, 788 participants (SC) and 777 participants (EB) had valid paired CC and SV results. The percent of invalid Alinity m HR HPV test results in SC specimens was 0.4% (7/1,768) with a 95% CI: 0.2% to 0.8%, and in EB specimens was 0.8% (14/1,756) with a 95% CI: 0.5% to 1.3%.

Agreement measures (positive percent agreement [PPA] and negative percent agreement [NPA]) were calculated by comparing SV results against paired CC results. The agreements and 95% confidence intervals are presented in the tables below.

Table 7-10:Agreements and 95% confidence intervals for Screening and Enriched population with simpli-COLLECT HPV collection kit and Evalyn Brush.

Screening population, simpli-COLLECT HPV collection kit		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	14	4	15	33
	HR HPV "12 Other"	0	84	78	162
	HR HPV Negative	0	4	769	773
	Total	14	92	862	968
14 HR HPV PPA = 96.2% (102/106) (95% CI: 90.7% - 98.5%) HPV 16/18 PPA = 100% (14/14) (95% CI: 78.5% - 100.0%) 12 other HR HPV PPA = 91.3% (84/92) (95% CI: 83.8% - 95.5%) NPA = 89.2% (762/862) (95% CI: 87.0% - 91.1%)					

Screening population, Evalyn Brush		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	13	3	12	28
	HR HPV "12 Other"	0	83	58	141
	HR HPV Negative	1	4	786	791
	Total	14	90	856	960
14 HR HPV PPA = 95.2% (99/104) (95% CI: 89.2% - 97.9%) HPV 16/18 PPA = 92.9% (13/14) (95% CI: 68.5% - 98.7%) 12 other HR HPV PPA = 92.2% (83/90) (95% CI: 84.8% - 96.2%) NPA = 91.8% (786/856) (95% CI: 89.8% - 93.5%)					

Enriched population, simpli-COLLECT HPV collection kit		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	94	11	5	110
	HR HPV "12 Other"	9	426	52	487
	HR HPV Negative	2	35	154	191
	Total	105	472	211	788
14 HR HPV PPA = 93.6% (540/577) (95% CI: 91.3% - 95.3%) HPV 16/18 PPA = 89.5% (94/105) (95% CI: 82.2% - 94.0%) 12 other HR HPV PPA = 90.3% (426/472) (95% CI: 87.2% - 92.6%) NPA = 73.0% (154/211) (95% CI: 66.6% - 78.5%)					

Enriched population, Evalyn Brush		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	94	10	7	111
	HR HPV "12 Other"	7	425	46	478
	HR HPV Negative	4	30	154	188
	Total	105	465	207	777
14 HR HPV PPA = 94.0% (536/570) (95% CI: 91.8% - 95.7%) HPV 16/18 PPA = 89.5% (94/105) (95% CI: 82.2% - 94.0%) 12 other HR HPV PPA = 91.4% (425/465) (95% CI: 88.5% - 93.6%) NPA = 74.4% (154/207) (95% CI: 68.0% - 79.9%)					

In the enriched population, 786 participants (collected with SC) and 775 participants (collected with EB) had histology results. Sensitivity, specificity as well as false positive rate of the Alinity mHR HPV assay in detecting cervical disease on SV specimen and the CC specimen, as well as ratio of sensitivity (SV:CC), ratio of specificity (SV:CC) and ratio of false positive rate (SV:CC) along with two-sided 95% CI in the enriched population are presented in the tables below.

Table 11-16: Ratio of sensitivity (SV:CC), ratio of specificity (SV:CC) and ratio of false positive rate (SV:CC) with two-sided 95% CI in the enriched population.

≥CIN2, simpli-COLLECT HPV collection kit		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	25	0	0	25
	HR HPV "12 Other"	1	29	2	32
	HR HPV Negative	0	2	3	5
	Total	26	31	5	62
Sensitivity (SV) = 91.9% (57/62) (95% CI: 82.5% - 96.5%) Sensitivity (CC) = 91.9% (57/62) (95% CI: 82.5% - 96.5%) Ratio of Sensitivity (SV:CC) = 1.0 (91.9%/91.9%) (95% CI: 0.93-1.07)					

≥CIN3, simpli-COLLECT HPV collection kit		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	8	0	0	8
	HR HPV "12 Other"	0	8	0	8
	HR HPV Negative	0	1	1	2
	Total	8	9	1	18
Sensitivity (SV) = 88.9% (16/18) (95% CI: 67.2% - 96.9%) Sensitivity (CC) = 94.4% (17/18) (95% CI: 74.3% - 99.0%) Ratio of Sensitivity (SV:CC) = 0.94 (88.9%/94.4%) (95% CI: 0.82 – 1.00)					

≤CIN1, simpli-COLLECT HPV collection kit		Clinician-Collected Cervical Sample (CC)			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample (SV)	HPV16 or 18	69	11	5	85
	HR HPV "12 Other"	8	395	50	453
	HR HPV Negative	2	33	151	186
	Total	79	439	206	724
Specificity (SV) = 25.7% (186/724) (95% CI: 22.6% - 29.0%) Specificity (CC) = 28.5% (206/724) (95% CI: 25.3% - 31.9%) Ratio of Specificity (SV:CC) = 0.90 (25.7%/28.5%) (95% CI: 0.82 – 0.99) False positive rate (SV) = 74.3% (538/724) (95% CI: 71.0% - 77.4%) False positive rate (CC) = 71.6% (518/724) (95% CI: 68.2% - 74.7%) Ratio of false positive rate (SV:CC) = 1.04 (74.3%/71.6%)(95% CI:1.00-1.08)					

≥CIN2, Evalyn Brush		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	25	0	0	25
	HR HPV "12 Other"	1	30	2	33
	HR HPV Negative	0	1	3	4
	Total	26	31	5	62
Sensitivity (SV) = 93.6% (58/62) (95% CI: 84.3% - 98.2%) Sensitivity (CC) = 91.9% (57/62) (95% CI: 82.2% - 97.3%) Ratio of Sensitivity (SV:CC) = 1.02 (93.6%/91.9%)(95% CI: (0.95-1.08)					

≥CIN3, Evalyn Brush		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	8	0	0	8
	HR HPV "12 Other"	0	8	0	8
	HR HPV Negative	0	1	1	2
	Total	8	9	1	18
Sensitivity (SV) = 88.9% (16/18) (95% CI: 67.2% - 96.9%) Sensitivity (CC) = 94.4% (17/18) (95% CI: 74.3% - 99.0%) Ratio of Sensitivity (SV:CC) = 0.94 (88.9%/94.4%) (95% CI: 0.82 – 1.00)					

≤CIN1, Evalyn Brush		Clinician-Collected Cervical Sample			
		HPV16 or 18	HR HPV "12 Other"	HR HPV Negative	Total
Self-Collected Vaginal Sample	HPV16 or 18	69	10	7	86
	HR HPV "12 Other"	6	393	44	443
	HR HPV Negative	4	29	151	184
	Total	79	432	202	713
Specificity (SV) = 25.8% (184/713) (95% CI: 22.7% - 29.1%) Specificity (CC) = 28.3% (202/713) (95% CI: 25.2% - 31.8%) Ratio of Specificity (SV:CC) = 0.91 (25.8%/28.3%) (95% CI: 0.83 – 1.00) False positive rate (SV) = 74.2% (529/713) (95% CI: 70.9% - 77.3%) False positive rate (CC) = 71.7% (511/713) (95% CI: 68.3% - 74.9%) Ratio of false positive rate (SV:CC) =1.03 (74.2%/71.7%)(95% CI: (1.00-1.07)					

XI. FINANCIAL DISCLOSURE

The Financial Disclosure by Clinical Investigators regulation (21 CFR 54) requires applicants who submit a marketing application to include certain information concerning the compensation to, and financial interests and arrangement of, any clinical investigator conducting clinical studies covered by the regulation. The clinical study included 41 investigators. None of the clinical investigators were full-time or part-time employees of the sponsor and none of the 41 investigators had disclosable financial interests/arrangements as defined in sections 54.2(a), (b), (c), and (f). The information provided does not raise any questions about the reliability of the data.

XII. SUMMARY OF SUPPLEMENTAL CLINICAL INFORMATION

None

XIII. PANEL MEETING RECOMMENDATION AND FDA'S POST-PANEL ACTION

Device did not go to Panel. This PMA was not referred to the Microbiology Panel, an FDA advisory committee, for review and recommendation because this is the same assay using similar technology that has been reviewed by this panel.

XIV. CONCLUSIONS DRAWN FROM PRECLINICAL AND CLINICAL STUDIES

A. Effectiveness Conclusions

The sensitivity of the Alinity m HR HPV assay with self-collected vaginal specimen collected with simpli-COLLECT HPV collection kit (SC) or Evalyn brush (EB) has been demonstrated in the enriched population. The ratio of sensitivty (SV:CC) in detecting ≥CIN2 is 1.0 and 1.02 for SC and EB, respectively. The ratio of sensitivty (SV:CC) in detecting ≥CIN3 is 0.94 for both SC and EB. The main risk associated with false negative HR HPV results based on the SV specimen is missing cervical disease that would otherwise be detected using a CC specimen. The risk may be mitigated by appropriate Intended Use language describing that SV specimens can be tested as an alternative when cervical sampling is either contraindicated or cervical specimens otherwise cannot be obtained.

B. Safety Conclusions

The risks of the device are based on the clinical data to support PMA approval as described above. In the referral population, the ratio of false positive rate (SV:CC) in detecting ≤CIN1 is 1.04 and 1.03 for SC and EB, respectively. In the screening population the NPA for SC compared to CC is 89.2% and 91.8%, for SC and EB respectively. Taken together, these data suggest that the false positive rate of the assay based on self-collected vaginal specimen is higher than the false positive rate based on clinician-collected cervical specimen for the studied population (women referred to colposcopy). The main risk associated with false positive HR HPV results based on self-collected vaginal specimen is unnecessary colposcopy procedures. This risk is considered mostly mitigated due to the following.

Although colposcopies are invasive procedures that can be associated with patient inconvenience. It is anticipated that some of the risks associated with colposcopy (in particular the pain, discomfort and bleeding or more rarely infection associated with cervical biopsies) may be mitigated by the fact that biopsies would not be performed unless abnormal lesions are observed on examination, in which case the colposcopy may have been warranted. Overall, colposcopy is a generally safe and well-tolerated procedure with rare complications (i.e., infection, bleeding).

Additionally, certain endogenous and exogenous substances may interfere with the performance of the assay in self-collected vaginal specimens when present at concentrations greater than those specified in the result table presented for the Interfering Substances study above. Limitations regarding the potential risk of false negative results are included in the device labeling as a mitigation.

C. Benefit-Risk Determination

The primary benefit of the proposed additional specimen type (i.e. self-collected vaginal specimens) in this supplement is the potential to reach individuals who currently are under-screened for cervical cancer. This new specimen type may make it more feasible for individuals to collect specimens who previously, due to patient convenience, medical comorbidities or other factors, had not participated in cervical cancer screening with clinician-collected cervical specimens.

The risk associated with self-collected vaginal specimen based on the studied population may be the higher false positive rate in detecting cervical disease. In addition to what is described above, the implementation of the following strategies will help mitigate the potential risks. These include: 1) The self-collected vaginal specimen may be considered as an alternative specimen type when clinician-collected cervical specimen cannot be obtained; 2) Post-approval studies to validate the performance of self-collected vaginal swab specimen. Additionally, professional guideline recommendations may further mitigate the risk(s) for currently screened women by helping clinicians appropriately counsel patients on the benefits/risks of vaginal versus cervical screening approaches.

1. Patient Perspective

This submission did not include specific information on patient perspectives for this device

In conclusion, given the available information above, the data support that the self-collected vaginal specimen can be used as an alternative specimen type for the BD Onclarity HPV Assay when clinician-collected cervical specimen cannot be obtained, and the probable benefits outweigh the probable risks.

D. Overall Conclusions

The data in this application support the reasonable assurance of safety and effectiveness of Alinity m HR HPV assay with self-collected vaginal swabs specimens when used in accordance with the indications for use.

The data from the nonclinical studies demonstrated acceptable analytical sensitivity of the Alinity m HR HPV Assay with self-collected vaginal specimen when used according to instructions for use, warnings and precautions, and limitations sections of the labeling. The clinical studies and performance analysis of the clinical data in this application have shown that the assay is safe and effective for use with self-collected vaginal specimen according to the indications for use and directions for use in the labeling.
Additionally, the performance of the Alinity mHR HPV assay will be supplemented with the validation data through a post-approval study.

XV. CDRH DECISION

CDRH issued an approval order on 09/10/2025. The final clinical conditions of approval cited in the approval order are described below.

The post-approval study, identified as "Abbott Alinity m HR HPV US Supplemental Study; using data from the NCI Cervical Cancer 'Last Mile' Initiative: Self-collection for HPV testing to Improve Cervical Cancer Prevention (SHIP) Trial: '**Abbott SHIP Sub-Protocol LMI-001-A-S04**" will be coordinated by NCI Cervical Center as part of the NCI Cervical Cancer 'Last Mile' Initiative: Self-collection for HPV testing to Improve Cervical Cancer Prevention (SHIP) Trial to evaluate the performance of each self-collection device with the Alinity mHR HPV assay. The study for each self-collection

device will include 500 or more individuals with a cervix, 25 years or older, with referrals to colposcopy based on previous positive HPV test or abnormal cytology results to obtain a minimum of 22 CIN3+ subjects. The study will provide additional data regarding clinical performance of the Alinity m HR HPV Assay with vaginal specimens. The clinical sensitivity, clinical specificity, and false positive rate in detecting precancer/cancer as well as the corresponding ratio between vaginal and cervical specimens will be evaluated. Additionally, the concordance of the Alinity m HR HPV Assay results between the two specimen types will be evaluated.

From the date of study protocol approval, you must meet the following timelines for study subject enrollment:

- First subject enrolled within 4 months
- 20% of subjects enrolled within 5 months
- 50% of subjects enrolled within 6 months
- 100% of subjects enrolled within 12 months

In addition, you must submit separate periodic reports on the progress of "Abbott Alinity m HR HPV US Supplemental Study; using data from the NCI Cervical Cancer 'Last Mile' Initiative: Self-collection for HPV testing to Improve Cervical Cancer Prevention (SHIP) Trial: '**Abbott SHIP Sub-Protocol LMI-001-A-S04**'"as follows:

- PAS Progress Reports every six (6) months until subject enrollment has been completed.
- If any enrollment milestones are not met, you must begin submitting quarterly enrollment status reports every 3 months in addition to your periodic (6-month) PAS Progress Reports, until FDA notifies you otherwise.
- Submit the Final PAS Report three (3) months from study completion (i.e., last subject's study visit date).

XVI. APPROVAL SPECIFICATIONS

Directions for use: See device labeling.

Hazards to Health from Use of the Device: See Indications, Contraindications, Warnings, Precautions, and Adverse Events in the device labeling.

Post-approval Requirements and Restrictions: See approval order.