



Aerospray® Cytology Slide Stainer/Cytocentrifuge

U.S. Sales Product Launch, March 2020

Prepared by: EBS Marketing

Topics of Discussion

- ✓ Introduction to Cytology Staining
- ✓ Product Overview and Features
- ✓ Sales Targeting
- ✓ Competition
- ✓ Key Selling Points & Scenarios
- ✓ Marketing and Support
- ✓ Market Overview



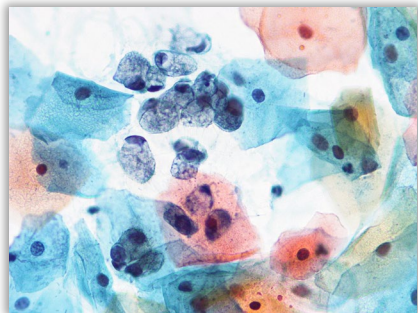
Introduction to Cytology Staining



Introduction to Cytology Staining

A brief history

- ◆ For evaluation to be carried out in cytology laboratories, cells on slides need to be stained with certain methodology to colorize the cells for diagnosis
- ◆ The most widely used groups of stains in cytology is the Papanicolaou series of stains



Dr. George N. Papanicolaou
Developer of Papanicolaou Stains

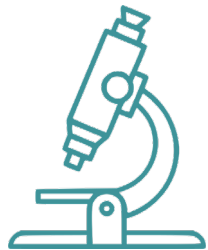
Early 1940's

Introduction to Cytology Staining

Disease diagnostics



Cytology is the branch of pathology that involves the study of cells to diagnose disease.



Examples of Diseases/Sample Types

- ◆ Malignant melanoma, fine-needle aspiration biopsy of the liver, direct Smear
- ◆ Squamous Cell Carcinoma, bronchial washing
- ◆ Papillary thyroid cancer, fine-needle aspiration biopsy
- ◆ Benign urine cytology sample
- ◆ Squamous cell carcinoma in the cervix

Introduction to Cytology Staining

What end-users are looking for

Three primary objectives of Cytology Staining

1. **Good nuclear detail** - provided by the use of hematoxylin as a reagent.
2. **Trichromatic counterstaining** - provided by the 3 different counterstains to display maturity and metabolic state of cells.
3. **Cytoplasmic transparency** - a function of the high ethanol content of the stain and is important in order to view multi-layered cell aggregates.



Cytology Staining

It's all about user preferences



Two staining approaches:
Progressive and
Regressive

Progressive (Gill's):

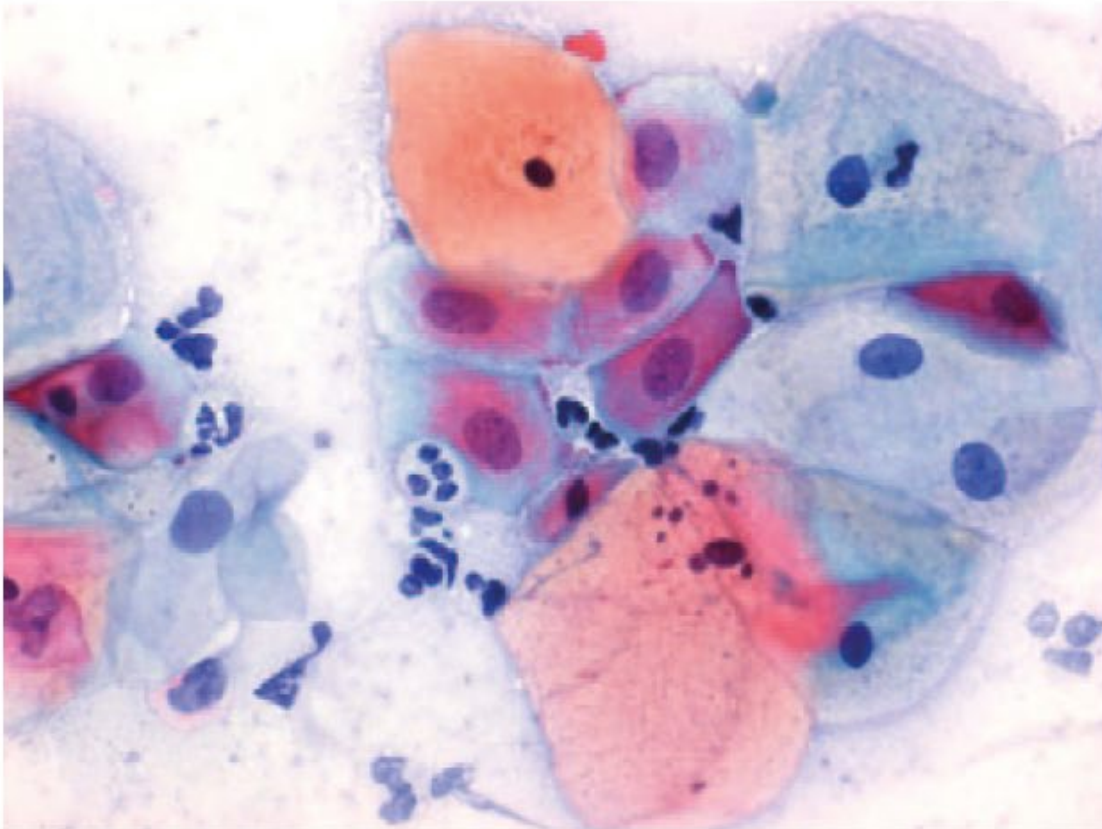
- ◆ Stain → Rinse → Continue staining
 - Intensity is controlled through varying the time in hematoxylin
Hematoxylin will only stain to a point
 - More commonly used

Regressive (Harris):

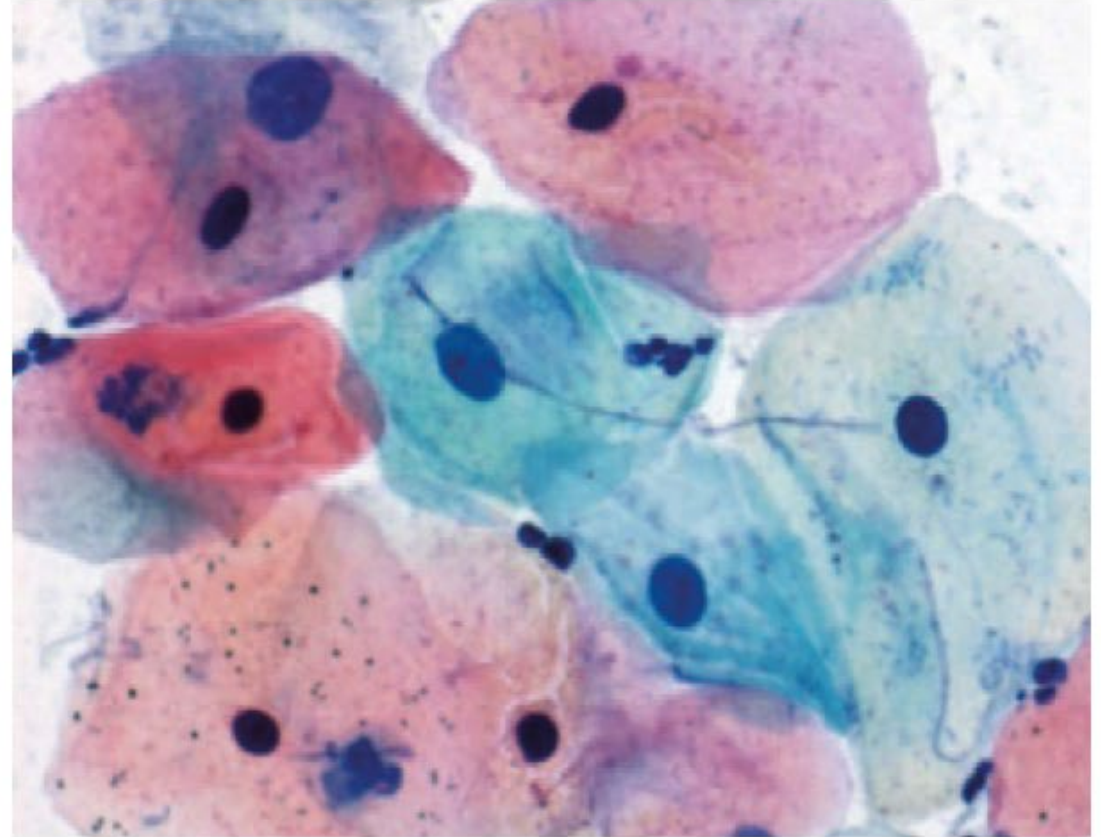
- ◆ Stain → Regress → Continue staining
 - Cells are purposely over stained with hematoxylin
 - Background is removed with differentiation

Cytology Staining

It's all about user preferences



Progressive Papanicolaou Stained Smear



Regressive Papanicolaou Stained Smear

INTRODUCING Aerospray® Cytology Stainer





Aerospray® Staining



● Hematology Stat

Automates the staining of blood smears and bone marrow samples to facilitate enhanced clarity and debris free slides using thiazine and eosin aqueous based staining techniques.



● Hematology Pro

Automates the staining of blood and other body fluids to facilitate enhanced clarity using a rapid stain mode, a longer Wright-Giemsa mode, a May Grünwald Giemsa (MGG) mode or custom settings.



● Gram

Automates the staining of pure strain isolate smears and human specimens with microorganisms to facilitate enhanced clarity and debris free slides using the Gram differentiation method.



● TB

Automates the staining of body fluid specimens to facilitate the detection of acid-fast bacilli including mycobacterium tuberculosis using either fluorescence or carbol fuchsin staining.



● Cytology NEW

Automates the staining of cytology specimens to facilitate the examination of an array of cell differentiations utilizing Papanicolaou staining techniques.

CytoPro® Rotor



Automates the cyto centrifugation of cell suspensions to facilitate the sedimentation of cells onto a slide using patented chamber designs and pad absorption method.

Aerospray® Reagents

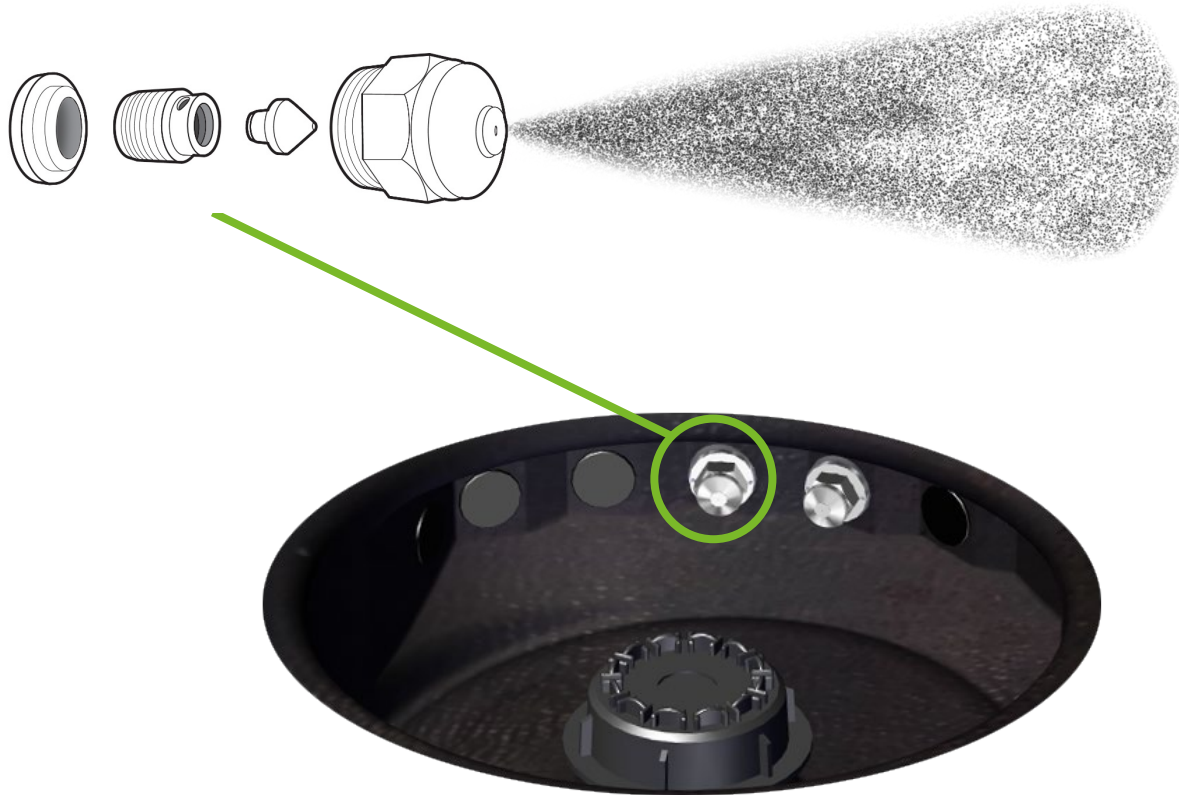
Intended for use exclusively with Aerospray® Stainers.



* 18-month shelf life

Aerospray® Staining Technology

Reagent nozzle spray application



Superior Staining Advantages for Labs

- ◆ Eliminates cross-contamination
- ◆ Standardization across multiple labs
- ◆ High-quality control
- ◆ Reduction of labor/cost per slide
- ◆ Low maintenance
- ◆ Laboratory compliance
- ◆ Perfect back-up

**Aerospray®
Reagents**



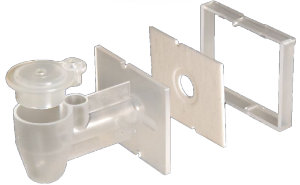
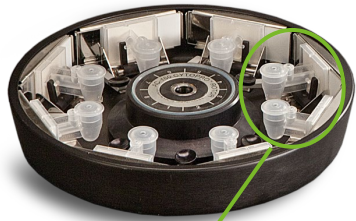
** 18-month shelf life*

Cytoentrifugation

Aerospray® stainers + optional CytoPro® Rotor = superb cytoentrifuge



Cytopro® Rotor



- Patented flow control ring that gets a five-to nine-fold increase in the number of cells on a slide
- Adaptable with most cytoentrifuge systems
- Available as a fully integrated system

◆ **THE ONLY** dual-purpose instruments equipped with staining and cytoentrifugation capabilities.



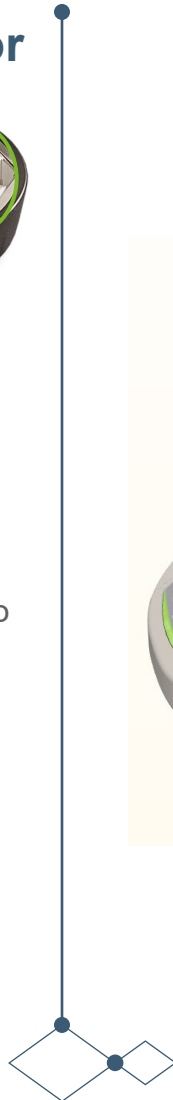
Advantages for Labs

- ◆ Eliminates clutter issues
- ◆ Cost efficient
- ◆ Increased cell yield
- ◆ Consistent results

Also recommended for body fluids:

(A S C)
AMERICAN SOCIETY OF
Cytopathology

 COLLEGE of AMERICAN
PATHOLOGISTS

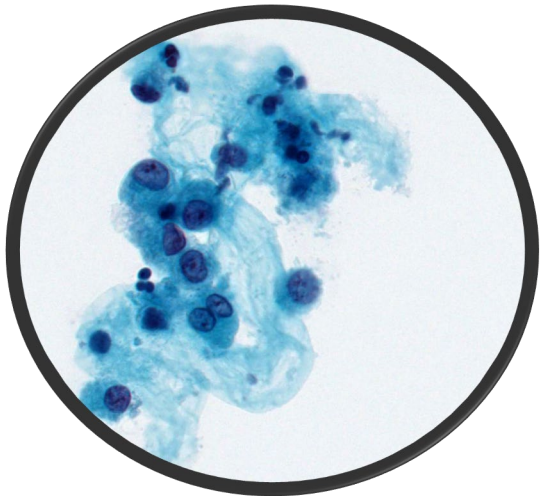


INTRODUCING

Aerospray® Cytology Stainer

Intended use

Automates the staining of cytology specimens to facilitate the examination of an array of cell differentiations utilizing Papanicolaou staining techniques.



Non-GYN BCF Stain

Superior Staining Advantages for Labs

- ◆ Eliminates cross-contamination
- ◆ Regressive and progressive staining capabilities
- ◆ Standardization across multiple labs
- ◆ High-quality control
- ◆ Reduction of labor/cost per slide
- ◆ Low maintenance
- ◆ Laboratory compliance
- ◆ The perfect back-up

Key Features

- ◆ 12-slide & 30-slide capacity
- ◆ Runtime: 15-30 minutes
- ◆ Easy to program functions for preferences
- ◆ Automated nozzle clean and waste detection



Optional CytoPro® Rotor

Sample Types

- ◆ Urine
- ◆ Buccal (pure squamous cells)
- ◆ Mucus/Sputum
- ◆ Bronchoscopic
- ◆ Body cavity fluids (BCF)
- ◆ Aspirates
- ◆ Cerebrospinal Fluid (CSF)
- ◆ Washes
- ◆ Synovial

Aerospray® Cytology Reagents

- ◆ EA-50 Stain
- ◆ Orange G Stain
- ◆ Bluing Agent
- ◆ Hematoxylin I or II
- ◆ Alcohol Wash
- ◆ Acid Alcohol Wash

Key Advantages of Aerospray® Cytology Stainer



◆ Ensures lab compliance and standardization with traceability features



◆ Eliminates cross-contamination



◆ Vast array of customizable settings and programs fit any users need.

◆ Reagent level monitoring reduces consumption and lowers costs

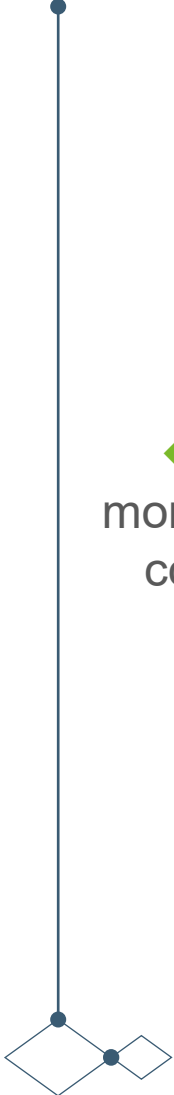


◆ Saves time and is low maintenance with automated nozzle clean after each stain cycle

◆ Rapid performance with a cycle times as short as 15 minutes



◆ Superior staining results with programmable functions to accommodate intensities, personal preferences, and special staining



More on Rapid Performance



Slide Staining Capacity

	Per Hour	Per Day
12 Slide Carousel	1-36	≈ 360
30 Slide Carousel	30-90	≈ 900

*Estimates



Aerospray® Cytology Stains

Aerospray® Cytology Stain F, Acid Alcohol

Aerospray® Cytology Stain E, Alcohol Wash

Aerospray® Cytology Stain D, Hematoxylin I Stain OR

Aerospray® Cytology Stain D, Hematoxylin II Stain

Aerospray® Cytology Stain C, Bluing Agent

Aerospray® Cytology Stain B, Orange G Stain

Aerospray® Cytology Stain A, EA-50 Stain



Aerospray® Cytology Stain A, EA-50 Stain

EA stain is an alcoholic solution of Eosin Y and fast green or light green SF.

Phosphotungstic acid and acetic acid are employed to enhance the binding of the green component.



Aerospray® Cytology Stain B, Orange G Stain

Orange G is a small, negatively-charged dye important to the pap stain for visualizing keratinized tissue.

It also enhances the EA (Reagent A) stain by acidification of the smear.



Aerospray® Cytology Stain C, Bluing Agent

Aerospray employs a dilute solution of sodium bicarbonate which can hydrate the cells prior to hematoxylin staining.

With a lower molarity solution we avoid the need for a separate water washing system for the bluing agent and shortens the staining time

A second unique modification to the bluing reagent is the 10% alcohol content that helps to reduce the forces exerted on the slide during Orange G staining.



Aerospray® Cytology Stain D, Hematoxylin I Stain OR Aerospray® Cytology Stain D, Hematoxylin II Stain

Hematoxylin is a natural product extracted from the logwood tree of South America and oxidized to hematein.

We offer two concentrations providing excellent long-term stability. Ours is a Gill type formulation yielding fine nuclear detail.

Hematoxylin I is less intense than Hematoxylin II.



Aerospray® Cytology Stain E, Alcohol Wash

Provides a better destaining action for cells and also for the nozzles and carousel during the Clean Cycle.

Is more miscible than ethanol in most mountant media.



NEW Aerospray® Cytology Stain F, Acid Alcohol

The Acid Alcohol Wash is designed to clean and maintain the Hematoxylin Reagent D line.

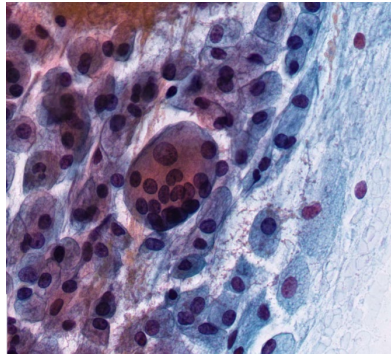


Actual Slides Stained

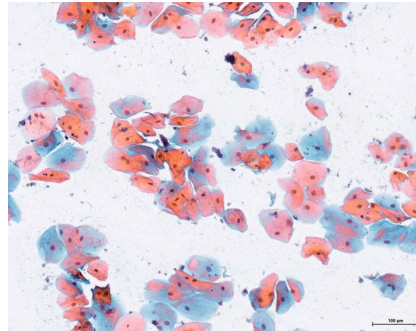
Aerospray® Cytology Stainer



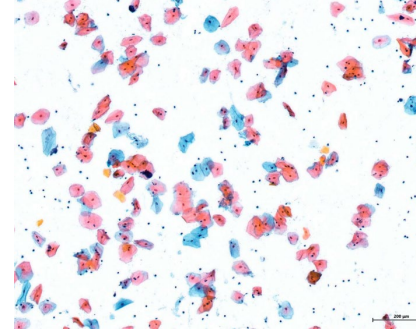
Lung Cells



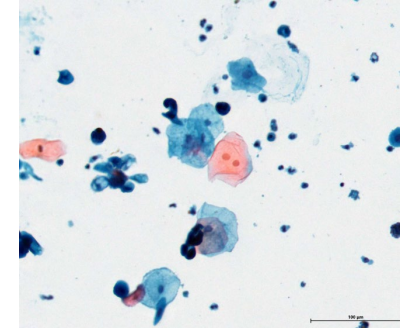
Buccal Smear



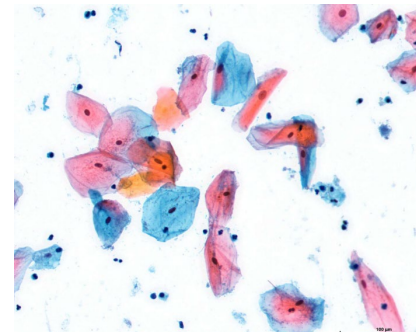
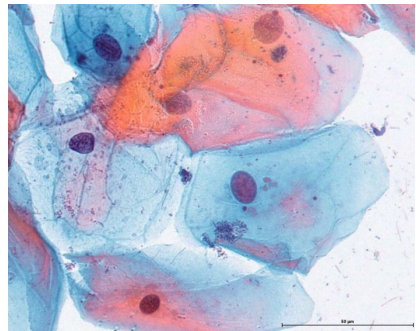
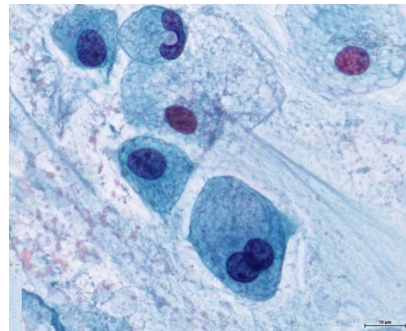
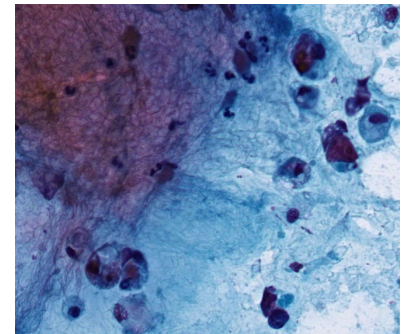
Sputum



Urine



Abnormal Mass



Key Differences

Aerospray® Cytology vs. Other Aerospray® Stainers

Mechanical Differences

- ◆ **Unvented Lid**
 - Slides to remain wet to prevent 'corn flaking'
- ◆ **6th Pump & 6th Bottle**
 - Provides for the utilization of a 6th reagent – Acid Alcohol
 - Used (primarily) for regressive staining and maintenance

Software

- ◆ **Cycle time reported at the end of each cycle**
 - Useful to know how long ago the cycle ended to ensure the carousel is still wet
- ◆ **More configurations than any other Aerospray**



Sales Targeting



Two Distinct Target Markets

Aerospray® Cytology Stainer



Two sales approaches depending on the regions' current prep methodologies.

Medically Advanced Market (US and Europe)

Cytocentrifugation **less likely** (CytoPro®) used as a slide preparation method.

More common slide preparation methods:

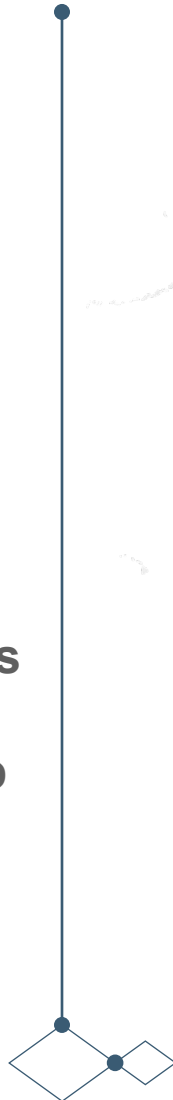
- SurePath
- ThinPrep

Less-Advanced Market (Latin America, Asia)

Cytocentrifugation **more likely** (CytoPro®) used as a slide preparation method.

Other common slide preparation methods:

- Manual preparation
- Cytospin



Laboratory Types

Aerospray® Cytology Stainer



Cytopathology examines smears of cells from all over the body (such as from the cervix) for evidence of inflammation, cancer, and other conditions.

Cancer Centers

- Urine
- Sputum (phlegm)
- Spinal fluid, also known as *cerebrospinal fluid* or *CSF* (from the space surrounding the brain and spinal cord)
- Pleural fluid (from the space around the lungs)
- Pericardial fluid (from the sac that surrounds the heart)
- Ascitic fluid, also called *ascites* or *peritoneal fluid* (from the space in the belly)
- Scrape or brush cytology (Pap Smear on Cervix)

Hospital Labs

Cyto centrifugation **more likely** (CytoPro®) used as a slide preparation method.

Other common slide preparation methods:

- Manual preparation

<http://www.pmlpathology.com/cytopathology.php>

IDEAL Customer Profile

Aerospray® Cytology Stainer



End Users

- ◆ Pathology Assistant (PA)
- ◆ Cytogeneticist (CG)
- ◆ Cytotechnologist (CT)
- ◆ Lab Technicians



Critical End Users

- ◆ Medical Laboratory Scientist
- ◆ Medical Technologist
- ◆ Clinical Laboratory Scientist
- ◆ Pathologist



Decision Makers

- ◆ Laboratory Director
- ◆ Senior Pathologist
- ◆ Technical and General Supervisors

Sale Strategy

Aerospray® Cytology Stainer



End Users

(Influencers)

+

Decision Makers

=

Sales

Cytotechnologist

Influence

Lab Director

Pathologist

Influence

Sr. Pathologist



Targeting Scenarios

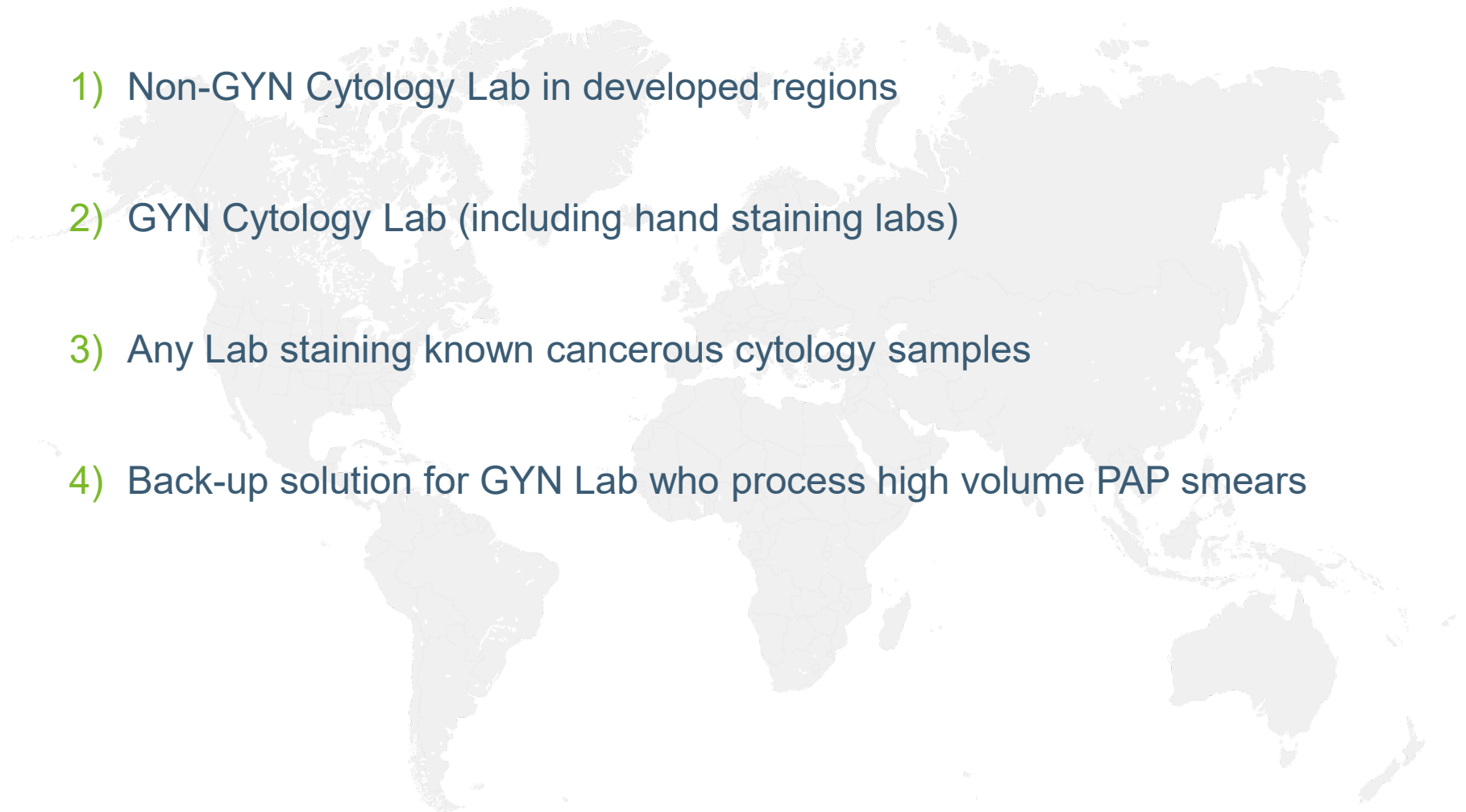
Aerospray® Cytology Stainer



Two sales approaches depending on the regions' current prep methodologies.



- 1) Non-GYN Cytology Lab in developed regions
- 2) GYN Cytology Lab (including hand staining labs)
- 3) Any Lab staining known cancerous cytology samples
- 4) Back-up solution for GYN Lab who process high volume PAP smears



Competition



Competitive Comparison

Aerospray® Cytology Stainer



	Aerospray® Cytology Stainer	Competition
Lab Footprint	Small	Medium-Large
Dual-purpose Cytocentrifugation	Yes	No
Slides Per Hour	60-90	60-150
Reagent Consumption	Low	Medium
Cross-contamination	No	Yes
Reagents Applied Method	Spray	Dip/Injection

Value-Based Sales Model



PRICE

HIGH

High Automated Staining

Dip Staining



Leica ST-5020



SAKURA Tissue-Tek® DRS™ 2000

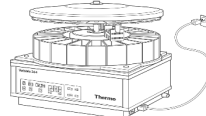


SAKURA Prisma Glas g2 Tiss

ROCHE Ventana HE 600



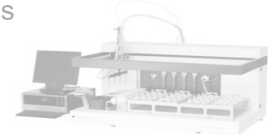
Varistain™ Gemini



Thermo Scientific Varistain® V24-4 Injection



MEDITE TCA 44-720



PrepStain™ Slide Processor



Trivatron Compass™ Stainer



EMCO Fastainer



Vector Nate VM100



Aerospray® Cytology Stainer

- ◆ No cross-contamination
- ◆ Small Footprint
- ◆ Rapid Staining
- ◆ Dual-purpose
- ◆ Cost savings

Hand Staining



LOW



WEAK

MEDIUM

STRONG

FEATURES

Selling Scenarios





Assess Laboratory Needs

Get the conversation started

- ◆ How do you stain your cytology samples (by hand or with a machine)?
- ◆ Do you prefer progressive or regressive staining? (explain the adjustability of Aerospray staining).
- ◆ What type of slide preparations are your using? (Gynecological Smears, Non-Gynecological Smears, ThinPrep, or Cytocentrifugation)
- ◆ How many samples does your lab stain a day?
- ◆ What type of reagents does your lab use? (explain Aerospray reagent options – Papanicolaou and/or Wright Giesmsa)
- ◆ How much time does it take to stain 1 slide? (explain that it takes on average 5 min to stain a slide and slides are wet at end of stain cycle for immediate cover slipping)
- ◆ Do you sometimes observe cross contamination? (explain nozzle technology, fresh reagent in limited volume/slide)
- ◆ How much reagent you use/stain type per slide? (explain economical reagent consumption)
- ◆ Do you sometimes observe cell wash off? (explain Aerospray staining is comparable to hand-staining in reducing cell wash off)
- ◆ How do you concentrate body fluids? (explain CytoPro)
- ◆ Would you be interested in a dual purpose cost-efficient staining/cytocentrifugation system?
- ◆ What is your current cost/slide?

Scenario 1: High Automated System

Laboratory Goals

- ◆ Accuracy
- ◆ Consistency
- ◆ Reproducibility
- ◆ Reagent control
- ◆ Durability – long lasting

Customer: Dr. James Harden

Title: Laboratory Director

Lab Size: 3000+ Cytology Slides a day, 100 Employees



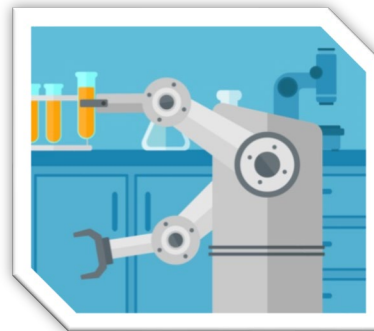
Selling Points

- ◆ When the large automated system is down for maintenance
- ◆ When the large automated system breaks
- ◆ To ensure redundancy in the laboratory
- ◆ For specialty staining for specific cases that need more attention

Lab Buying Behaviors

- ◆ Online Research
 - ◆ Peer Review Sites
- ◆ Industry specific publications
- ◆ Laboratory Technicians Opinions
- ◆ Trade Shows

Challenge: Customer has a high end automated system.



Compliments



SAKURA Prisma
Glas g2 Tissue-Tek®



MEDITE
TCA 44-720



PrepStain™ Slide
Processor



ROCHE
Ventana HE
600

Scenario 2: Hand Staining

Laboratory Goals

- ◆ User friendly (easy to train)
- ◆ Lower cost (initial purchase)
- ◆ Cost of ownership over time
- ◆ Maintenance
- ◆ Faster
- ◆ Reagent control
- ◆ Safety

Customer: Lisa Jones, MD

Title: Pathologist

Lab Size: 10-25 Cytology Slides a day, 3 Employees



Selling Points

- ◆ Upgraded technology adds for superior consistent slides
- ◆ Long term cost saving because of less reagent use
- ◆ Controlled staining methods that are easy to replicate
- ◆ Easy clean-up and waste removal

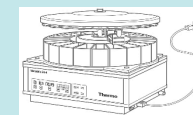
Lab Buying Behaviors

- ◆ Online Research
 - ◆ Peer Review Sites
 - ◆ Product Website
- ◆ Industry specific publications
- ◆ Brand recognition

Obstacle: Customer is hand staining.



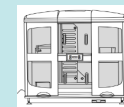
Competition



Thermo Scientific
Varistain®
V24-4



Trivatron Compass™
Stainer



Varistain™
Gemini



Vector Nate
VM100

Scenario #3 – Automated Stainers

Laboratory Goals

- ◆ Workflow Improvement
- ◆ Data Management
- ◆ User Friendly (easy to train)
- ◆ Low Cost
- ◆ New Technology

Customer: Elizabeth Adams

Title: Cytotechnologist

Lab Size: 500 Cytology Slides a day, 9 Employees



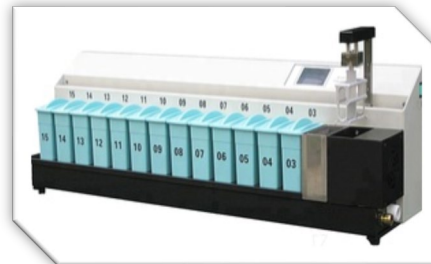
Selling Points

- ◆ Superior technology
- ◆ Cross contamination is not an issue with Aerospray
- ◆ To ensure redundancy in the laboratory
- ◆ Cost saving because of monitored reagent use

Lab Buying Behaviors

- ◆ Online Research
 - ◆ Peer Review Sites
 - ◆ Product Website
 - ◆ White Papers
 - ◆ Journal Articles

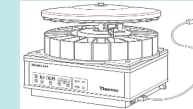
Obstacle: Customer is fine with their current stainer.



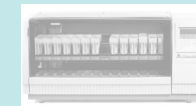
Competitors



Leica ST-5020



Thermo Scientific
Varistain®
V24-4



SAKURA Tissue-
Tek® DRS™ 2000



Vector Nate
VM100



Varistain™
Gemini



EMCO
Fastainer

What's in the box?

Aerospray® Cytology Stainer

- ◆ Cytology Stainer
- ◆ Staining Reagents
- ◆ Slide Barcode Scanner*
- ◆ Cytocentrifuge Rotor*
- ◆ Slide Carousel
- ◆ Waste Tubing & Container
- ◆ Nozzle Cleaning Kit
- ◆ Cleaning Solution
- ◆ Documentation
- ◆ Power Cords and Other Supplies



Aerospray® Cytology Market Evaluations

ThinPrep® is preferred method of sample prep



“The nuclear detail *excels* that of our current staining process.”

[in reference to he Aerospray® Cytology machine] “The slides looked absolutely *fantastic*. I showed them to another senior in the lab and they loved the slides too.”

“Staining is definitely crisper and brighter with the Aerospray®”

Sites as of November 2019

Marketing & Support



Marketing Team

Enabling sales is priority



Amanda Warren
Director of Marketing & Business Development

a.warren@elitechgroup.com

1.435.227.1422



Drew Reeve
Research Analyst

d.reeve@elitechgroup.com

1.435.227.1434



Darrin Nielson
Digital Marketing Coordinator

d.nielson@elitechgroup.com

1.435.227.1436



Adair Andreasson
Associate Product Manager

a.andreasson@elitechgroup.com

1.435.227.1458

Enabling Effective Selling

Sales Tools, Training, and Resources

- ◆ Brand Awareness
- ◆ Product Positioning
- ◆ Collateral
- ◆ Customized Sales Materials
- ◆ Signage & Graphics
- ◆ Slide Kit Preference Settings Guide – *in progress*
- ◆ Regional Partner Trainings
- ◆ Webinars
- ◆ Online Training Modules
- ◆ Per Request



Brand Recognition

Influencing perception with consistent positioning



Empowering IVD

**Aerospray®
Staining and
Cytocentrifugation**

WORLD LEADER in Aerospray® staining technology and cytocentrifugation

WORLD'S BEST STAINER in performance and reliability

THE ONLY dual-purpose stainer and cytocentrifuge

WORLD'S MOST ADVANCED Cytocentrifuge rotor

FIVE-TO NINE-FOLD INCREASE IN MORE CELLS on a single slide



WORLD'S BEST STAINER

In Performance and Reliability

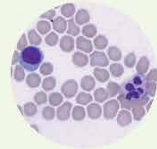
**Here is our latest
printed ad!!**

Aerospray® Slide Stainer/Cytocentrifuge

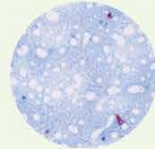


Automates the preparation and staining for:

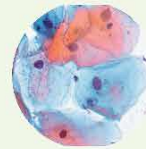
Hematology



TB



Cytology



Gram



Advantages for Labs

- ◆ Eliminates cross-contamination
- ◆ Equipped with staining and cytocentrifugation capabilities
- ◆ Standardizes staining across multiple labs
- ◆ Provides consistent high-quality control
- ◆ Low maintenance
- ◆ Reduces the labor/cost per slide
- ◆ Enables laboratory compliance
- ◆ The perfect back-up for high automation labs



Nearly 30 Aerospray® patents

AEROSPRAYSTAINING.COM





WORLD'S BEST STAINER

In Performance and Reliability

Aerospray® Cytology Slide Stainer/Cytocentrifuge



Automates the preparation and staining of liquid based cytology specimens to facilitate the examination of an array of cell differentiations utilizing Papanicolaou staining techniques.



THE ONLY dual-purpose instrument staining and cytocentrifugation

Nearly 30 patents over

Superior Staining Advantages for

- Eliminates cross-contamination
- Regressive and progressive staining
- Standardizes staining
- Provides consistency
- Low maintenance
- Reduces the labor
- Enables laboratory
- Perfect back-up for

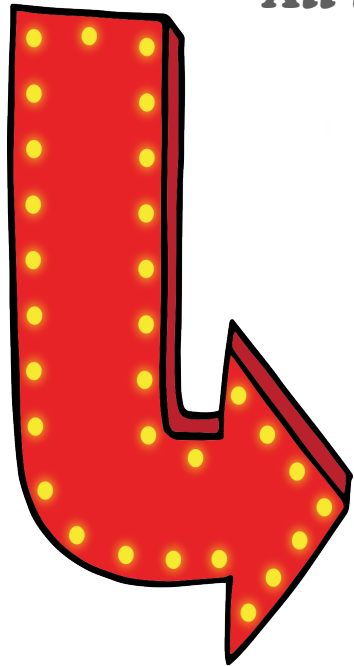
ELITechGroup
EMPOWERING IVD

Our booth and table at USCAP 2020 in Los Angeles!!!



Send Your Customers Here

All things Aerospray® with brochures, videos, and more!!!



AerosprayStaining.com

Service and Applications Support

Customer satisfaction is priority



Email: service_ebs@elitechgroup.com

Phone: +1.800.453.2725

Mike Farr
Service Manager

Patti Nelson
Application Support Manager

Vern Schafer
Service Technician

Mike Barlow
Senior Service Technician

Lizzy Lasley
Service Technician

Market Overview



Global Market Potential

Histology and Cytology Market Worth \$26.9B by 2025*

CAGR: 13.5%



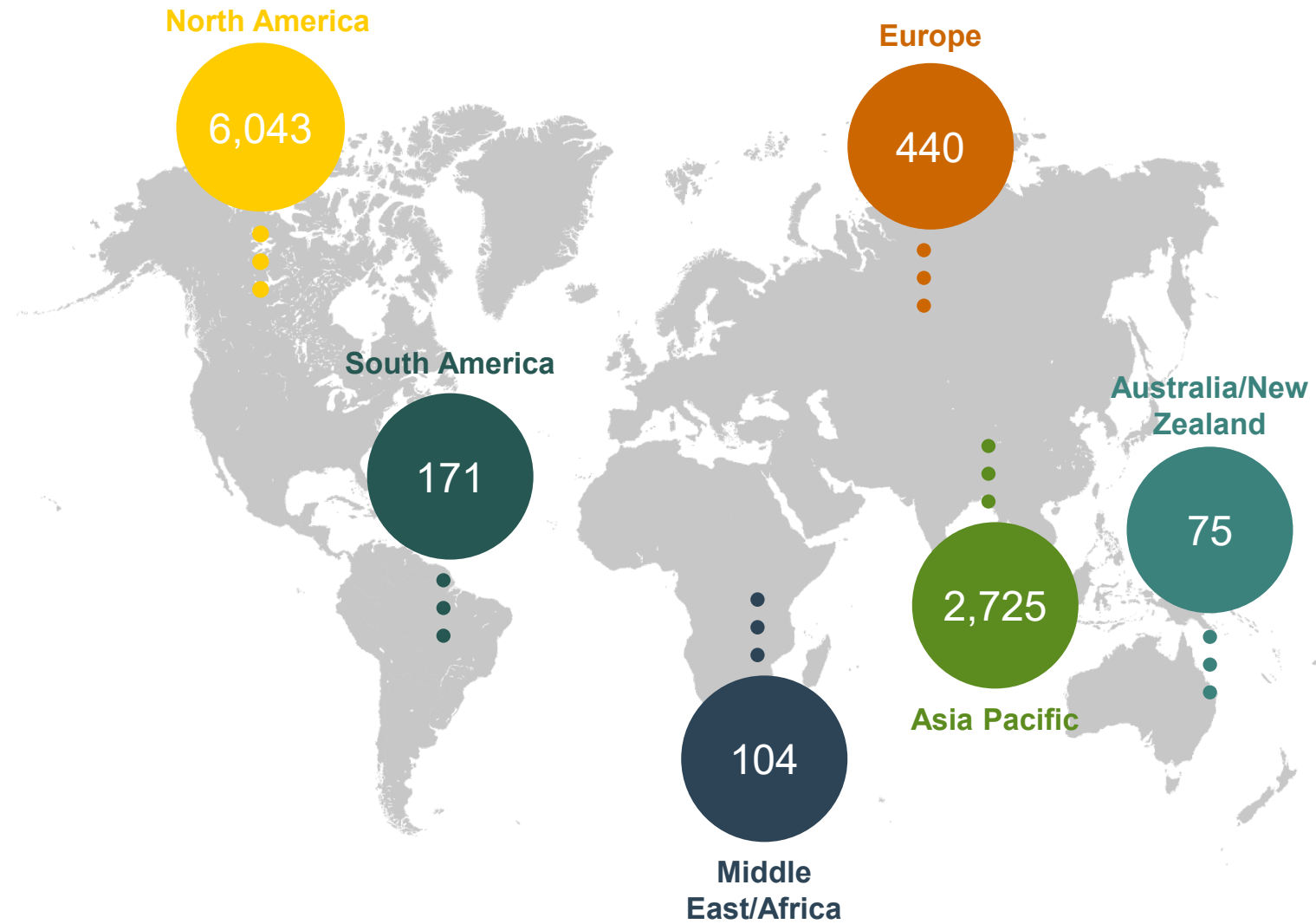
Increasing adoption of cervix cancer screening is driving growth.

Majority of growth in North America & Europe



Asia-Pacific cytological market to grow substantially

Number of Cytology Labs by Region



* Australia includes hematology/cytology labs



**Happy Selling
and we're here to support you!**

U.S. Sales Product Launch, March 2020

Prepared by: EBS Marketing