

Automating Hepatitis Delta Reflex Screening At Cooperman Barnabas Medical Center

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Hepatitis Delta

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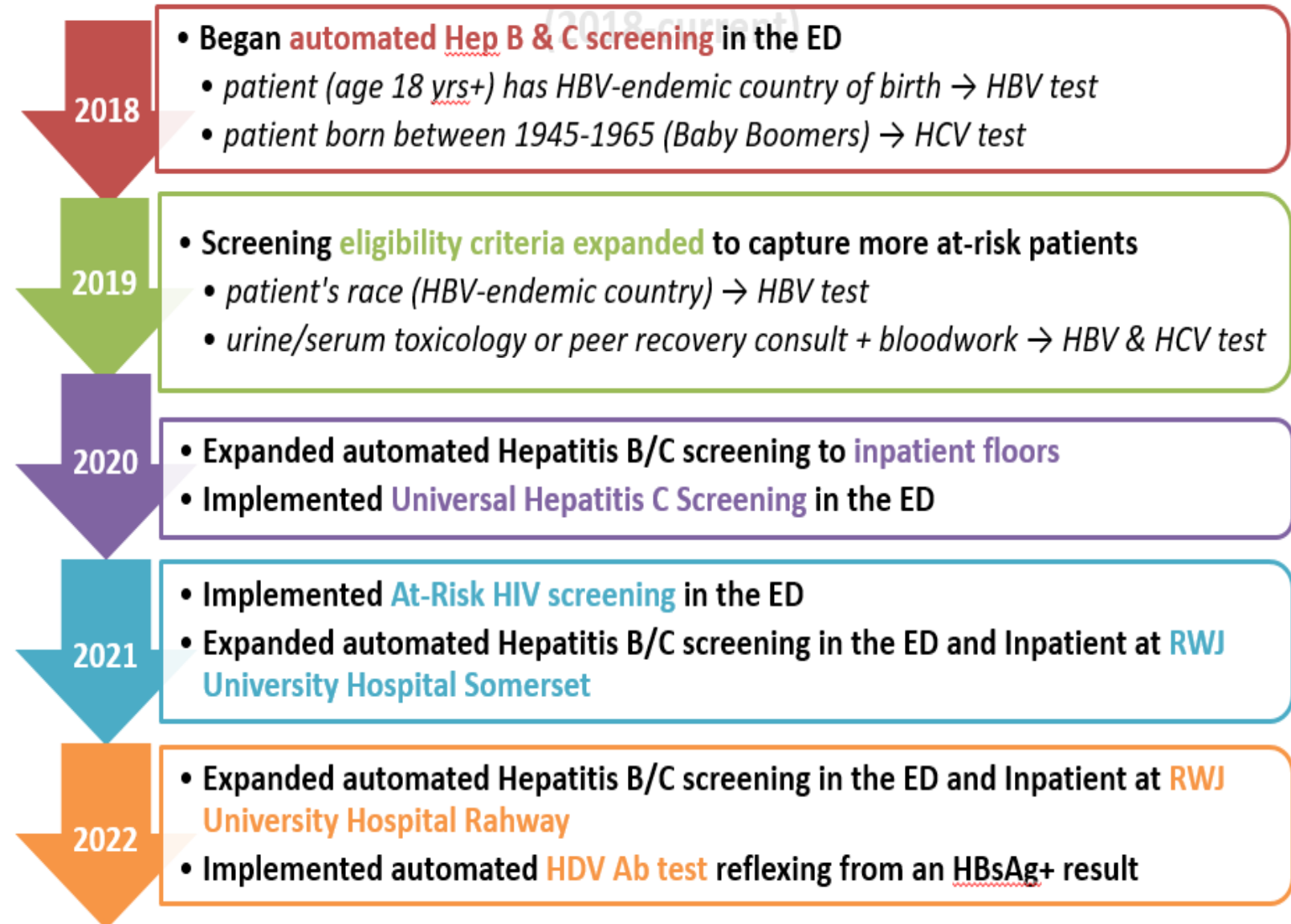
Cooperman Barnabas Medical Center (CBMC)

CBMC FOCUS program overview

- Launched 2018, has grown to 3 hospitals/6 locations
- **>277,000 patients screened since 2018**
 - CBMC Emergency Department: **HBV, HCV, HIV, HDV**
 - CBMC Inpatient and Cancer Center: **HBV, HCV, HDV**
 - Somerset ED and Inpatient: **HBV, HCV**
 - Rahway ED and Inpatient: **HBV, HCV**

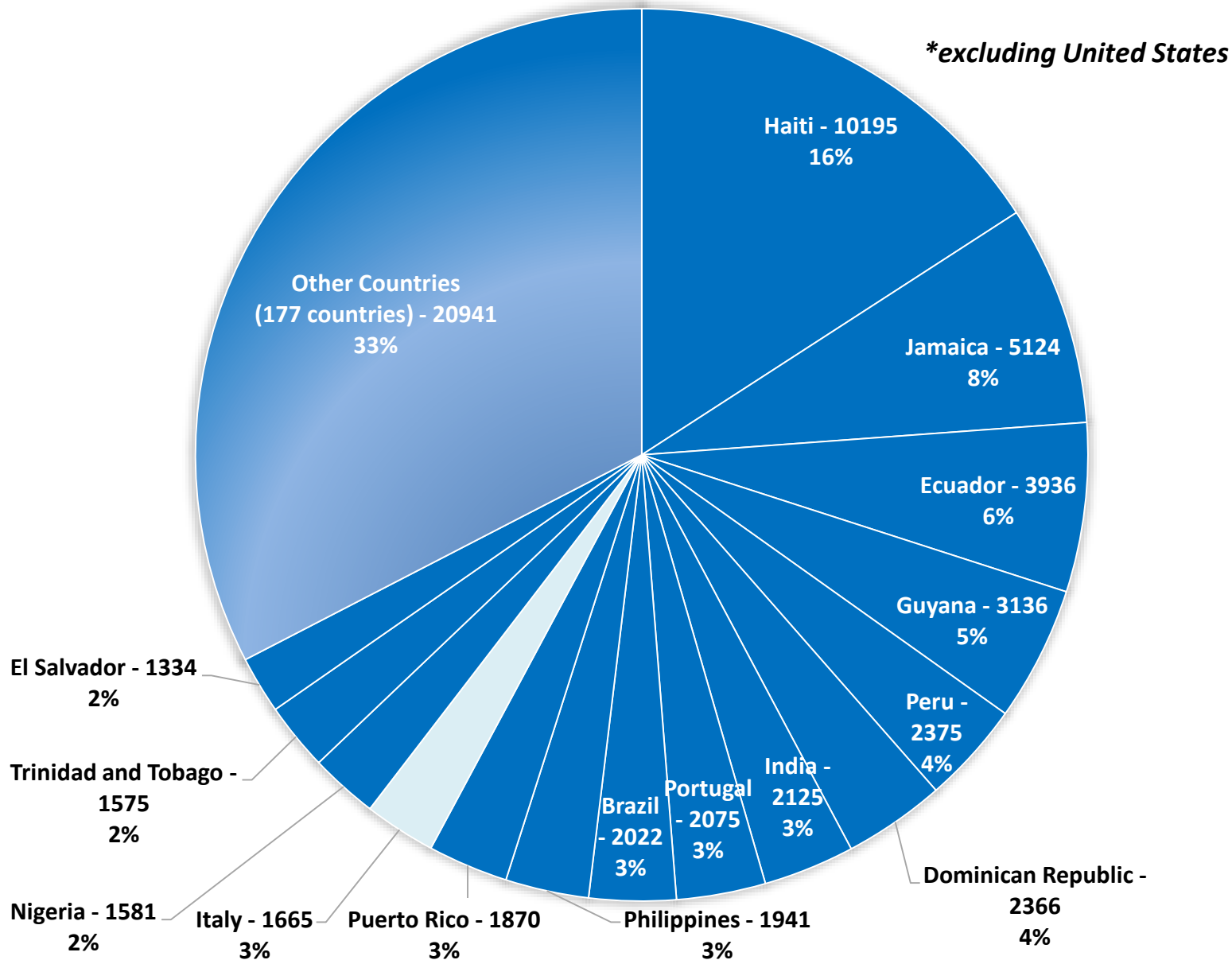
- ❖ **HDV screening pilot at CBMC (8/2/22-8/31/23)**
- CBMC (8/20/24-present)**

Timeline of CBMC Program Expansion



Diversity of CBMC ED Patient Population

TOP 15 COUNTRIES OF CBMC ED PATIENTS AGE 18+
MARCH 2018 - JUNE 2023



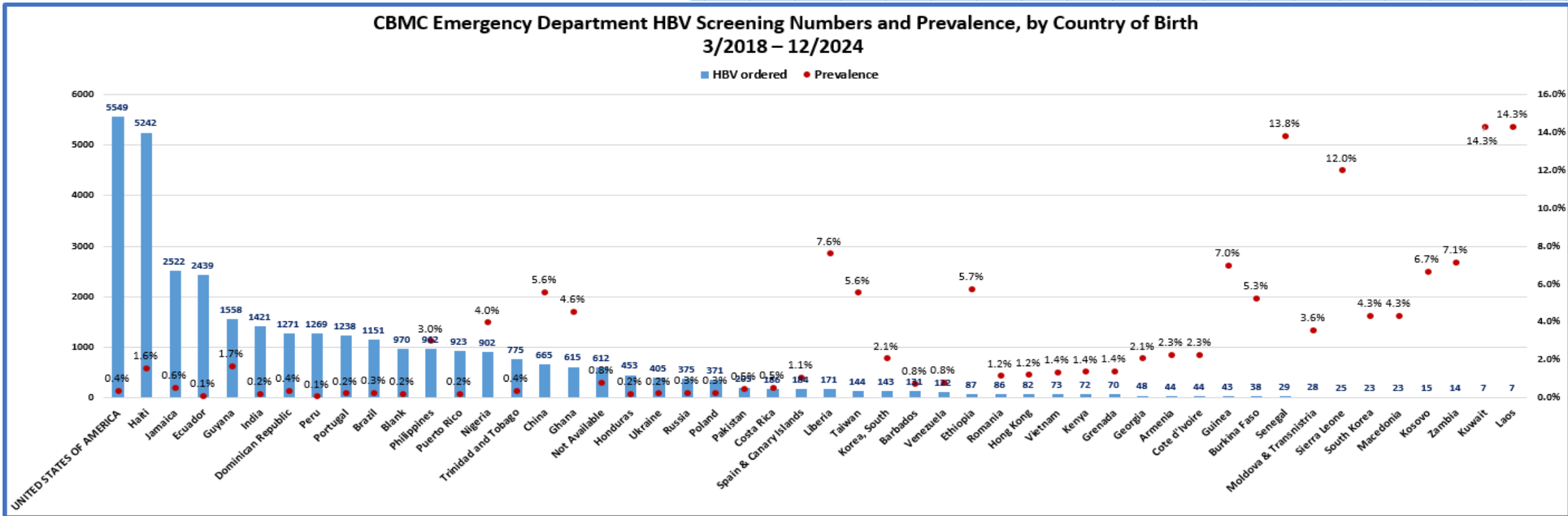
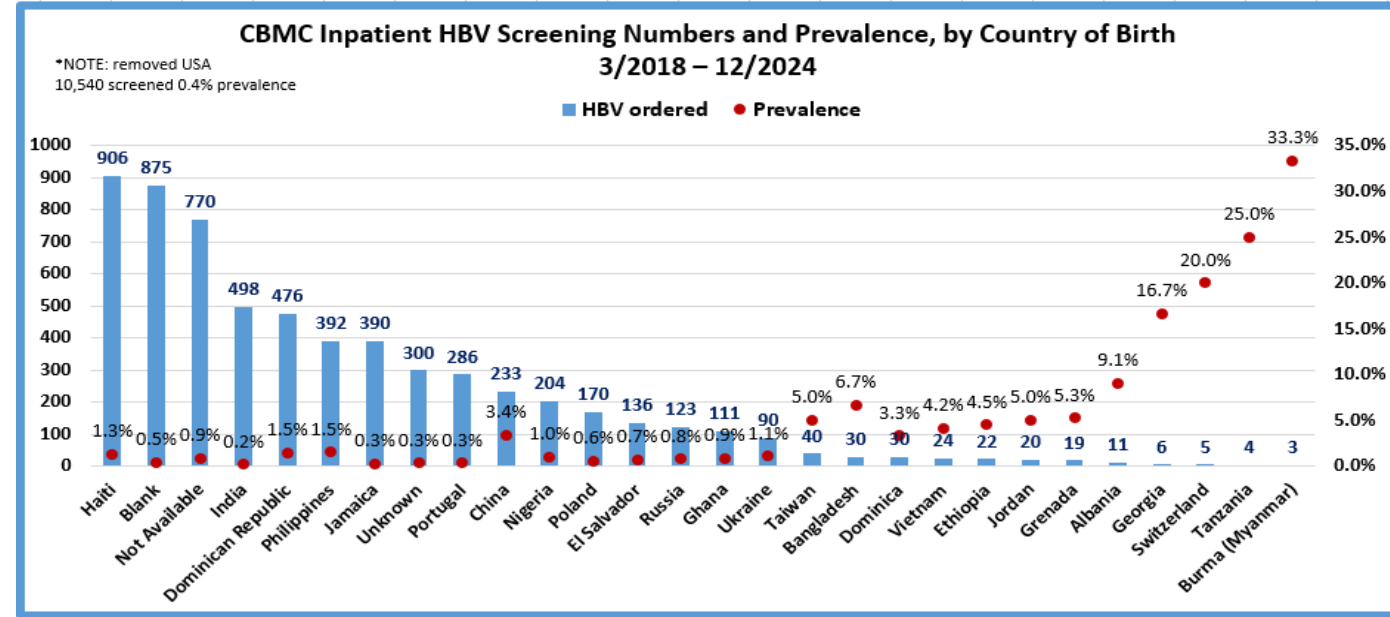
CBMC Patient population is internationally diverse (and at risk for HBV)

(and at risk for HBV)

~ 28% of ED population from 3/18-6/23 was born outside US
Pie chart shows top 15 countries of origin (**endemic for HBV are shown in dark blue**)

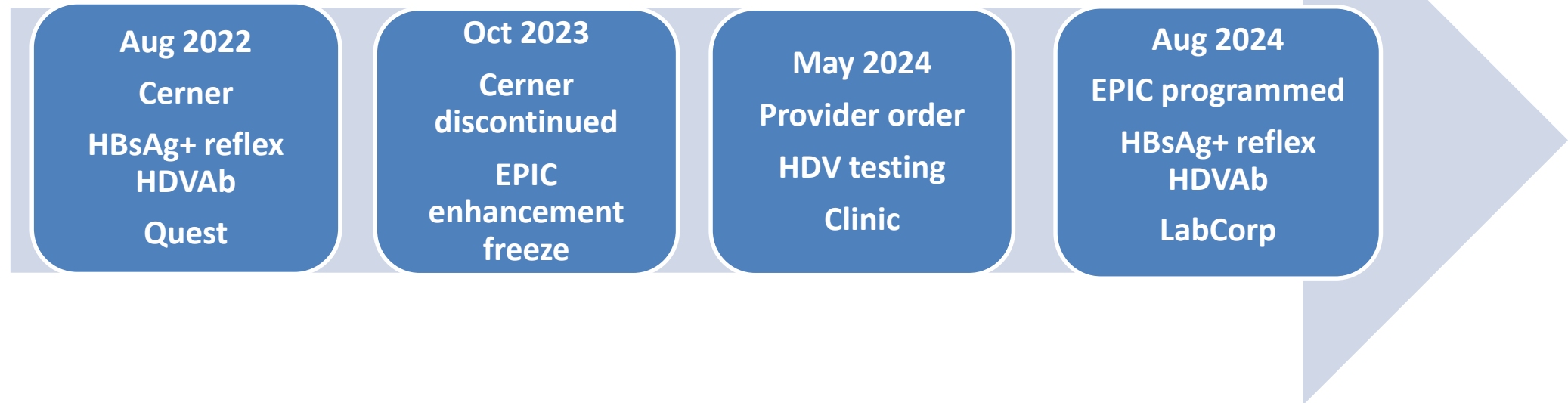
Hepatitis B Screening, by Country of Origin

- Reflects international diversity of our patient community & New Jersey (3rd highest % of foreign-born in US)
- Tracking “race” alone does not reflect patients origins (ex. Black could be African American, African, or Caribbean, etc)



Automating Hepatitis Delta Ab Reflex Testing Cooperman Barnabas Med Center

- 597-Bed Suburban Community Hospital
- Part of RWJBH system, 12 hospitals
- Livingston, NJ
- Black/African American, White, Hispanic, Asian Pacific Islander, mixed income, immigrants

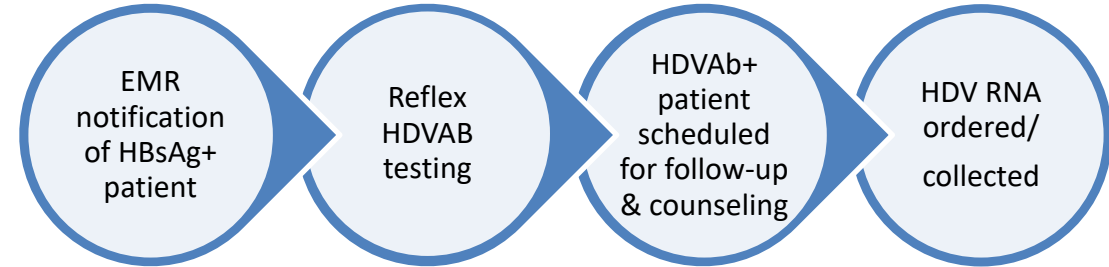


Automating Hepatitis Delta Ab Reflex Testing: Process

Planning meetings with IT Analysts & Lab Leadership

• Algorithm:

- If HBsAg+, HDV Ab test order added
- Lab logistics: HBsAg test done in house, specimen saved until resulted, specimen sent out for HDV Ab testing



• EMR implementation

- Submit change control to update Cerner algorithm
- Add HDV Ab reflex to existing HBV screening algorithm
- Tested with mock patients w a HBV+ and a HBV- result to confirm algorithm working

• Launch & Quality Assurance

- Hospital notification of process sent out 7/25/22 before 8/2/22 launch date
- Staff conducted chart reviews to confirm HDV Ab ordered; manually check results until first HDV Ab+ alert
- Navigators initially not receiving positive alerts
 - HDV Ab results from Quest not interfacing with Cerner, resolved February 2023
- Investigated each time HBsAg+ did not reflex HDV Ab test

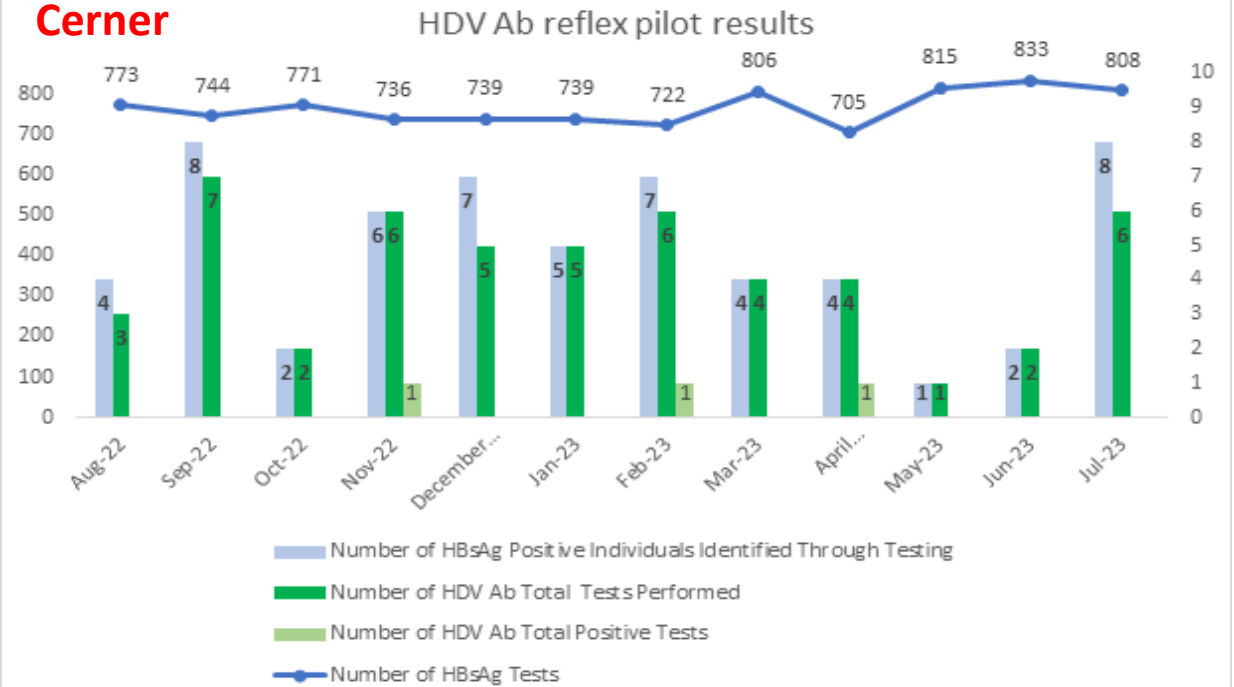
• June 2024 EPIC initiates programming

- Requested double reflex; advised unable to program; contracted with LabCorp
- Through post launch QA efforts learned could send to Quest for double reflex
- Requires system leadership approval; not contracted with Quest
- Clinical decision weighed #HDVAb+ resulted against resources required for approval process

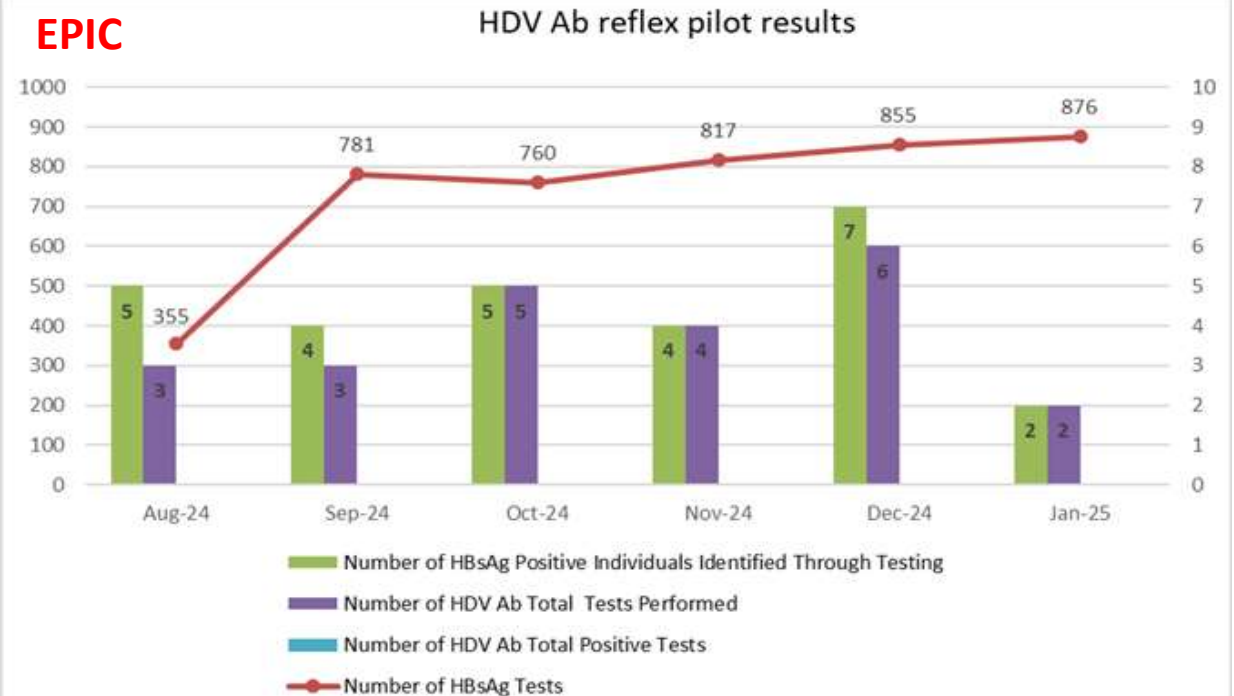
HDV Reflex Test

Pilot	8/22-8/23	No.
	8/24-12/24	
HBV	HBsAg tested	13,590
	HBsAg +	88 (0.6%)
HDV	HDV Ab tested	77
	HDV Ab +	3 (3.9%)
	HDV RNA tested	1
	HDV RNA +	0

Corner



EPIC



3 HDV Ab+ Cases

- Patient 1 52 yo female, Country of Birth (COB) Philippines, Hx Chronic HBV, admitted for renal transplant
HBsAg+ reflex HDV Ab, resulted HDV Ab+
Nephrologist consulted, patient HDV RNA added while inpatient
HDV RNA undetected
Results provided to pts PCP for continuum of care
- Patient 2 83 yo female, COB China, Mandarin speaking, c/o recent fall
Language Line translation services utilized
HBsAg+ reflex HDV Ab, resulted HDVAb+
Difficult linkage – phone number not in service
Patient lost to follow-up thus unable to test HDV RNA
Return to ED alert was placed on patient
- Patient 3 68 yo male, COB USA, Hx Chronic HBV, c/o shortness of breath
HBsAg+ reflex HDV Ab, resulted HDV Ab+
Seen by Infectious Disease provider inpatient
Patient navigator outreach to ID doctor
confirmed patient and provider aware of HDV dx

Summary

Successes

- Successful implementation of automated HDV Ab reflex testing
 - HBsAg with reflex to HDV Ab
- Collaboration with IT, Laboratory, and Hepatitis program team led to seamless workflow in instituting reflex order and addressing issues in real time through QA efforts
- HDV RNA reflex successfully done when patient is still in house

Challenges

- Long turnaround time for HDV Ab+ results; most patients discharged and therefore lose window to add HDV RNA test (lab holds specimen 1 week)
- Because HDV RNA is not reflexed, requires additional order. If pt still in house, needed to locate a physician to add order to test.
- Difficult to link patients when long time lapse between date of visit and date of patient outreach.
- HDV Ab+ patients with low motivation to “come back” for HDV RNA testing, especially when patients are addressing other conditions which they presented at hospital for.

Takeaways & Implications

- Low case finding- 3 HDV Ab+ and 0 HDV RNA positive (only 1 out of 3 patients had HDV RNA drawn)
- Automated HDV Ab+ reflex to HDV RNA would alleviate lost to follow up patients.
 - Concern about amount of specimen and duration of having to hold specimens
- Need to increase awareness about our screening programs, navigators role and HDV
 - Could increase HDV testing in non-automated screening setting
 - Co-infected patients at higher risk of HDV and more severe liver disease
 - Navigators involvement with multiple infectious disease states could enable more comprehensive care of higher risk patients
- Next steps to consider:
 - Consider universal HDV testing for all HBsAg+ (anticipate low yield for resources)
 - Consider targeted testing of people from HDV endemic areas or people with cirrhosis or other known risk factors (IVDU, dialysis, indigenous populations, HCV)
 - Retrospective review: 11 patients from HDV endemic countries (Ghana, Liberia, Nigeria, Russia, Senegal)