

# **Enhancing Electronic Health Systems to End Transmission of Chronic Hepatitis B During COVID-19: A Collaborative Approach**

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In partnership with  
**Health & Life Organization  
(HALO)**  
Sacramento Community Clinics

- HALO (also known as "Sacramento Community Clinics"), is a Hmong-led minority-serving community-based Federally Qualified Health Center Look-Alike.
- HALO is the largest health care provider in Sacramento County serving Southeast Asians and others born in CDC-defined endemic regions for HBV and their US-born children.



# “Ending the transmission of the HBV from the prenatal period throughout the lifespan”

## END B Overview: Services and Interventions



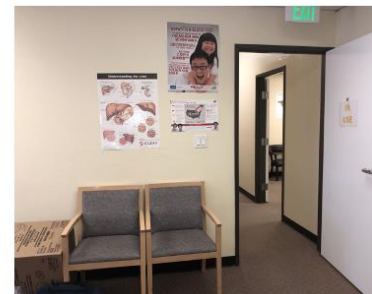
### Reduce HBV disparities among HALO patients

- In-service training of clinic staff on HBV (HALO MA Academy)
- HBV patient educational workshops at HALO sites
- In-language posters, infographics and factsheets



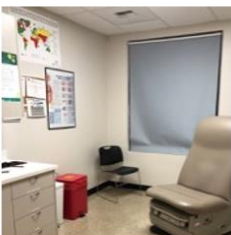
### Reduce deaths and improve the health of HALO patients living with HBV

- Screening of at-risk adult HALO patients (Asians)
- Linkage to care
- Case navigation



### Ending the transmission of HBV to newborns, children and uninfected adults

- Perinatal screening of pregnant women
- Vaccinations of HALO newborns
- Case navigation



### EHS Enhancements

- Custom reports
- Bulk lab ordering
- At-Risk Registry

## Phase 1a: Screening of Pregnant Women

Start with Patients in  
Obstetrics clinic



Provider enters any ICD-  
10 code for pregnancy



## Phase 1b: Screening of Patients "High-Risk" for Hepatitis B

Start with "High-Risk"  
Patients on Electronic  
Health Record (EHR)  
Registry



Case Navigator confirms  
patient is "High-Risk"  
based on ethnicity, race,  
primary language,  
and/or surname as  
recorded in the EHR



Hepatitis B (HBV) order  
set (HBsAg, HBcAb total,  
HBsAb) is triggered and  
orders are placed in  
electronic medical chart



Case Navigator follows  
up results. If HBsAg is  
positive, proceed to  
Phase 2

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## Phase 2: Linkage to Care and HBV Transmission Interruption

Order hepatology  
referral, CMP, CBC, INR,  
HBeAg, HBeAb, HBV  
viral load (VL)



Pregnant?



Treat with TDF 300 mg at  
28 weeks if Mother's VL is  
≥200,000, stop TDF at  
time of breastfeeding,  
monitor Mother for HBV  
flare



Baby starts HBV vaccine  
series and HBIG at birth



HBsAg + patient receives  
CMP and HBV viral load  
every 6 months, Liver US  
as appropriate



HBsAg+ Mother enters  
standard HBV care  
immediately after  
delivery



Baby tested for HBsAg,  
HBcAb total, HBsAb at 1  
year



# Ordering HBV Tests from HALO

## “At-Risk Registry”

Office (?)		Diagnostic/Lab (?)		Provider (?)		Patient (?)		Ordered Fr.		Ordered To:		Status:		Diag. Category:		Test (?)		More	
All		All		Johnson, Ian'		All		03/15/21		03/22/21		To Be Ordered		All		All		Retrieve	
S	R	O	P	SC	C	Patient	Bill	Order Dt.	Since	Collection Dt.	Collection Time	Diagnosis/Lab Test	Visit	Next Appt. Dt.	Status	Lab	Provider	Office	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/22/21		03/22/21	07:22 AM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)		03/23/21	To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:53 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)			To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:46 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)		03/30/21	To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:46 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)			To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:56 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)		03/23/21	To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:48 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)			To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:48 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)			To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Insu	Insu	03/18/21	4 Days	03/18/21	09:49 PM	Hep B Surface Ag w/reflex Confirm, Hepatitis B Surface Ab, Qual.(Quest), Hepatitis B Core Ab Total (501)			To be ordered	Quest Diagnostics Incorporated	Johnson, Ian	EX	

Ordered Lab:

Empty box for ordered lab details.

Provider\* Johnson, Ian    Office\* AC    Patient\* (?)

Order For\* Lab order    Date\* 03/22/21 02:36 PM    To Be Received: 00/00/00

Lab\* (?) Quest Diagnostics Incorporated    HL7:     Bill Type: Third Party

Specimen

Fasting: No    Source:    PSC Hold:

Collected:     Collection: 03/22/21    Time: 02:36 PM    Collected By:

Status: To be Ordered    If not done: Reason Code (?)

Note:

Select Template:

DO NOT USE THE "ALL" TEMPLATE

- All
- 1. Abd Pain Panel
- HEP B**
- 2. Dr Moizeau/Hepatitis
- 3. General Adult Panel
- 4. Anemia/DVT Panel
- 5. Stool Panel
- 6. Female Hormone Panel
- 7. Male Panel
- 8. Diabetes Panel
- 9. Thyroid/Parathyroid Panel
- 11. Seizure Med Levels and Others
- 12. Pathology/Cytology Panel
- 13. Autoimmune/Arthritis Panel
- 14. Allergy Panel
- 15. Suzy's Favorite
- 16. CHF/HTN Panel

Search:    <>

Lab Test	SS	Note	Dx (1)	Dx (2)	Dx	Specimen
<input checked="" type="checkbox"/> HBsAb HBsAg HBcore Ab (Group)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hepatitis B Core Ab Total (501)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hepatitis B Surface Ab, Qual.(Quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hep B Surface Ag W/reflex Confirm.(Quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hemoglobinopathy Evaluation (quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Prenatal B/hbs Ag/ua (quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hiv 1/2 Ag/ab, 4th Generation W/rf	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Hepatitis C Antibody (quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> *Obstetric Panel (quest)	Room Temp.				Dx	Not Req.
<input type="checkbox"/> Chlamydia/n. Gonorrhoeae Rna, Tma	Room Temp.				Dx	Not Req.

\*=Default    SS: Specimen State    Covered Dx(s)    Order Questions    Specimen Details    L=Limited Coverage, F=Freq Test, D=Non FDA

Select All    Deselect All    ICD - 10 are Operative Codes and ICD - 9 are Non - Operative Codes

Create reminder and link selected lab test(s) for recursive order.    Select Default Tests    Show Instruction    Add    Delete    Cancel    Save    Close

# END B Data Collection Y1-Y2 (July 2019 to June 2021)

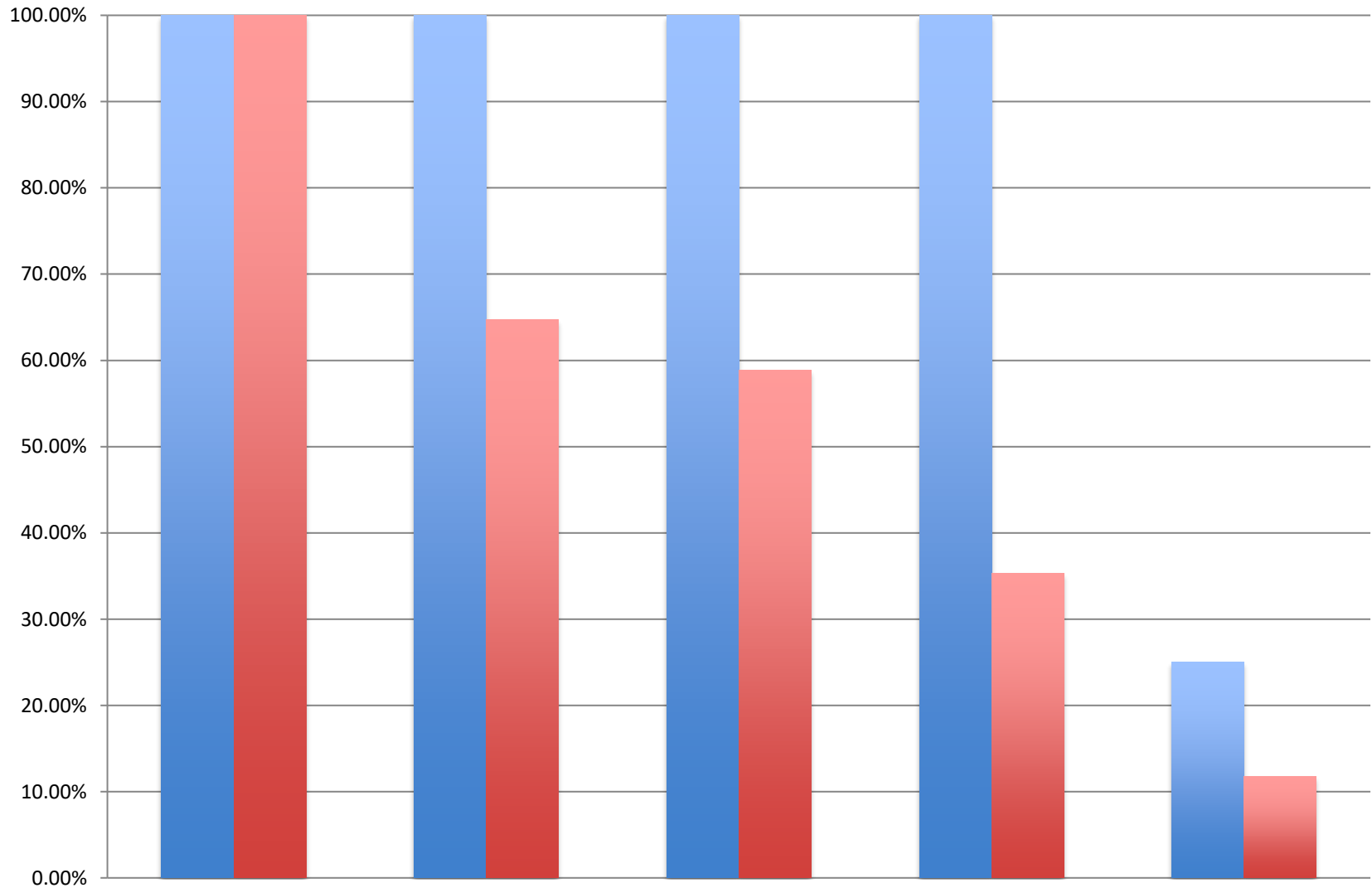
Population	Year 1*	Year 2 Q1	Year 2 Q2†	Year 2 Q3	Year 2 Q4	Total
OB HBsAg+	4	0	0	0	0	4
OB Tested	188	55	49	53	97	442
					Prevalence	0.9%
Asian HBsAg+	4	1	10	9	10	34
Asian Tested	65	36	78	87	192	458
					Prevalence	7.4%

\*March 2020: Shelter in Place (COVID-19)

†At-Risk for HBV Electronic Registry

**One Mom/baby lost to follow up:**  
**3 of 3 completed HBV Vaccination**  
**2 of 3 completed HBIG at birth**

# END B Care Cascade Y1-Y2



	HBsAg+	Linked to Care	Engaged in Care	Retained in Care	Anti-virals
Pregnant	4	4	4	4	1
Not Pregnant	34	22	20	12	4



# Achieving Hepatitis B Elimination

