

Immigrant Health Screening in Primary Care for Children: An Implementation Guide for CDS

Introduction

This document includes instructions for building Clinical Decision Support (CDS) to help with culturally sensitive determination of children potentially in need of Immigrant Health Screening (e.g. children born outside the US). The content for this CDS module was informed by two immigrant health advisory groups, one comprised of clinicians and another of parents of immigrant children- and immigrant youth. Guidance on screening is adapted from recommendations by the Centers for Disease Control and Prevention (CDC).

The CDS includes 3 interaction points:

1. A Best PracticeAlert (BPA) informing clinicians of potential immigrant health screening needs
2. Documentation support using a SmartList and Smart Phrases intended to be embedded within a well template.
3. A SmartSet which includes the recommended orders for immigrant health screening by the CDC

The build includes ~20 EHR components. Where able, you are encouraged to use existing content in your EHR if available (e.g. SmartDataElements for Non-US Birth) and should adapt the build guide accordingly. It is recognized that no two builds will be exactly alike. The included build list uses a suggested build order, but feel free to modify as needed.

Special Features:

In addition to standard EPIC content, the following are included in this CDS module.

Hyperlinks

Two hyperlinks are used and need to be made accessible in the EPIC environment (request to add to the 'white list').

1. CareRef: (<https://careref.web.health.state.mn.us/refugee-info>)
CareRef is a comprehensive guidance tool for immigrant and refugee health and is the reference for recommended orders contained within this CDS
2. Ask Where: (<https://www.health.state.mn.us/communities/rih/coe/askwhere.pdf>)
The *Ask Where* document is a 2-page handout that provides guidance for clinicians on how to ask about birth location in a culturally sensitive way.

SmartSet Links

The following code can be inserted as a hyperlink in EPIC to launch a SmartSet from within a Progress Note. Replace the *** below with the PRL ID of the SmartSet.

```
EpicAct:SECTION_REDIRECTOR_WEB,RunParamsURLEncoded:SMARTSETS%04MR_SMARTSET_VN;SKIPOPCHECK;STARTUPFIRST=1%2CSTARTUPCONTEXT=PRLs%0E***-%2CTOC=0
```

Purpose & Target Users:

The purpose of the CDS is to help primary care clinicians for children (1) identify patients who may need immigrant health screening in settings where birth country is not already collected as part of standard care and (2) to guide them to a smart set with suggested screenings. Rules prevent the display in patients who are unlikely to need this screening based on data in the EHR indicating a likely US birth or evidence of previous screening being considered. Our institution used the combination of (1) patients who were seen for care at an institution in the first 4 weeks of life (as these were likely born in the US), (2) those who have been seen in the practice for more than 2 years (to prevent over-firing for known patients which could be disruptive to care), (3) documentation of any birth location, and (4) previous use of the smart set. Sites may wish to modify these restrictors. Organizational workflows should be considered and may result in build changes.

Native EPIC Build and Assumptions

Recording birth location: A SmartDataElement (EPIC#3100006330) exists for recording US Birth. It is under the social history section of the hierarchy. It is a Boolean (using Yes/No values). Alternatively EPIC#35886 can be used for recording Birth Country as a String. Identifiers used are from the local installation and may differ across organizations.

Displaying lab tests: Organizations may have linked base names for labs or not we provide an examples of how lab details are given. If there are no base names, it is possible to use a grouper to manually select the relevant lab tests.

Screen Shots of CDS

Best Practice Alert (Inline Navigator)

Pathway Advisory (1)

Birth Country Not Known
✓ Accept (1)
✕
⬆

If born outside US, consider Immigrant Health screening
Access [guidance](#) on how to ask if needed.

Open Order Set
Do Not Open
Immigrant Health Screening (SmartSet) [Preview](#)

Acknowledge Reason _____

Not Applicable
Immigrant Health Screening Completed

✓ Accept (1)

Documentation Template Text

{HELP TEXT - *Birth Country Not Known*. Access [guidance](#) on how to ask if needed.
Review [Immigrant Health Screening SmartSet](#) if born outside US:37575}

Smart Set

▼ Immigrant Health Screening (Routine)

Basic screening is suggested recommended for MOST children born outside the US

- Additional screening should be based on birth country and patient age.
- See [CareRef](#) for location/age specific recommendations.

Historical relevant lab results (if present):
No results found for: "HBSAB", "HIV", "LEAD", "QFGPT", "PPD", "RPR", "EOS", "HGB", "SCHISTO"

▼ Basic Screenings Tests

- ☒ CBC/Platelet With Differential (standard for most children born outside the US)
 - Expires: 1/9/2025, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:85025.999, Blood, Venous, Blood
- ☒ Hepatitis B (standard for most children born outside the US) panel
 - ☒ Hepatitis B Surface Antibody
 - Expires: 7/7/2024, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:86706.001, Serum, Blood
 - ☒ Hepatitis B Surface Antigen
 - Expected: 1/9/2024, Expires: 1/9/2025, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:87340.001, Serum, Blood
 - ☒ Hepatitis B Total Core AB
 - Expected: 1/9/2024, Expires: 1/9/2025, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:86704.001, Serum, Blood
- ☒ HIV Antigen/Antibody (suggested for most children born outside the US)
 - Expires: 1/9/2025, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:86703.002, Plasma, Blood
- ☒ Lead Blood (suggested for most children born outside the US)
 - Expires: 7/7/2024, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:83655.010, Blood, Venous, Blood
- ☒ RPR Qualitative w/Rfx Titer (suggested for most children born outside the US)
 - Expires: 4/8/2024, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:86592.002, Blood, Venous, Blood
- ☒ Quantiferon Gold
 - Expected: 1/9/2024, Expires: 1/9/2025, Office Collect, Resulting Agency: [redacted] Routine, Procedure Master:86480.056, Blood, Venous, Quantiferon Collection Kit, Blood

☐ Ova and Parasites (recommended if not providing/received presumptive treatment)

- Office Collect, Routine Procedure Master: 87177.001, Stool

☐ Urine Pregnancy Test(Office) (recommended in recently arriving adolescent females)

- Back Office, Today Procedure Master: 81025.999

☐ C.trachomatis/N.gonorrhoeae (suggested for most teens)

- Office Collect Procedure Master: 87486.008, Urine, Urine

▶ Additional screening tests - See CareRef (link above) Click for more

▼ Presumptive Treatment

Presumptive treatment is an option for *Intestinal Parasites*.
Albendazole (single dose) is an effective treatment for soil transmitted helminths.
Ivermectin can be used for strongyloides without serology confirmation in patients >15 kg and NOT from Loa loa endemic countries.

▼ Presumptive Treatment Options

- ☐ albendazole 200 mg (for patients 12 months old to less than 24 months old)
 - Disp-1 tablet(s), R-0
- ☐ albendazole 400 mg (for non-pregnant patients over 24 months old)
 - Disp-2 tablet(s), R-0
- ☐ ivermectin (Avoid in individuals from loa loa-endemic countries - Consult CareRef)
 - R-0

▼ Diagnoses Click for more

- ☒ Encounter for health counseling related to travel [Z71.84]
- ☒ Encounter for screening for infectious and parasitic diseases, unspecified [Z11.9]
- ☒ Screening for lead poisoning [Z13.88]

⚙ Click here to select a pharmacy

⚙ Associate
✎ Edit Multiple
👤 Providers
✕ Remove
⏸ Pend
✓ Sign

Immigrant Health Screening CDS Build

INI	Component Name	Purpose/Notes/ Pre-requirements	Build Guidance and Detailed instructions
SmartSet Build			
OSQ-1 [] done	HEP B PANEL	<i>Note: Order names may be different at your site</i>	Components of Panel (All preselected): Amb Order: Hepatitis B Surface Antibody Amb Order: Hepatitis B Surface Antigen Amb Order: Hepatitis B Total Core AB
OSQ-2 [] done	ROUTINE LABS	<i>Note: Order names may be different at your site</i>	Display Name: Basic Screening Tests SmartGroup Info: remove check from 'show only checked upon loading' Components of SmartGroup (+ indicates preselected): +Amb Order: CBC, Platelet With Differential (recommended in most patients) +Amb Panel: [OSQ-1] +Amb Order: HIV Antigen/Antibody +Amb Order: Lead Blood +Amb Order: RPR Qualitative w/Rflx Titer +Amb Order: Quantiferon Gold Plus Amb Order: Ova and Parasites (recommended if not providing/received Amb Order: Urine Pregnancy Test (recommended in recently arrived adolescent females) Amb Order: C. trachomatis/N. gonorrhoeae (recommended for most teens)
OSQ-3 [] done	OTHER LABS	<i>Note: Order names may be different at your site</i>	Display Name: Additional screening tests - See CareRef (link above) Components of SmartGroup (+ indicates preselected): Amb OrderBasic Metabolic Panel-COMBO Amb OrderG6PD Screen w/reflx to Quant Amb OrderHemoglobin A1C-COMBO Amb OrderHepatitis C Ab w/ Reflex-COMBO Amb OrderHepatic Function Panel Amb OrderLipid Panel-COMBO Amb OrderNBS PA Supplemental - Initial Amb OrderRapid Cryptosporidium/Giardia antigen-COMBO Amb OrderStrongyloides Antibody IGG Amb OrderThyroid Stimulating Hormone-COMBO Amb OrderVitamin D 25 OH-COMBO Amb OrderVitamin B12 Level-COMBO Amb OrderUric Acid (Bld)-COMBO Amb OrderUrinalysis Rflx to Microscopic Evaluation COMBO

INI	Component Name	Purpose/Notes/ Pre-requirements	Build Guidance and Detailed instructions
OSQ-4 [] done	PRESUMPTIVE TREATMENT	<i>Note: Order names may be different at your site</i>	<p>Components of SmartGroup</p> <p>Amb Order: Albendazole 200 mg (for patients 12 months old to less than 24 months old) 200 mg, Oral, ONCE, Disp-1 tablet(s), R-0</p> <p>Amb Order: Albendazole 400 mg (for non-pregnant patients over 24 months old) 400 mg, Oral, ONCE, Disp-2 tablet(s), R-0</p> <p>Amb Order: Ivermectin (Avoid in individuals from loa loa-endemic countries - Consult CareRef) 200 mcg/kg/DOSE, DAILY, Starting S for 2 days, R-0</p>
OSQ-5 [] done	DIAGNOSES	<i>Note: Diagnosis names may be different at your site</i>	<p>Components of SmartGroup (+ indicates preselected):</p> <p>+Dx Encounter for health counseling related to travel [Z71.84]</p> <p>+Dx Encounter for screening for infectious and parasitic diseases, unspecified [Z11.9]</p> <p>Dx Screening for tuberculosis [Z11.1]</p> <p>Dx Screening for endocrine, nutritional, metabolic and immunity disorder [Z13.29, Z13.21, Z13.228, Z13.0]</p> <p>Dx Screening for lead poisoning [Z13.88]</p>
PRL-1 [] done	IMMIGRANT HEALTH SCREENING	<p>SmartSet for including the guidance, with the OSQs included listed below</p> <p>Hyperlink: Care Ref</p> <p><i>NOTE: Do not let the system auto-select the smart set ID, chose your own with a high number so the in production the number will be the same</i></p> <p><i>NOTE: Associate labs (OSQ2-4) with OSQ-5 once all OSQs are added to the PRL</i></p>	<p>Display Name: Immigrant Health Screening (SmartSet)</p> <p>Section 1:</p> <p>Display Name: Immigrant Health Screening (Routine)</p> <p>Description Text:</p> <p>Immigrant Health Screening recommended for children born outside the US</p> <p>Individual screening indications are based on birth country and patient age. See CareRef for birth location and age specific recommendations.</p> <p><i>Summary of potentially relevant lab tests:</i></p> <p>@LASTLAB(HBSAB:1,HIV:1,LEAD:1,QFGPT:1,PPD:1,RPR:1, EOS:1,HGB:1,SCHISTO:1)@</p> <p>SmartGroup: OSQ-2</p> <p>SmartGroup: OSQ-3</p> <p>Section 2:</p> <p>Display Name: Presumptive treatment</p> <p>Description Text:</p> <p>Presumptive treatment is an option for Intestinal Parasites.</p> <p><i>Albendazole (single dose) is an effective treatment for soil transmitted helminths.</i></p> <p><i>Ivermectin can be used for strongyloides without serology confirmation in patients >15 kg and NOT from Loa loa endemic countries.</i></p> <p>SmartGroup: OSQ-4</p> <p>Section 3:</p> <p>Display Name: Diagnoses</p> <p>SmartGroup: OSQ-5</p>

INI	Component Name	Purpose/Notes/ Pre-requirements	Build Guidance and Detailed instructions
On/Off Switch For Displayed Components			
CER-1 [] done	Period starts prior to 2 years ago Example Screenshot	Filter for events occurring more than 2 years ago	Context: <i>Registry Metrics Search Period Filter</i> Property: <i>Search By Reference Date</i> Reference Date: <i>Today</i> Relative Latest Date: <i>y-2/m/d</i> Operator: <i><></i> Result: <i>Property Column Value</i>
CER-2 [] done	Period in the first 4 weeks of life	Filter for events occurring in the first 4 weeks of life	Context: <i>Registry Metrics Search Period Filter</i> Property: <i>Search By Reference Date</i> Reference Date: <i>Date of Birth</i> Relative Latest Date: <i>y/m/d+28</i> Operator: <i><></i> Result: <i>Property Column Value</i>
CER-3 [] done	PATIENT LOCATOR Example Screenshot	Rule to determine when content does NOT display Note: The CDS is intended to display only in patients without (1) a visit more than 2 years ago, (2) or a visit in the first 3 weeks of life, (3) or previous data filing (indicating that the BPA was handled), or (4) without someone having used the SmartSet already. <u>It is otherwise TRIGGERLESS.</u> This is intention to avoid encoding biases into triggers (e.g. triggering only in patients with non-English languages).	Context: Patient BPA Locator LOGIC: NOT (1 or 2 or 3 or 4) 1) Property: First Encounter Date Rule = CER-1, include all encounter types 2) Property: First Encounter Date Rule = CER-2, include all encounter types 3) Property: SmartDataElement Value=EPIC#3100006330, Context is Patient, operator is "Contain Any", Value is Yes, No 4) Property: C_Smartset_Selected Value = PRL-1 (ID)
Documentation Template			
ETX-1 [] done	INSIDE US BIRTH	Display on 'No' for may need immigrant health screening	Limit Use: Functional Type = MR Charting Text to include: Health screening based on location of birth not indicated.
ETX-2 [] done	OUTSIDE US BIRTH	Display on 'yes' for may need immigrant health screening Hyperlink: SmartSet Link Code	Limit Use: MR Charting Text to include: <i>Smart Sets considered for relevance: Immigrant Health Screening Smart Set</i>

INI	Component Name	Purpose/Notes/ Pre-requirements	Build Guidance and Detailed instructions
ELT-1 [] done	SELECT BIRTH LOCATION Example Screenshot	List content for the immigrant health screening ETX On select, set SDE of BIRTH LOCATION to TRUE or FALSE	Select: Use Discrete Data Display Name: Any Text (it will be overwritten) Use Discrete Data Checked Reselectable Unchecked Include as Label Unchecked Choice: {Born in the US:TXT,ETX_1(ID)} {Born outside the US:TXT,ETX_2(ID)} Choice SDE: EPIC#31000006330 (Patient) set to True or False respectively
ETX-3 [] done	DOCUMENT BLOCK	Content to add in the documentation template 'guidance' hyperlink: Ask Where Other hyperlink: SmartSet Link Code	Limit Use: MR Charting Text to include: { HELP TEXT - Birth Country Not Known. Access guidance on how to ask if needed. Review Immigrant Health Screening SmartSet if born outside US:ELT_ID_1}
ETX-4	INSERTION WRAPPER	Content to control show/hide display of documentation block within a progress note Note: do not use refreshable link This can be inserted in any note template as per workflow considerations.	Limit Use: MR Charting Text to include: @CERMSG(CER-3[ID]:ELT-3[ID])@
Best Practice Alert			
ETX-1 [] done	BPA TEXT	Text to display in the BPA 'guidance' hyperlink: Ask Where	Limit Use: Functional Type = BPA Text to include: If born outside US, consider Immigrant Health screening Access guidance on how to ask if needed.
HHS-1 [] done	LINK FOR BPA TEXT	Link for BPA Text	Type: SmartText Mnemonic: ASCIBPATEXT Record: ETX-2 Context: BPA
LGL-1 [] done	LOCATOR CRITERIA	BPA display criteria <i>Pre-requirements [CER patient locate]</i>	Type: Criteria Rule: CER-3

INI	Component Name	Purpose/Notes/ Pre-requirements	Build Guidance and Detailed instructions
LGL-2 [] done	BPA Example Screenshot	Main BPA for intervention	Display to User: Yes Unformatted Text: If born outside the United States consider Immigrant Health Screening Formatted Display Text: Birth Country Not Known SmartLink: HHS-1 Importance Level: Pathway Advisory Summary Text: Birth Country Not Known Criteria: LGL-1 Restrictions: Encounter Type: Office Visit Action: SmartSet [PRL-1], Manually Selected Acknowledge Reasons: 1 – Not Applicable, Lockout =12000000 hours, all users, Button=Yes, Caption = “Not Applicable”, EPIC#31000006330, value =TRUE 2 – Clinician Acknowledged, Lockout =12000000 hours, all users, Button=Yes, Caption = “Immigrant Health Screening Completed Elsewhere”, SDE= EPIC#31000006330, VALUE = FALSE

Build Screenshots Examples

Example: CDS build for Period starts prior to 2 years ago:

Period starts prior to 2 years ago

This rule is intended to identify dates that occurred more than 2 years before the date |

Return type:

Evaluation logic:

Show Parameter Values

#	Property	Operator	Value	Result Type	Result
1: General Properties - Search Period by Reference Date					
	Reference Date		Today [1]		Today [1]
	Relative Latest Date		y-2/mid		y-2/mid
	Relative Earliest Date				
	Operator:	<input type="button" value="=<"/> <input type="button" value="=>"/> <input type="button" value="=<="/> <input type="button" value="=>="/> <input type="button" value="<"/> <input type="button" value=">"/> <input type="button" value="<="/> <input "="" type="button" value=">="/> <input type="button" value="String Contain"/> <input type="button" value="String Not Contain"/> <input type="button" value="String Pattern"/> <input type="button" value="String Not Pattern"/>			
	Value:				
	Property:				
	Result type:		<input type="button" value="Property Column Value"/> <input type="button" value="Out"/> <input type="button" value="Number"/> <input type="button" value="Property"/>		
	Result:				

Example: Rule logic for On/Off Switch

PCC ASCI PATIENT LOCATOR

Looks for patients (returns true) if NEITHER
 1) visit more than 2 years in the past
 2) visit in the first month of life

Evaluation logic: (not (1 or 2 or 3 or 4))

Show Parameter Values

Appointment Statuses to Exclude

Department Groupers to Include

Department Groupers to Exclude

Included Department List

Rule Filter

Look Back Period

Start Date

Department Specialties to Include

Search Period Filter Rule

Period in the first 4 weeks

3 Patient -

SmartData Element

SOCIAL HISTORY - BIRTH COUN

SmartData Context

PATIENT [1]

Multiple Line Delimiter

" "(contains=space) [1]

Freelined Delimiter

4 Patient - C_SmartList_Selected -

Example: Smart List Build

System SmartList - CHOP AMB PCC ASCI INITIAL SELECT LIST [37575]

Choice	Default?	SDE	Context	Value
{Born in the US.TXT,37284}		IMMIGRANTBI...	Patient	TRUE
{Born outside the US.TXT,37333}		IMMIGRANTBI...	Patient	FALSE

Name: ID:

Display Name: ☐ Include as label

Version: 1 (10/18/2022)

☐ Reselectable ☐ Optional ☐ Use Rules

Example: Best Practice Advisory

Contact Comment

Comments: Alert that notes a patient is recently arrived in practice and suggests getting old records/immigrant health screening.

Display

Importance level: Pathway Advisory [25]
 Header text: If born outside the United States consider Immigrant Health Screening
 Formatted header text: **Birth Country Not Known**
 Summary Text: Birth Country Not Known
 Body SmartLink: [PCC ASCI BPA LINK \[102959\]](#)

Criteria

1. [PCC ASCI PATIENT LOCATOR CRITERIA \[5036\]](#)

Restrictions

Encounter limitation inclusion:

Service Area	Location	Location Group	Specialty	Department	Department Group	Encounter Type	Provider Type
						Office Visit	

Triggers

Potential triggering actions:

- General BPA section
- Reporting Workbench
- Header BPA Notifications

SmartSets, Order Sets, and Pathways

SmartSets, Order Sets, and Pathways

Status	Open As	Frequency
IMMIGRANT HEALTH SCREENING Released	Use Department Setting	Manually Selected

Acknowledge Reasons

Acknowledge Reason	Lockout Time	Apply To	Button?	Button Caption	SmartData Element	Context Value	Extension	Comment Allowed?	Comment Required?
Clinician Acknowledged	1200000 hour(s)	All users, current encounter only	Yes	Not Applicable	IMMIGRANTBIRTHCOUNTRY	No	No	No	No
Not Applicable	1200000 hour(s)	All users, current encounter only	Yes	Immigrant Health Screening Completed	IMMIGRANTBIRTHCOUNTRY	Yes	No	No	No

Acknowledge reason requirement: None

Success Tracking

Standard Success

Standard success methods: Any Action Taken

Comprehensive Success

Comprehensive success method: No Comprehensive Success

User Feedback

Feedback Status: Disabled