

Data sharing for surveillance and continuity of care from birth to diagnosis to public health:

How one enterprise-wide electronic medical record supports early hearing detection and intervention efforts

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APHA – Prevention & Wellness Across the Life Span
October 29, 2012

Presenter Disclosures

Katharine S West

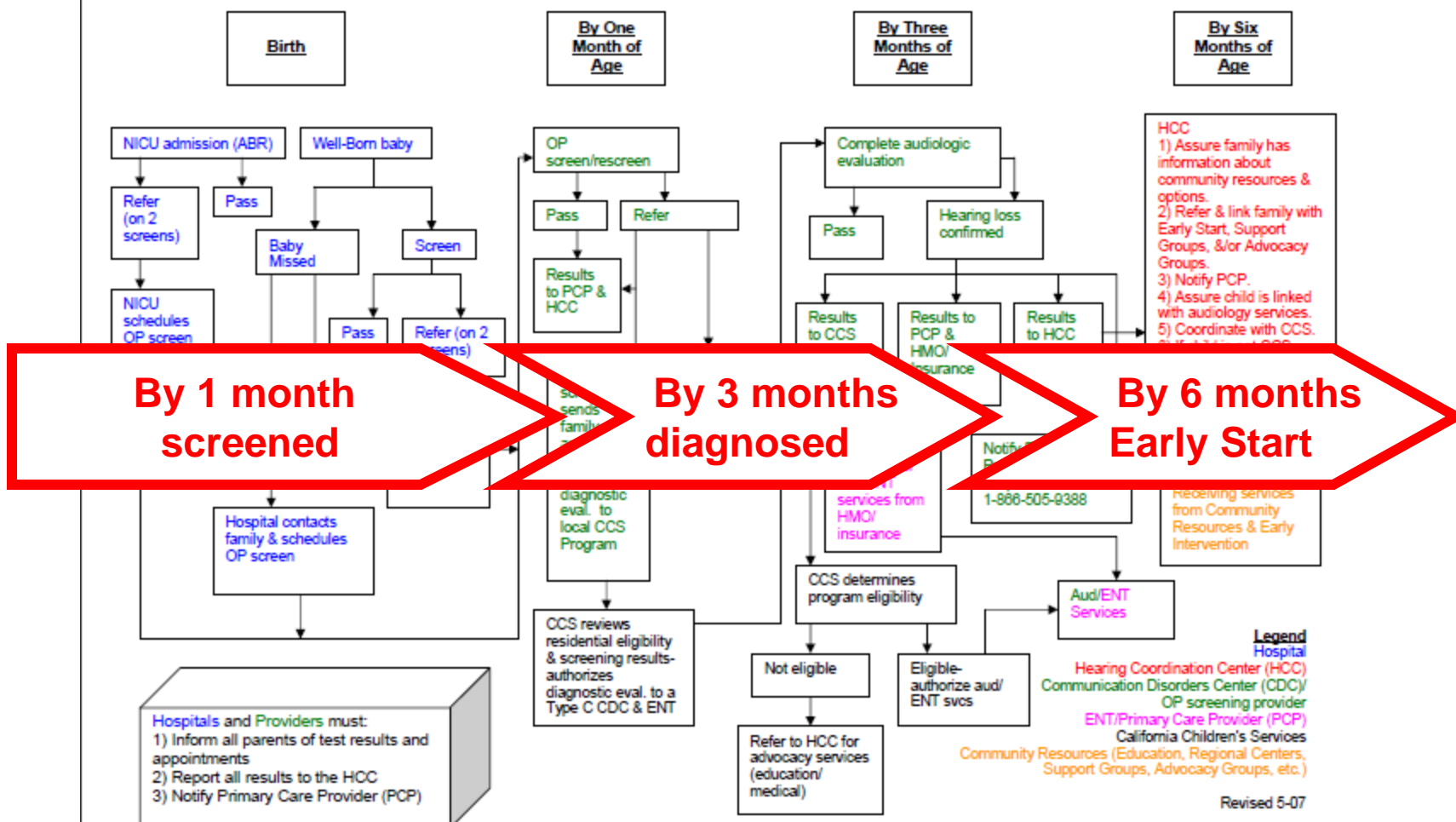
The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Why we screen



California Newborn Hearing Screening Program (NHSP)



By 1 month screened

By 3 months diagnosed

By 6 months Early Start

Principles of Collaboration

- Current situation needs changing
- A vision for action
- Relevant stakeholders are included
- Relevant stakeholders are interdependent
- Commitment and/or involvement of prominent leaders
- Some form of integrating structure

From Birth to Public Health Data: The Synergy of Collaboration

Phase 1: Inpatient Documentation Flowsheet (DFS) & SmartTools

Phase 2: Audiology Ambulatory Documentation Flowsheet (DFS)

Phase 3: Ambulatory DFS-Linked SmartTools

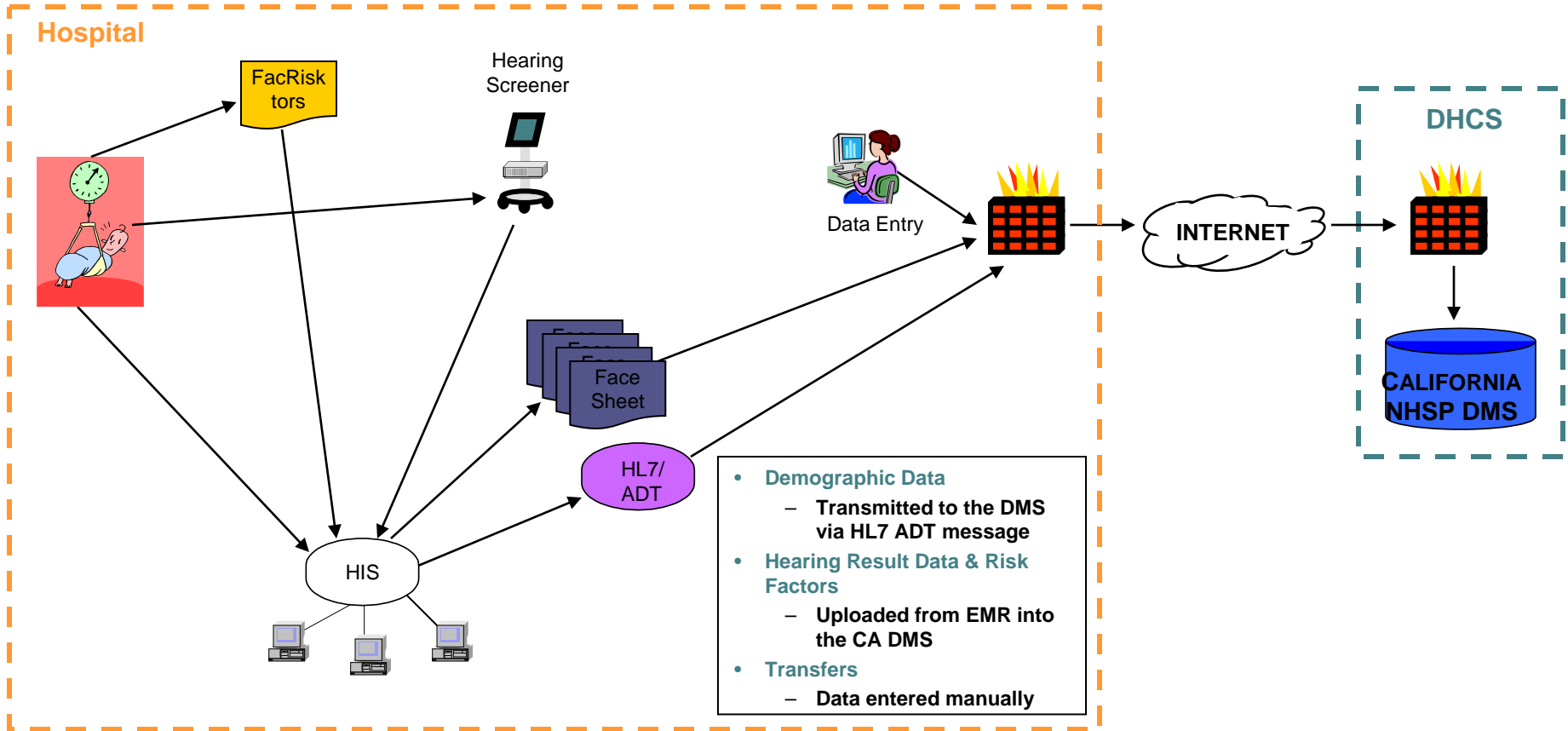
24/7 Interactive Support

Northern California & Southern California
Kaiser Permanente Collaborative Build

Phase 1: Inpatient Documentation Flowsheet (DFS)

- COMPATIBLE WITH ALL KAISER REGIONS' STATE REQUIREMENTS
- LINKED TO STATIC PATIENT REVIEW REPORTS, PROGRESS NOTES, DISCHARGE INSTRUCTIONS, & LETTERS
- 78 FIELDS, DEPENDING ON CASCADING LOGIC
- BASIS OF REQUIRED REPORTING TO CA NEWBORN HEARING SCREENING PROGRAM & DATA MANAGEMENT SYSTEM (DMS)

Transmission Mode: Fully Auto (batch)



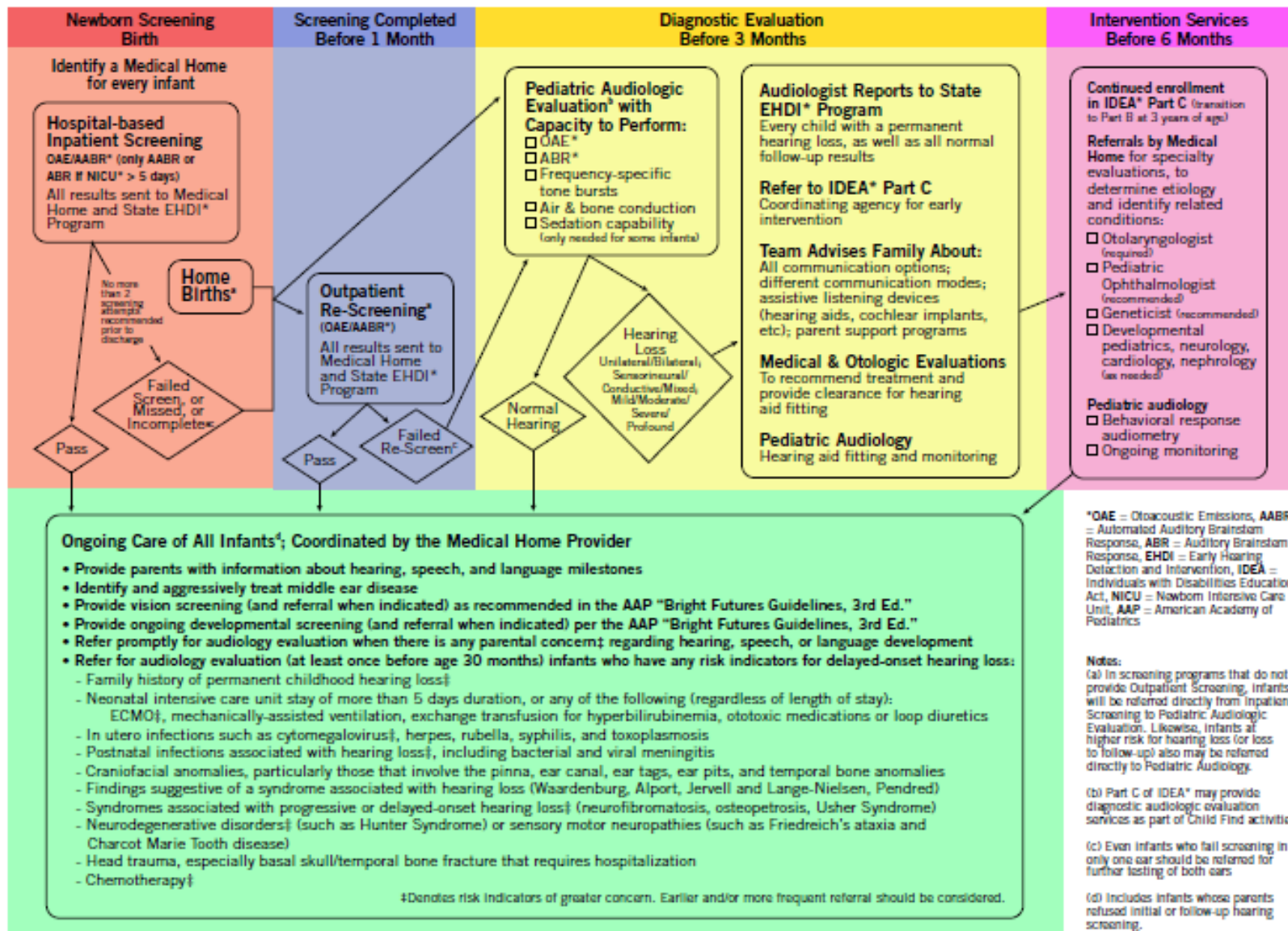
Phase 2: Ambulatory Documentation Flowsheet (DFS)

- COMBINED OP RESCREENING & DIAGNOSTIC EVALUATION ASSESSMENT RESULTS & RELATED DOCUMENTATION
- INITIATED USE OF EARLY HEARING DETECTION & INTERVENTION EPISODE (DIAGNOSIS SPECIFIC FILTER)
- BASIS OF REQUIRED REPORTING (FAX ONLY) TO CA NHSP
- CA HAS NO PLANS FOR AMB DATA TRANSMISSION

Phase 3: Ambulatory Flowsheet Patient Chart Report (static)

- LINKED TO PHASE 2 AMB DFS
- INCLUDES IN ONE LOCATION: IP RESULTS, OP RESULTS, DIAGNOSTIC AUDIOLOGICAL RESULTS, CLINICAL REFERRAL DATES, EARLY START REFERRAL DATES & OTHER PERTINENT INFORMATION
- REPLICATES AAP MEDICAL HOME FLOWSHEET

Early Hearing Detection and Intervention (EHDI) Guidelines for Pediatric Medical Home Providers



Phase 3: Linked Documentation: SmartText / SmartPhrase

- LINKED TO PHASE 2 AMB DFS
- COMPLIANT DOCUMENTATION (PROGRESS NOTES) FOR EXPEDITED CHARTING
- PARENT CONTACT SMARTPHRASES FOR FOLLOW-UP LETTERS (e.g., No Show)
- CHART ROUTING TO PRIMARY CARE OR SPECIALISTS VIA MESSAGE ENCOUNTERS

Phase 3: CA NHSP Reporting Forms

- LINKED TO PHASE 2 AMB DFS
- REPORTING “LETTERS”
 - CA NHSP OUTPATIENT REPORTING FORM
 - DIAGNOSTIC REPORTING FORM
- PROGRAMMED TO “PRINT” TO FAX FOR PAPERLESS REPORTING
- TAGGED FOR DISCLOSURE ACCOUNTING (ROI = RELEASE OF INFORMATION) FOR TRACKING PUBLIC HEALTH DATA REPORTING

Outpatient Reporting Forms

California Newborn Hearing Screening Program
Outpatient Screening Reporting Form

Please complete this form and Fax to 909-558-3482 or Mail to the South Eastern California Hearing Coordination Center, 11234 Anderson Street, MVP-185, Loma Linda, CA 92354, within seven days of the child's outpatient hearing screening. **DO NOT** attach waveforms, OAE printout, audiograms or reports. If the family does not appear for the scheduled appointment and you have difficulty in rescheduling the outpatient hearing screening, please contact the Hearing Coordination Center at 909-558-3478.

I. Screening Provider: _____ Phone: _____ Fax: _____
 Date of Screen: _____

Infant's Name: _____ Date of Birth: _____ Gender: Female Male
 AKA: _____ Phone: _____

Primary Care Provider (PCP): _____ WBN NICU County: _____
 Birth Hospital: _____
 Insurance: Medi-Cal HMO Private Insurance Uninsured Unknown
 Mother's Name (or Legal Guardian): _____ Phone Number: _____
 Address: _____
 Primary Language: English Spanish Other (specify) _____

Comments: _____ Initial Screen (1st, no previous screening inpatient or outpatient) Re-screen (2nd)

	DPOAE	TEOAE	ABR(Screening)
Right Ear	<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> Pass <input type="checkbox"/> Refer
Left Ear	<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> Pass <input type="checkbox"/> Refer	<input type="checkbox"/> Pass <input type="checkbox"/> Refer

III. For infants who do not pass the outpatient screening:

Referral to CCS
 Name of County: _____ Yes No
 Family's CCS application was forwarded to local CCS program

Referred for Diagnostic Evaluation
 Name of Provider: _____ Reason appointment not scheduled: _____
 Date of Appointment: _____ Phone: _____

Contact Information (Relative or Friend):
 Name: _____ Relationship: _____
 Address: _____ Phone: _____

IV. Parent/Guardian Refused Services: Yes Refused by: _____

V. Parent/Guardian Contact Attempts: Document at least 3 attempts to contact the family.
 1. Contact: Mail Phone Fax Date: _____ Result: _____
 2. Contact: Mail Phone Fax Date: _____ Result: _____
 3. Contact: Mail Phone Fax Date: _____ Result: _____

This information is to be provided pursuant to Section 124119 of the California Health and Safety Code that requires you report the results of audiological follow-up services provided through the California Newborn Hearing Screening Program.

NHSP 200-1 Region C Rev 406

California Newborn Hearing Screening Program
Diagnostic Newborn Hearing Screening Program
Audiologic Evaluation Reporting Form

Please complete this form and Fax to 562-933-8157 or Mail to the Southern California Hearing Coordination Center, 2801 Atlantic Avenue, Long Beach, CA 90806, within seven days of the child's diagnostic Audiologic Evaluation. **DO NOT** attach waveforms, OAE printout, audiograms or reports. If the family does not appear for the scheduled appointment and you have difficulty in rescheduling the outpatient hearing screening, please contact the Hearing Coordination Center at 562-933-8152.

Infant's Name: _____
 AKA: _____
 Birth Hospital: _____ Date of Birth: _____ Date of Eval: _____
 Primary Care Provider (PCP): _____ Gender: F M Medical Record No.: _____
 Parent or Legal Guardian: _____
 Address: _____ Phone: _____ WBN NICU
 Zip: _____

Test Results: Indicate all components that apply. Diagnostic evaluations should be completed as per the California Infant Audiology Assessment Guidelines and the Joint Committee on Infant Hearing Year 2000 Position Statement.

Type of Hearing Loss Leave blank if hearing is normal!	RIGHT	LEFT
	<input type="checkbox"/> Normal 0-20 dB <input type="checkbox"/> Mild 21-40 dB <input type="checkbox"/> Moderate 41-70 dB <input type="checkbox"/> Severe 71-90 dB <input type="checkbox"/> Profound 91+ dB <input type="checkbox"/> SNHL <input type="checkbox"/> CHL <input type="checkbox"/> SNHL <input type="checkbox"/> CHL <input type="checkbox"/> permanent <input type="checkbox"/> transient <input type="checkbox"/> Mixed <input type="checkbox"/> Auditory Neuropathy/Dys-synchrony <input type="checkbox"/> Undetermined/testing not completed next appt*: _____	<input type="checkbox"/> Normal 0-20 dB <input type="checkbox"/> Mild 21-40 dB <input type="checkbox"/> Moderate 41-70 dB <input type="checkbox"/> Severe 71-90 dB <input type="checkbox"/> Profound 91+ dB <input type="checkbox"/> SNHL <input type="checkbox"/> CHL <input type="checkbox"/> SNHL <input type="checkbox"/> CHL <input type="checkbox"/> permanent <input type="checkbox"/> transient <input type="checkbox"/> Mixed <input type="checkbox"/> Auditory Neuropathy/Dys-synchrony <input type="checkbox"/> Undetermined/testing not completed next appt*: _____

* Should be scheduled ASAP, program goals include diagnosis of hearing loss by 3 months of age and entry into Early Intervention services by 6 months.

Discussion: _____

Amplification Status: Not Required Not Recommended Recommended Refused
 Explain: _____

Other Diagnoses Related to Hearing Loss: _____

Plan/Follow-up appt: _____

Referral to ENT: Date: _____ Physician: _____

Referral to CCS: Yes: Date: _____ No: Already known to CCS: _____
 Application: Request for Service County: _____
 Referral to Early Start (1-866-505-9388): Date: _____ Hearing loss information given to parent/guardian: Yes No

Parent/Guardian refused services: Yes Refused by: _____
 Date: _____

Parent/Guardian Contact Attempts: Document at least 3 attempts to contact the family.
 1. Contact: Mail Phone Fax Date: _____ Result: _____
 2. Contact: Mail Phone Fax Date: _____ Result: _____
 3. Contact: Mail Phone Fax Date: _____ Result: _____

Audiology Facility: _____
 Audiologist Name (Print) _____
 Signature _____ Phone: _____
 Fax: _____
 Lic.# _____

This information is to be provided pursuant to Section 124119 of the California Health and Safety Code that requires you report the results of audiological follow-up services provided through the California Newborn Hearing Screening Program.

NHSP 300-1 Regions D & E Rev 406

Best Practice Alert (BPA)

- LINKED TO PHASE 2 AMB DFS
- TRIGGER ONLY WHEN REFER RESULT, BY AGE, WHEN NO AMB APPOINTMENT IS SCHEDULED
- TIMELY FOLLOW-UP REQUIRED BY CA NHSP [*Health and Safety Code Sections relating to newborn hearing screening with amendments required by Assembly Bill (AB) 2651, Chapter 335, Statutes of 2006*]

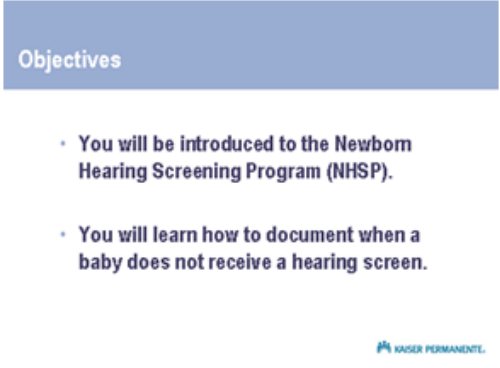
Clarity Reports

- LINKED TO PHASE 2 AMB DFS
- FOR AUDIOLOGY DEPT USE FOR STATE MANDATED CLINICAL TRACKING OF INFANTS FOR AUDIOLOGY FOLLOW-UP ACTIVITIES
- MEETS STATE REQUIREMENT FOR PROACTIVE PROVIDER-LED MANAGEMENT OF AMBULATORY NEWBORN HEARING SCREENING PROGRAM VIA DEPT LOGS

24/7 EndUser Support

- ON DEMAND SHORT VIDEOS (BY SCENARIO)
 - NEW STAFF ORIENTATION
 - COMPETENCY TESTING
 - JUST-IN-TIME INSTRUCTIONS
- ONLINE INTERACTIVE PDF JOB AIDS
 - STEP-BY-STEP BOOKLETS
 - POCKET CARDS

Interactive Training Videos

Step	Script	Action	Action Note	Tech Alert	External Files	Callouts & Transitions	Screenshot
1.	Welcome to the Newborn Hearing Screening Program, Introduction Overview and Hearing Screening Not Done Video for Inpatient Nurses.				Video1.ppt		 <p>Newborn Hearing Screening Program</p> <p>Video 1 of 3 Intro / Overview and Screening Not Done</p> <p><small>KASER PERMANENTE.</small></p>
2.	This video introduces you to the Newborn Hearing Screening Program. You also learn how to document if a baby does not receive a hearing screen.	Bullet points fade in one at a time with voiceover			Video1.ppt	fade	 <p>Objectives</p> <ul style="list-style-type: none"> You will be introduced to the Newborn Hearing Screening Program (NHSP). You will learn how to document when a baby does not receive a hearing screen. <p><small>KASER PERMANENTE.</small></p>

Newborn Hearing Screening Program

Inpatient Nurses and Hearing Screeners document in the Newborn Hearing Screening flowsheet for every newborn.



▼ NHSP Videos

TOPIC	Read	Watch	Do	Add
NHSP-Introduction / Overview, Hearing Screening Not Done (05:11) NEW! [Video Inpatient Jul 2010] Content created prior to the 2010 Release. Newborn Hearing Screening Program (NHSP) for Inpatient Nurses and Hearing Screeners: Introduction and Overview and Hearing Screening Not Done. Document a Waived / Refused hearing screening. Author: SSD Training Updated:10/05/2012				
NHSP - Documenting a Pass Result (05:09) [Video Inpatient Jul 2010] Content created prior to the 2010 Release. Newborn Hearing Screening Program (NHSP) for Inpatient Nurses and Hearing Screeners: Document a Pass Result for a newborn who Passes an initial screen and a newborn who Passes after an initial Refer. Author: SSD Training Updated:06/25/2010				
NHSP - Refer to Outpatient (OP) (04:40) [Video Inpatient Jul 2010] Content created prior to the 2010 Release. Newborn Hearing Screening Program (NHSP) for Inpatient Nurses and Hearing Screeners: Document a Referral to Outpatient (OP) for a newborn who Refers. Author: SSD Training Updated:07/14/2010				
NHSP - Atresia / Microtia Refer to DAE (02:59) [Video Inpatient Jul 2010] Content created prior to the 2010 Release. Newborn Hearing Screening Program (NHSP) for Inpatient Nurses and Hearing Screeners: Document a referral to Diagnostic Audiological Evaluation (DAE) for a newborn with Atresia / Microtia. Author: SSD Training Updated:06/25/2010				

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Interactive Training Files

California Newborn Hearing Screening Program (NHSP)

The statewide NHSP helps identify hearing loss in infants and guides families to the appropriate services needed to develop communication skills. The “Audiology Combined Outpatient Reporting Form (ORF) and Diagnostic Audiological Evaluation (DAE) Documentation (Doc) Flowsheet” will auto-populate the ORF and DAE reporting forms using any type of ambulatory encounter such as Letter, Message, Office Visit, or Chart Review. This document covers the office visit encounter. Another job aid will address completion of the state reporting forms using a KPHC letter template.

-
- Completing [Doc Flowsheet](#) Rows
 - [Doc Flowsheet Groups](#) Common to All Scenarios
 - [Scenario 1](#): If Baby is a “No Show”
 - [Scenario 2](#): Initial or Repeat Newborn Hearing Screen and Baby Passes
 - [Scenario 3](#): Initial or Repeat Newborn Hearing Screen and Baby Refers. DAE Appointment is Scheduled
 - [Scenario 4](#): DAE Appointment and the Result is Normal Hearing.
 - [Scenario 5](#): DAE Appointment and Result is Diagnosis of Hearing Loss Confirmed
 - [Create HCC/State](#) ORF or DAE Report
 - Creating and Linking an [Episode](#) to Encounter

Note: To navigate to the document sections, left-click on the hyperlink. Adobe bookmarks can also be used.

Pocket Card Job Aids

<p align="center">Newborn Hearing Screening – 1 of 4</p> <p>MINIMUM ROWS TO BE COMPLETED ON ALL IN-PARENT RECEIVING A HEARING SCREEN</p> <ul style="list-style-type: none"> <input type="checkbox"/> Newborn Hearing Status <input type="checkbox"/> Risk Factors <input type="checkbox"/> NHBP Parent Teaching <input type="checkbox"/> NHBP Printed Information <input type="checkbox"/> NHBP Brochure Language <input type="checkbox"/> Technology – ABR <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening <input type="checkbox"/> Initial Ear <input type="checkbox"/> Initial Ear <p>PASS INITIAL SCREEN</p> <ol style="list-style-type: none"> Newborn Hearing Screening Program Information group <ul style="list-style-type: none"> <input type="checkbox"/> Hearing Status Row – change entry to Completed <input type="checkbox"/> Risk Factors <input type="checkbox"/> NHBP Parent Teaching <input type="checkbox"/> NHBP Printed Information <input type="checkbox"/> NHBP Brochure Language Initial Screening Results group <ul style="list-style-type: none"> <input type="checkbox"/> Technology – enter ABR <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening from equipment printout <input type="checkbox"/> Enter results for both ears <input type="checkbox"/> Click File or close the chart 	<p align="center">Newborn Hearing Screening – 2 of 4</p> <p>PASS REPEAT SCREEN - 1</p> <p>Initial screen results in a REFER.</p> <ol style="list-style-type: none"> Newborn Hearing Status – change entry to Repeat Needed Initial Screening Results group <ul style="list-style-type: none"> <input type="checkbox"/> Technology – enter ABR <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening from equipment printout <input type="checkbox"/> Enter results for both ears NOTE: Refer result will cascade the Repeat Hearing Results group Click File or close the chart. Follow local procedure for time interval before rescreening. <p>PASS REPEAT SCREEN - 2</p> <p>Repeat screen results in a PASS.</p> <ol style="list-style-type: none"> Newborn Hearing Screening Program Information group <ul style="list-style-type: none"> <input type="checkbox"/> Hearing Status Row – change entry to Completed <input type="checkbox"/> Risk Factors <input type="checkbox"/> NHBP Parent Teaching <input type="checkbox"/> NHBP Printed Information <input type="checkbox"/> NHBP Brochure Language Repeat Hearing Screen Results group <ul style="list-style-type: none"> <input type="checkbox"/> Technology – enter ABR <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening from equipment printout <input type="checkbox"/> Enter results for both ears Click File or close the chart
<p align="center">Newborn Hearing Screening – 3 of 4</p> <p>REFER: SCHEDULE FOR OP APPOINTMENT - 1</p> <p>Repeat screen results in a REFER in one or both ears.</p> <ol style="list-style-type: none"> Newborn Hearing Screening Program Information group <ul style="list-style-type: none"> <input type="checkbox"/> Hearing Status Row – change entry to Completed <input type="checkbox"/> Risk Factors <input type="checkbox"/> NHBP Parent Teaching <input type="checkbox"/> NHBP Printed Information <input type="checkbox"/> NHBP Brochure Language Repeat Hearing Screen Results group <ul style="list-style-type: none"> <input type="checkbox"/> Technology – enter ABR <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening from equipment printout <input type="checkbox"/> Enter results for both ears <p>REFER: SCHEDULED FOR OP APPOINTMENT - 2</p> <ol style="list-style-type: none"> Follow-up Information group <ul style="list-style-type: none"> <input type="checkbox"/> Newborn Legal Name (from birth certificate worksheet) <input type="checkbox"/> Follow-up appointment type: Choose OP Screening Appt. <input type="checkbox"/> Legal/Guardian/Contact Information NOTE: Answering NO will cascade in the Parent/Guardian Contact group – complete all rows <input type="checkbox"/> Non-Parent Contact group – complete all rows <input type="checkbox"/> Outpatient Appointment Information group – complete all rows Click File or close the chart 	<p align="center">Newborn Hearing Screening – 4 of 4</p> <p>ATRESIA/MICROTIA REFER TO DIAGNOSTIC AUDIOLOGICAL EVAL (DAE) - 1</p> <p>Infant has atresia or microtia in one or both ears. Do NOT perform a "complimentary" screening.</p> <ol style="list-style-type: none"> Newborn Hearing Status – change entry to Atresia/Microtia. Do not select Completed. Complete Newborn Hearing Screening Program Information Group Initial Screening Results group <ul style="list-style-type: none"> <input type="checkbox"/> Technology – enter Yes <input type="checkbox"/> Date of Screening <input type="checkbox"/> Time of Screening NOTE: entries cascade OP/DAE appointment information groups. Only chart in the DAE group. Newborn Legal Name (from the birth certificate worksheet) Follow-up appointment type: Select DAE (Diagnostic Audiological Evaluation) Legal/Guardian/Contact Information NOTE: Answering NO will cause the Parent/Guardian Contact group to cascade – complete all rows Complete Non-Parent Contact group Complete DAE Appointment Information group – follow local procedure for scheduling the appointment. Post Discharge Services Group <ul style="list-style-type: none"> a. Early Start (ES) row b. Parents notified of ES referral row Click File or close the chart

4-Up on Letter Paper

Why We Screen



Thanks to our collaborative teams, Northern & Southern California!

IP Doc Flowsheet

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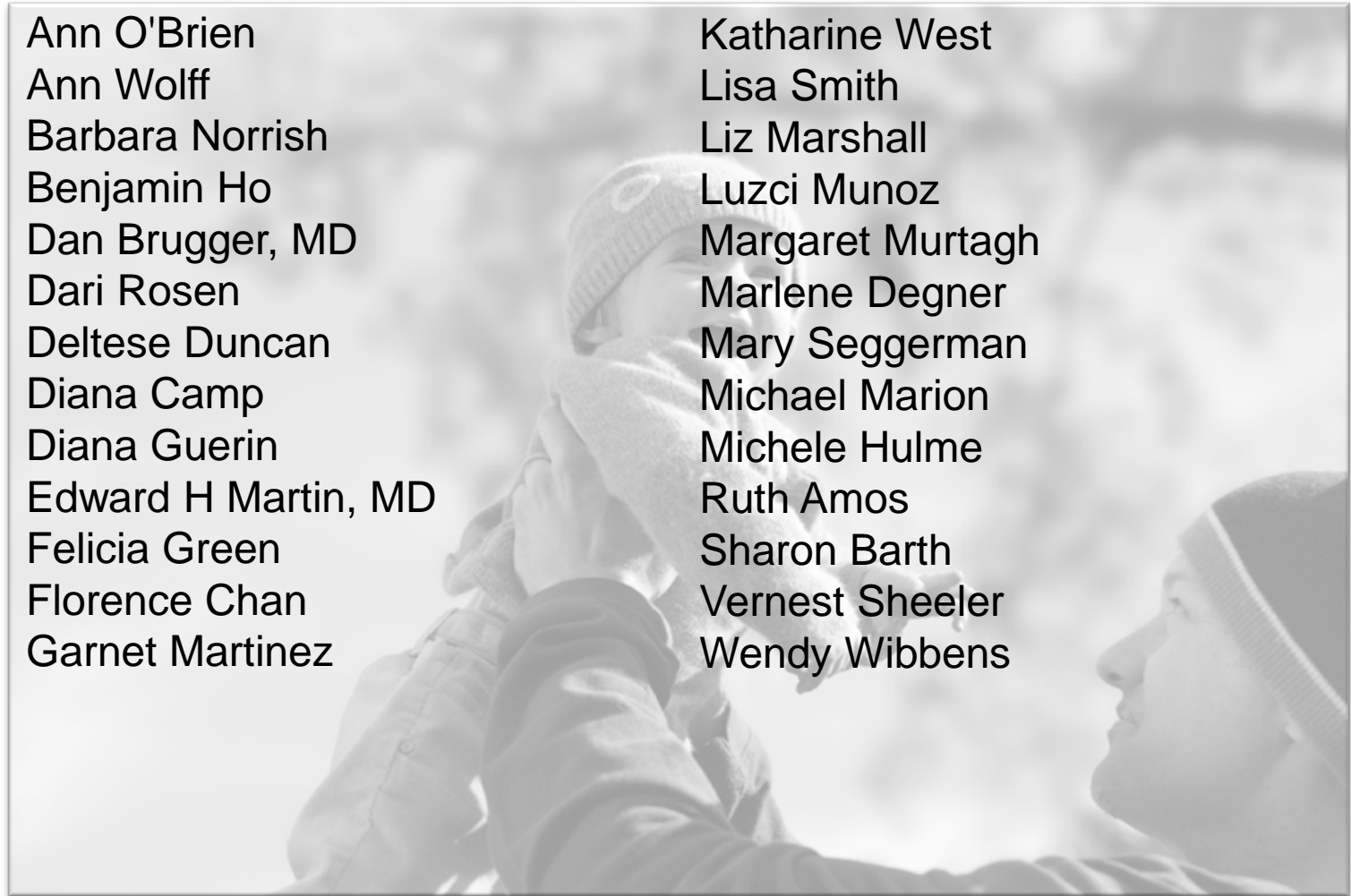
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Vernest Sheeler

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Thanks to our collaborative teams, Northern & Southern California!

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Getahun Assefa

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Thanks to our collaborative teams, Northern & Southern California!

Hallie Morrow, M.D.

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Joe Amato

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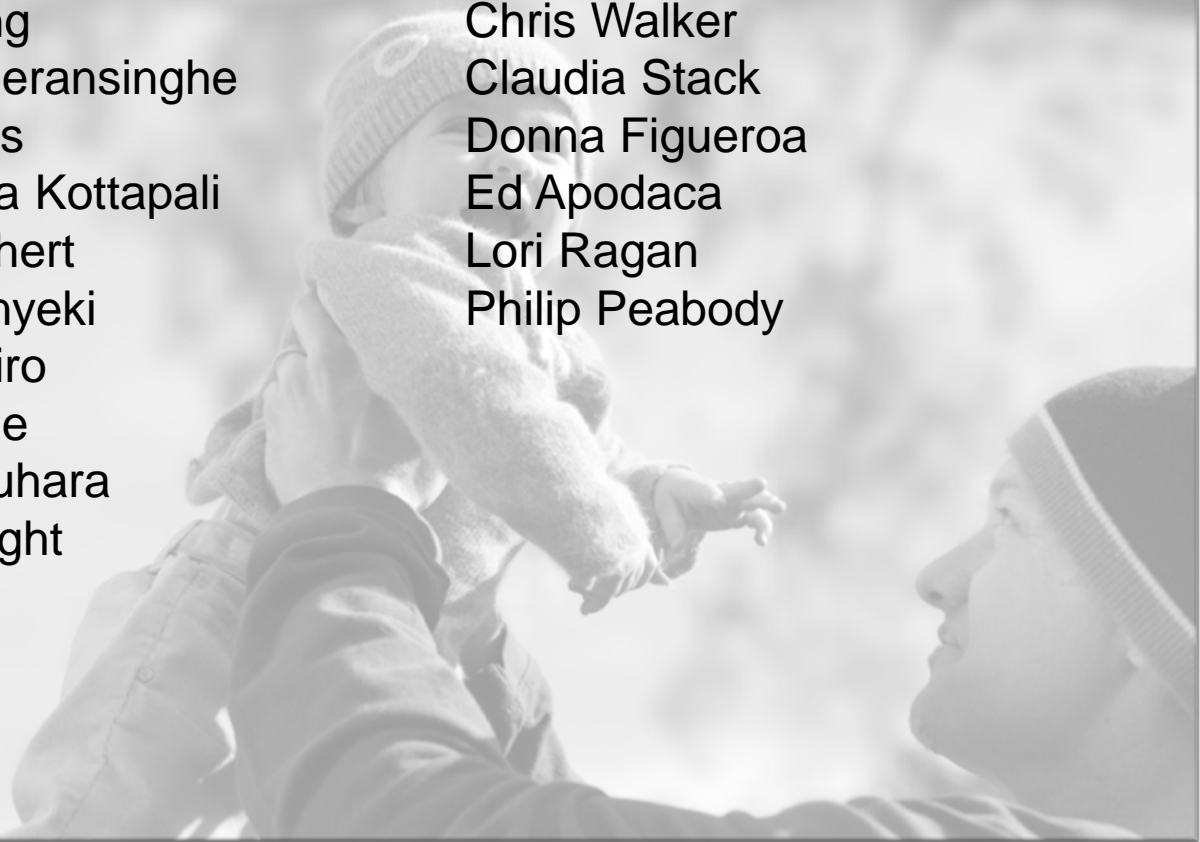
Seham El Diwany, MD

Thanks to our collaborative teams, Northern & Southern California!

Simon Patlis
Smita Samudra
Steve Wretling
Synjeeve Weeransinghe
Tracy Thomas
Venkateswara Kottapali
Walther Reichert
Wanyeki Wanyeki
Wendy Shapiro
Wendy Windle
Wesley Natsuhara
William J Wright
Yelba Lopez
Zainab Hafiz

OP ORF/DAE/Letters

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Lori Ragan
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Thanks to our collaborative teams, Northern & Southern California!

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Thank you!



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