Enhancing Quality, Capital, and Capac for Equitable Newborn Screening Through We REACH framework:

The SISHU Initiative in Rural In

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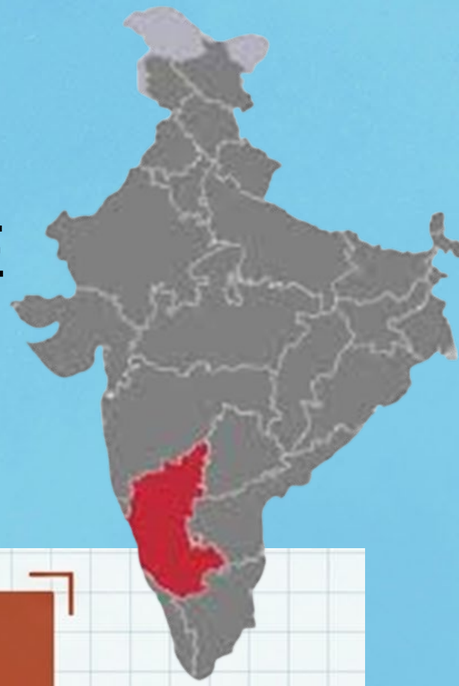
Presenter: Siri Vennela Indraganti

Background: THE RURAL REALITY

INEQUITIES IN NEWBORN SCREENING AND FOLLOW UP CARE

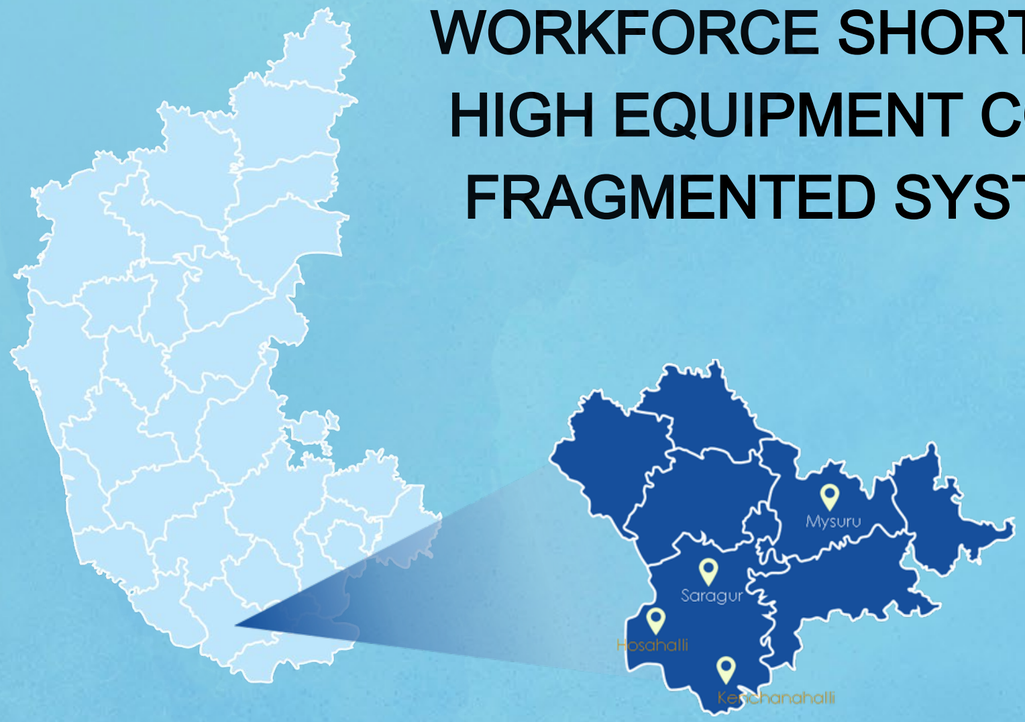


LIMITED DIAGNOSTIC INFRASTRUCTURE

WORKFORCE SHORTAGES

HIGH EQUIPMENT COSTS

FRAGMENTED SYSTEMS



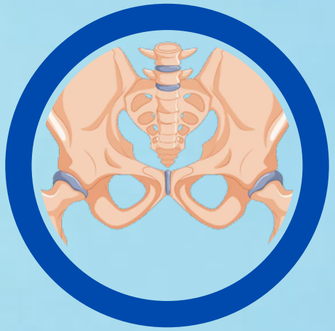
SISHU - Standardizing Infant Screening and Health Care for the Underserved

A joint collaboration between Swami Vivekananda Youth Movement and UCLA Global Health Program

universal screening at birth

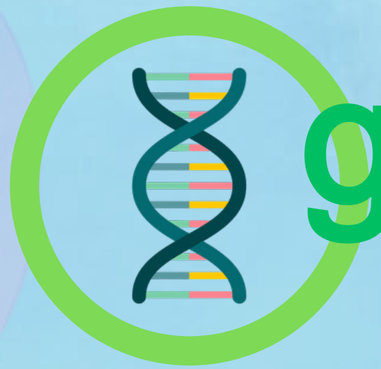
heart
SCREENING

hearing
SCREENING



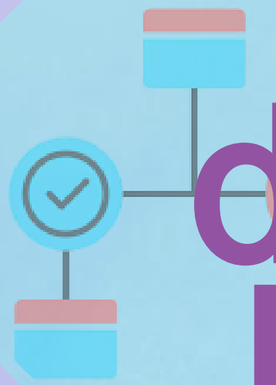
hip
SCREENING

jaundice
SCREENING



genetic
SCREENING

targeted screening of at-risk newborns



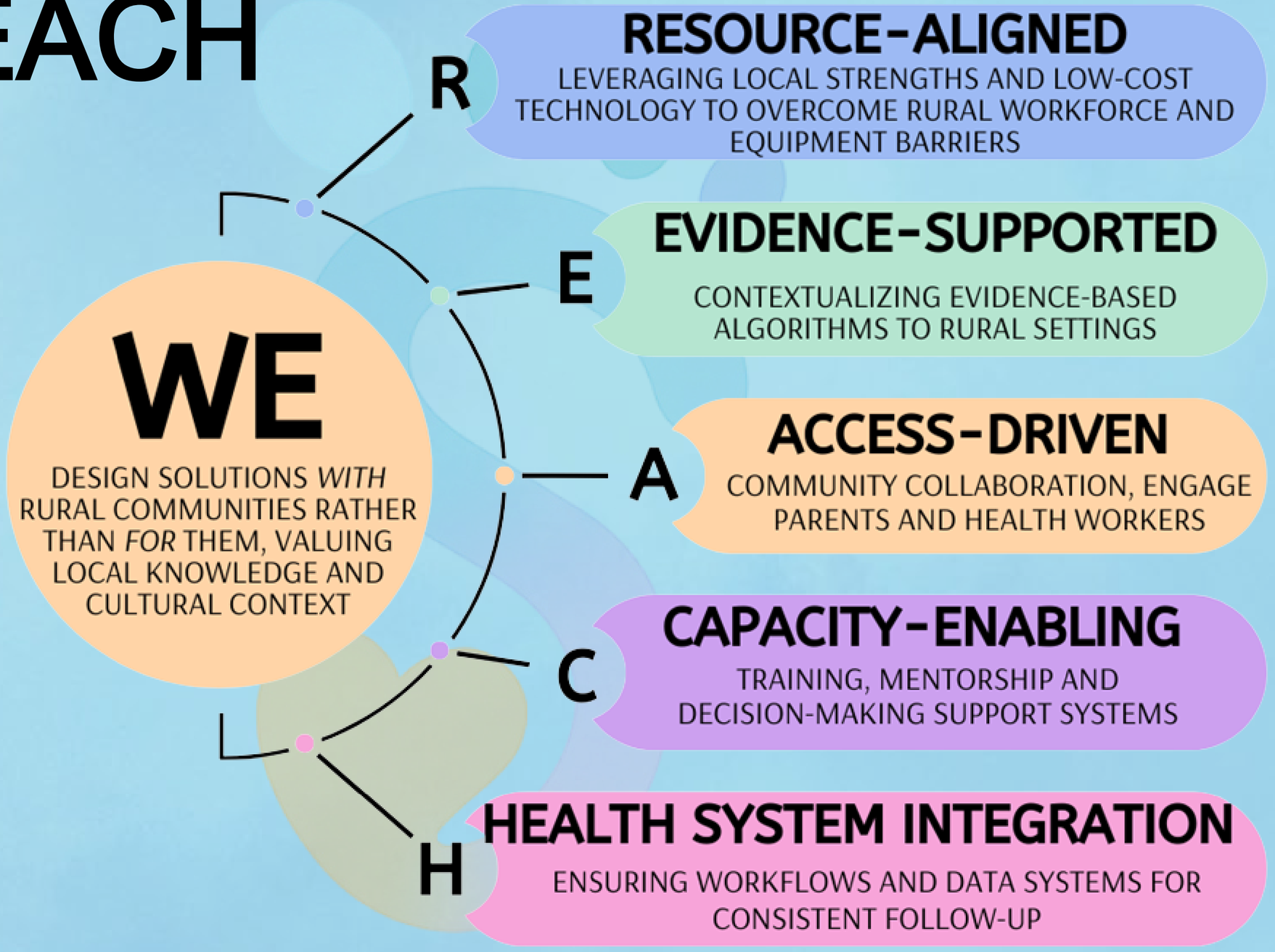
clinical decision-making SUPPORT

hypoglycemia
sepsis
cerebral palsy

the framework gap...

FOR OUR NEEDS, AVAILABLE IMPLEMENTATION FRAMEWORKS LACKED RURAL CONTEXTUALIZATION OR FAIL TO PROVIDE OPERATIONAL GUIDANCE ON LOW-RESOURCE WORKFLOWS

We REACH


WE
DESIGN SOLUTIONS *WITH* RURAL COMMUNITIES RATHER THAN *FOR* THEM, VALUING LOCAL KNOWLEDGE AND CULTURAL CONTEXT
R
RESOURCE-ALIGNED
LEVERAGING LOCAL STRENGTHS AND LOW-COST TECHNOLOGY TO OVERCOME RURAL WORKFORCE AND EQUIPMENT BARRIERS
E
EVIDENCE-SUPPORTED
CONTEXTUALIZING EVIDENCE-BASED ALGORITHMS TO RURAL SETTINGS
A
ACCESS-DRIVEN
COMMUNITY COLLABORATION, ENGAGE PARENTS AND HEALTH WORKERS
C
CAPACITY-ENABLING
TRAINING, MENTORSHIP AND DECISION-MAKING SUPPORT SYSTEMS
H
HEALTH SYSTEM INTEGRATION
ENSURING WORKFLOWS AND DATA SYSTEMS FOR CONSISTENT FOLLOW-UP

"We:" Designing solutions *with* rural communities rather than *for* them

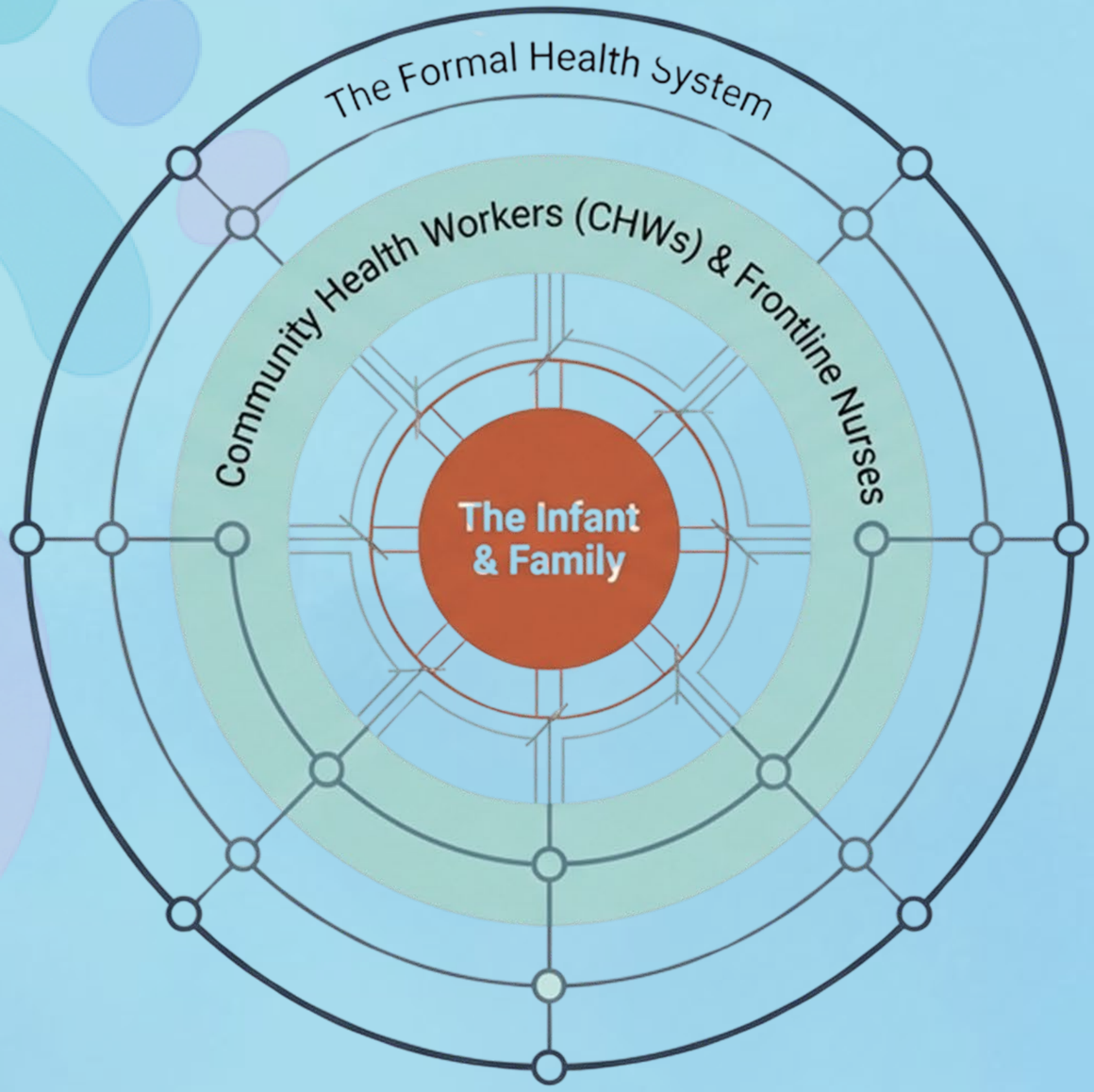
VALUING

local knowledge

AND

cultural context

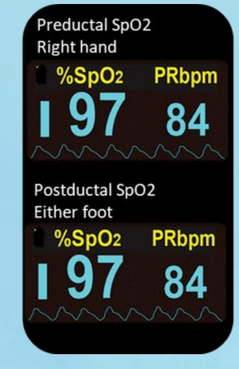
AS ESSENTIAL SOURCES OF EXPERTISE



Resource Aligned

low-cost smartphone-based innovations

heart
SCREENING



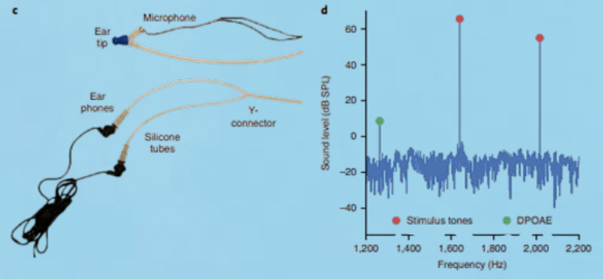
DUAL - SENSOR
PULSE OXIMETER PROBE
FOR CCHD SCREENING IN R&D

jaundice

picterus
Newborn Health
Saving newborn lives by expanding access to jaundice care where it's needed most.

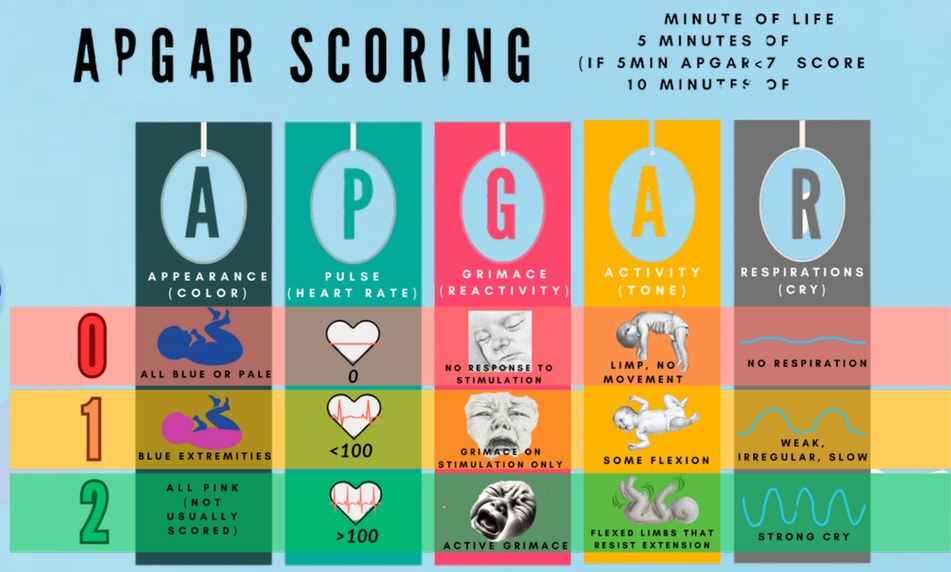
TRANSCUTANEOUS BILIRUBIN
MEASUREMENT USING
SMARTPHONE CAMERA

hearing
SCREENING



LOW - COST SMARTPHONE
BASED OAE SCREENING
VALIDATED BY UW

Evidence Supported
contextualizing workflows



Traditional Apgar Score

SISHU's Modified Neonatal Transition Calculator

Baseline Score

~1 minute (at cord clamping)
Recall cry, color, tone.

After-Resuscitation Score

~5 minutes.
Response to interventions.

Access Driven
expanding equitable access

The Rural Challenge: Barriers and Uncertainty

The Hidden Cost of Care

Families often pay ₹300–₹1,000 in travel and lost wages for a single hospital visit.

The Failure of Visual Assessment

Manual skin checks are unreliable and subjective, especially for infants with darker skin tones.

Avoidable Healthcare Strain

Caregiver uncertainty and inaccurate visual tools lead to frequent, unnecessary hospital revisits.

The Digital Solution: Accessible and Accurate

AI-Driven Smartphone Screening

A patented calibration card and app provide objective bilirubin estimates with high clinical accuracy.

Universal Accessibility

Validated technology delivers reliable results across all skin tones and care settings.

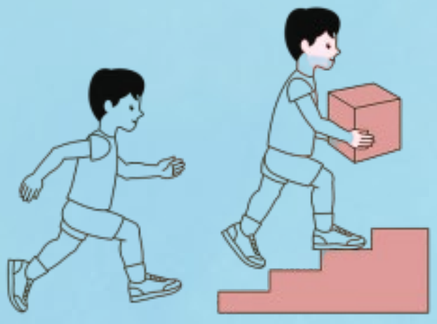
Empowering Remote Care

Jaundice@Home enables clinicians to monitor bilirubin trends and guide families from a distance.

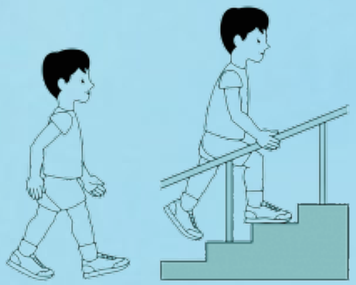
Capacity Enabling

home physical therapy for early intervention of CP

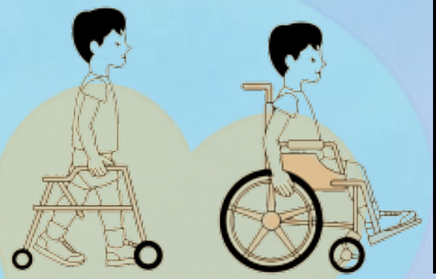
GMFCS Level I



GMFCS Level II



GMFCS Level III

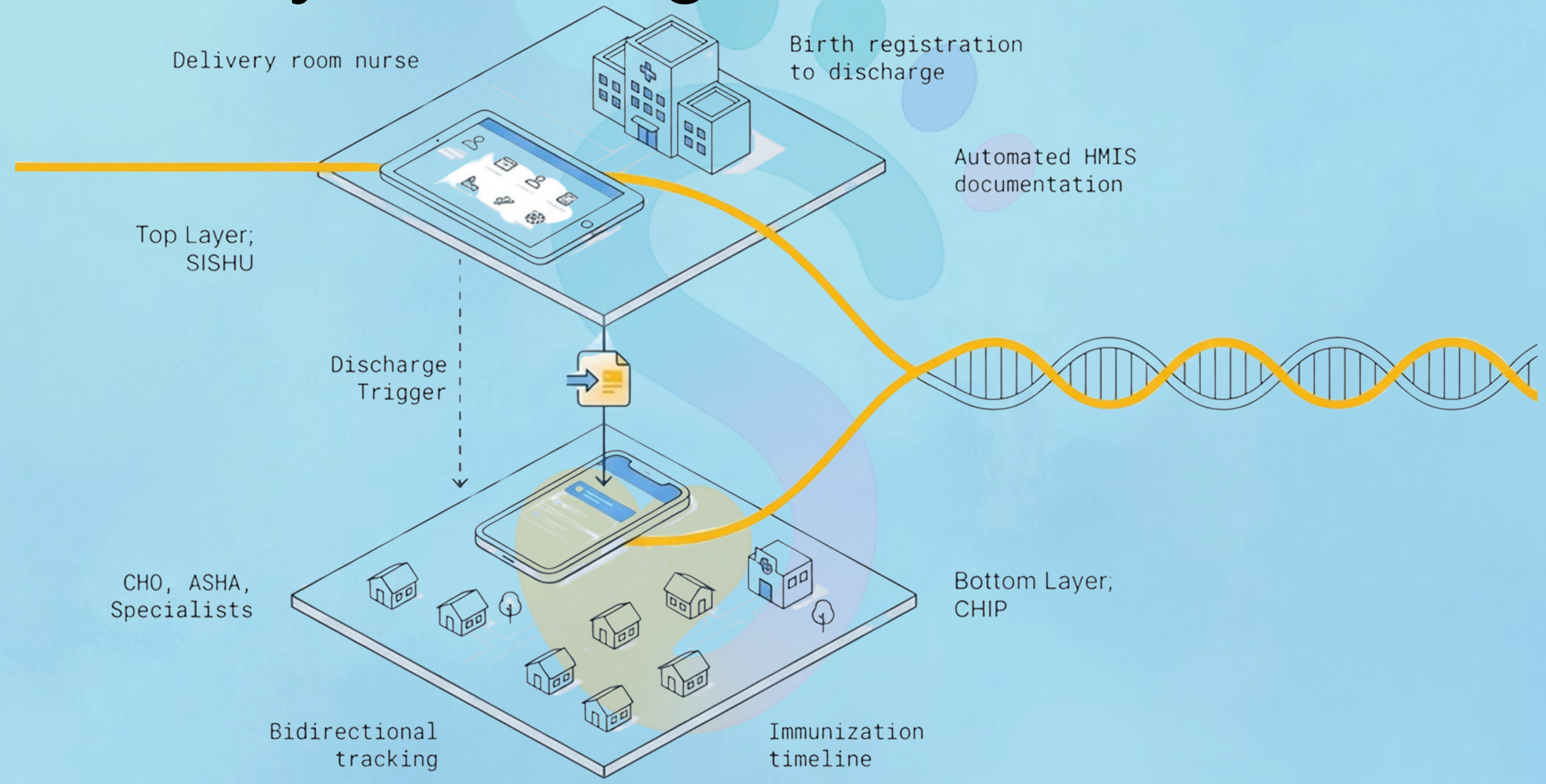


GMFCS Level IV

GMFCS Level V

Early therapy and neuroplasticity in infants can reduce severity of CP

Health System Integration



Results

378 Newborns Screened

across Heart (CCHD), Genetic (CH/HbS), Jaundice (Hyperbllirubinemia), and Hearing categories to ensure early detection and intervention.

SCREENING COVERAGE RATES

Genetic (CH/HbS) & Hearing

97%+ Coverage for Genetic and Hearing

Genetic: 97.14% | Hearing: 97.09%

Genetic (97.14%) and Hearing (97.09%) screenings achieved the highest participation rates.

Heart (CCHD)

94.97% Heart Screening (CCHD)

Nearly 99% of newborns were successfuly screened for Critical Congenital Heart Disease.

Jaundice (Hyperbilirubinemia)

87.30% Hyperbilirubinemia Screening

Jaundice screening showed the lowest coverage rate among the four categories.

CLINICAL FINDINGS & OUTCOMES

7 Genetic or Heart Conditions Detected

- 1 CCHD (Heart)
- 1 CH (Genetic)
- 5 HbS (Genetic)

Screenings identified 1 CCHD, 1 CH, and 5 HBS cases among the cohort.

144 Hearing Referrals Required

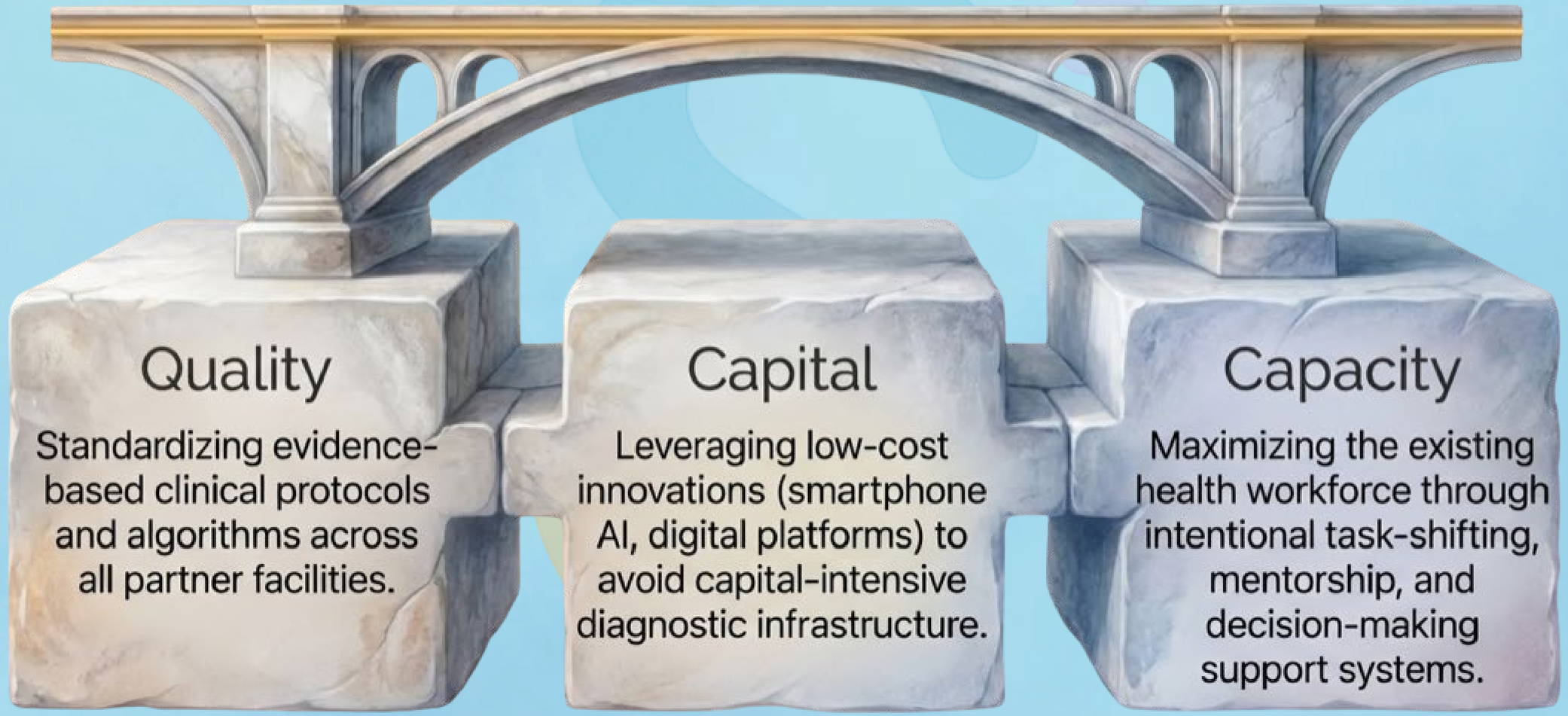
A significant portion of nowborns required repeat heating tests.

6 Newborns Flagged for Phototherapy

These infants were identified through the hyperblirubinemia screening process.

Quality Improvement meets Community

the framework for scale: We R.E.A.C.H



The vision: a world where every newborn thrives, and birth is no longer a barrier—but a powerful, protected beginning.

Swami Vivekananda Youth Movement | UCLA Global Health