

### **Smart phone Apps**

- Idea about Apps
- Development
- Principle of proof enhance learning; can be used as training tool
- Dissemination

### Idea-why smartphones?

- One day an Intern posted at Community Hospital, 100 kms away walks in room and suggests need for point of care Tool
- Webcast on Google 45 minutes!
- So simple –Can Do it !!



### WHO COLLABORATING CENTER FOR TRAINING AND RESEARCH IN NEWBORN CARE

Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, India



dome

About Us

Education & Training

Clinical Care

Research & Publications

Networking

Regional Activity

Blog

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8





E-LEARNING I



SEARNET DATABASE >



KANGAROO MOTHERCARE )



BIRTH DEFECTS



S. FOR



#### Neonatal Division, AIIMS

The Neonatal Division at the Department of Pediatrics, All India Institute of Medical Sciences, New Delhi, was designated as the WHO Collaborating Centre for Training and Research in 1997. During the sixteen years since its inception, the Centre has made significant contribution towards promotion of newborn care at the national and the international level

Read More

#### LATEST UPDATES

- » Facility based Newborn Nursing 2014
- » Skill videos on neonatal procedures 2014
- Standard Treatment Protocols for small hospitals 2013
- » Webinars on Essential/Sick Newborn Care
- » Equipment Podcasts 2013

#### FORTHCOMING EVENTS |

#### **NEWS ROOM**

- For our Team at AIIMS, it has been a great learning experience to follow the progress in field of Neonatal Perinatal Medicine and to constantly watch the new accumulating evidence for improvement of Neonatal Health.
  - Dr C. Aparna & Dr Ashok Deorari share their views on 'Prevention of Ventilation associated complications'.... For More
- Field Testing for Newborn Nursing for SCNUs/
  Small Hospitals
- Mistoric day for Indian Newborns
- State of India Newborn report 2014



#### **IMAGE GALLERY**

Identification of Barriers and Facilitators for Educaion of Nurses.

s 2008-14 >> Neonatal Ventilation Workshops 1995-2014 >> CPAP Workshops - Science, Evidence and Pract

FOR PARENTS >

### Android & iOS platform



The spiritual production in tracks.

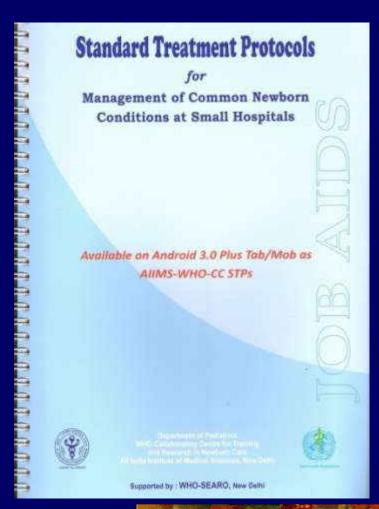
Tiesation of Statescom / ACPAS WAS COURTED THOSE IN THE COURTED THOSE IN

### **Standard Treatment Protocols**

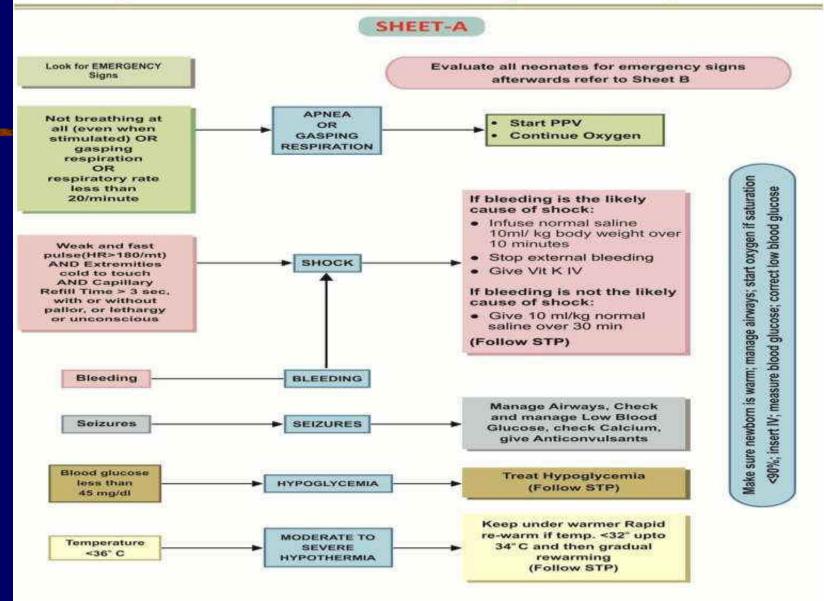
Evidence based- 2012-13 WHO Guidelines

- Target group
- Contents –Wall charts;Job Aids; Rx Algorithm
- Essential drugs , equipment ,procedures
- Uses existing resource materials of WHO-CC

\*Based on WHO HQ's Pink & Blue book ,guidelines 2012



#### Rapid Assessment and immediate management of emergencies





Standard Treatment Protocol for management of common newborn conditions in small hospitals

For additional / next level management please refer to WHO Guidelines (Managing Newborn Problems and Pocket Book of Hospital Care of Children), http://www.ontop-in.org/sick-newborn/, http://www.newbornwhocc.org/



#### Assessment for specific conditions

#### SHEET-B

(AFTER EMERGENCY MANAGEMENT OR IF EMERGENCY SIGNS ARE ABSENT)

#### NEONATAL HISTORY

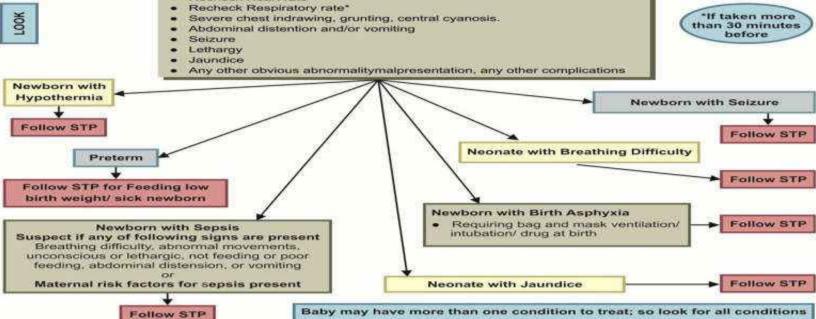
- Age of the neonate and the birth weight if available.
- Was the baby born term? If not, then at what gestation?
- Delayed Cry/ not breathing at birth/ requirement of BMV at birth
- Is the baby having any other problem in feeding/ choking/ vomiting?
- When did the problem start?
- Has the baby worsened?

#### MATERNAL HISTORY

- Medical, obstetric, social history,
- Pregnancy: Duration, chronic diseases, HIV, any complications, history of maternal fever
- Labour: Any complications, duration of rupture of membranes, any complication-fetal distress, prolonged labor, caesarean section, color and smell of amniotic fluid, instrumental delivery, vaginal delivery, malposition, malpresentation, any other complications

#### **EXAMINATION**

- Recheck Temperature\*
- Recheck Heart rate\*





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#### Shock in Newborn

- Weak & fast pulse ( HR>180/min) AND
- Extremities cold to touch AND
- Capillary Refill Time >3 sec With or without the following signs:
- Colour- very pale
- Lethargy, not arousable on stimulation

Provide warmth
Secure airway
Support breathing, circulation and temperature
Start oxygen, if saturation (<90%) is low
Measure blood glucose; correct hypoglycemia (Follow STP)

If bleeding is NOT the likely cause

If bleeding is the likely cause

- · Establish IV access
- Give IV normal saline or Ringer Lactate 20 ml/kg body weight over the first hour
- Give IV 10% Dextrose at maintenance rate
- Treat for Sepsis (Follow STP)
- Continue O2 as required

- Establish IV access
- Give IV normal saline or Ringer Lactate 10 ml/kg body weight over 10 min
- If no improvement, repeat fluid of 10 ml/kg once after 20 minutes as above
- Immediately give a blood transfusion using type
   O, Rh negative blood
- Give Vitamin K 1 mg IV

#### Monitor hourly (Panel 2)

- · Heart rate, oxygen saturation
- · Capillary refill time
- . Urine output
- Sensorium

#### **Determine Diagnosis (Panel 1)**

#### If signs of shock improve

- Continue maintenance IV fluid as per weight and day of life (Follow STP)
- · Reassess above parameters hourly
- Give specific treatment based on diagnosis (Follow specific STP)

#### If signs of shock persist

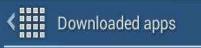
- Continue IV Fluid and O2
- REFER



Standard Treatment Protocol for management of common newborn conditions in small hospitals

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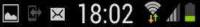












#### RAPID ASSESSMENT AND IMMEDIATE MANAGEMENT OF EMERGENCIES

APNEA or GASPING REPIRATION

SHOCK

BLEEDING

SEIZURES

**HYPOGLYCEMIA** 

**HYPOTHERMIA** 

NO EMERGENCY SIGNS

LOOK FOR ALL EMERGENCY SIGNS













EMERGENCY

HISTORY & EXAM.

MANAGEMENT

APPENDIX

#### RAPID ASSESSMENT AND IMMEDIATE MANAGEMENT OF EMERGENCIES

#### APNEA or GASPING REPIRATION

Seizures

Seizures MANAGEMENT

- · Manage airways,
- · Check and manage low blood glucose,
- · check Calcium,
- · Give anticonvulsants (Follow STP)

NO EMERGENCY SIGNS

LOOK FOR ALL EMERGENCY SIGNS







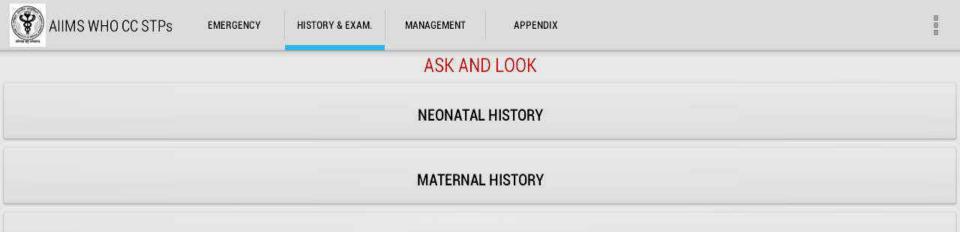
























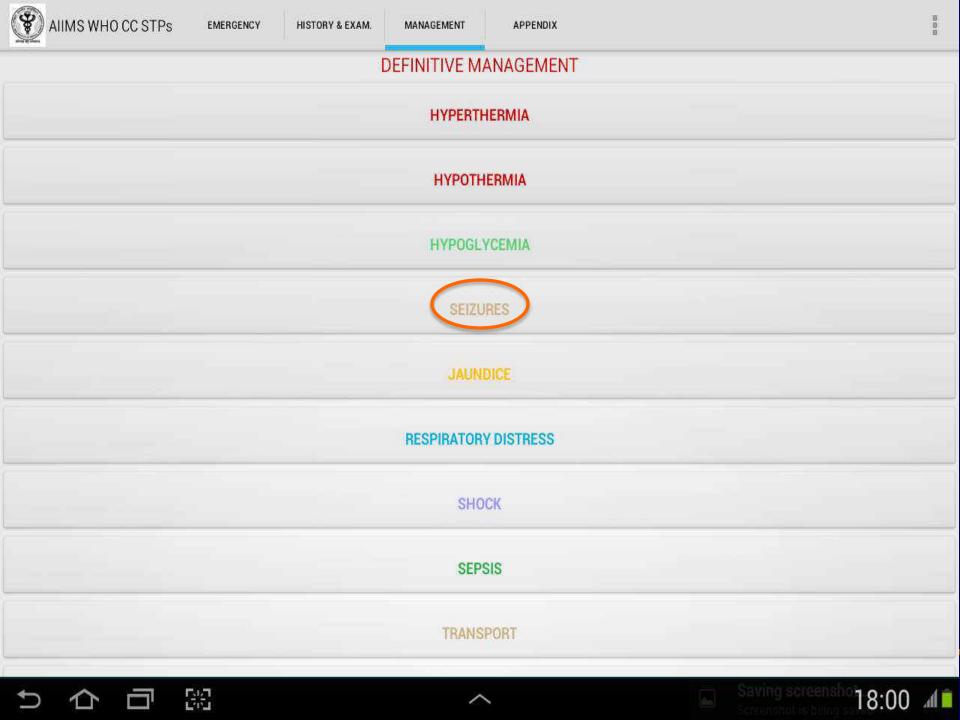












#### IF SEIZURES

Secure airway;

Optimize breathing, circulation, and temperature;

Start oxygen in the presence of cyanosis and/or low

Measure Serum Calcium, if possible

If low, give IV Calcium\*

- Seizure continues REFER
- · If no seizure Start Oral Calcium

(CLICK for more details)

Measure glucose

< 45 mg/dl

- · Do Lumbar Puncture if clinical examination shows bulging anterior fontanel, opisthotonus, lethargy or unconsciousness
- · After immediate treatment, also assess signs check if for other illnesses

















#### Convulsions vs. Jitteriness

#### IF SEIZURES

Secure airway, Optimize breathing, circulation, and temp

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#### Convulsions

- Have both fast and slow components Slow movements (1-3 jerks per second)
- Not provoked by stimulation
- · Does not stop with restraint
- Neurological examination often abnormal Neurological examination - usually normal
- Often associated with eye movements (tonic deviation or fixed stare) and/or autonomic changes (changes in heart rate)

#### **Jitteriness**

- Fast movements (4-6 per second); tremors are of equal amplitude
- · Provoked by stimulation
- Stops with restraint
- Neurological examination usually normal
- Not associated with eye movements or autonomic changes

After immediate treatment, also assess signs check if for other illnesses.

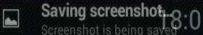














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#### CALCIUM GLUCONATE I.V.

NOTE

For giving IV calcium, cardiac monitoring is preferred. Therefore, baby should be referred to higher center for treating hypocalcemia, if present.

PRESENTATION

9 mg/ml ampoules

DOSAGE

1-2 ml/kg/dose every 6-8 hourly

Direction for use

- Dilute in equal amount of distilled water
- · Inject very slowly while MONITORING HEART RATE. If there is bradycardia, discontinue the injection

CAUTION

Take care to avoid extravasation, if being given as infusion, as it may cause sloughing of skin

After immediate treatment, also assess signs check if for other illnesses.

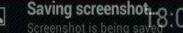














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Measure glucose

Give phenobarbitone 20 mg/kg IV slowly over 20 minutes (CLICK for more)

Seizure cont.

No seizure

- · Do Lumbar Puncture if clinical examination shows bulging anterior fontanel, opisthotonus, lethargy or unconsciousness
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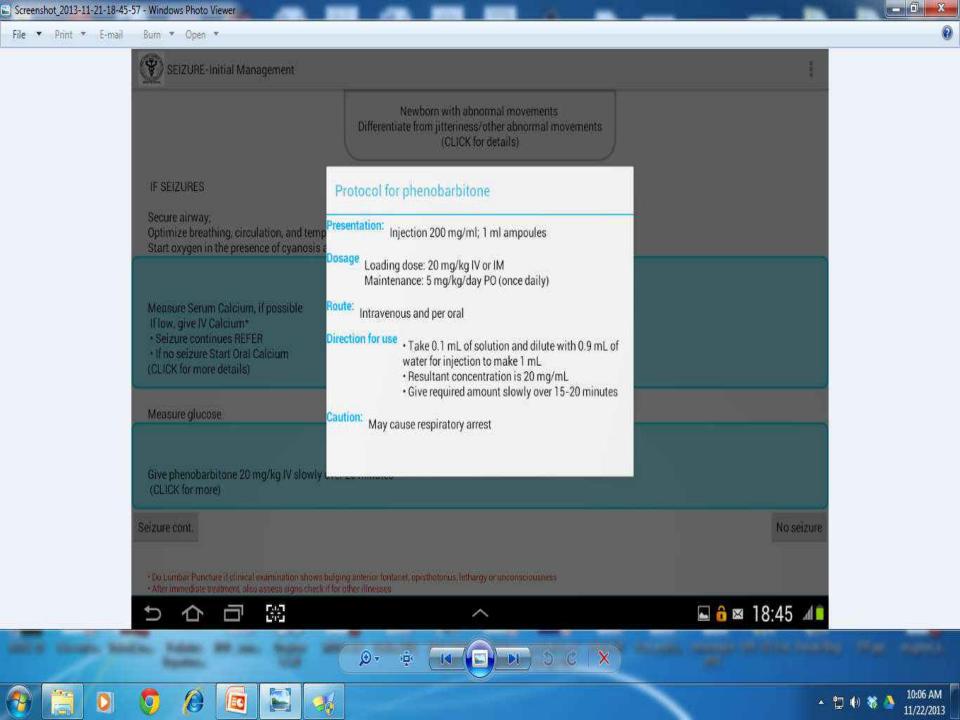












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Measure glucose

(CLICK for more details)

Give phenobarbitone 20 mg/kg IV slowly over 20 minutes (CLICK for more)

#### Repeat phenobarbitone 10 mg/kg every 30 min until a total of 40 mg/kg is reached

- · Do Lumbar Puncture if clinical examination shows bulging anterior fontanel, opisthotonus, lethargy or unconsciousness
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(CLICK for details)

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Ongoing care of newborn with seizures

with initial management

- Start maintenance Phenobarbitone 5 mg/ kg PO once daily
- ·12 hours after the last seizures

Monitor for recurrence of seizures

1. Recurrence of seizures

Treat as described under 'Initial management of neonatal seizures' to control the seizure and REFER

2. No clinical seizures n the next 72 hours

If controlled by Phenobarbitone alone, stop without tapering of the doses

If controlled by more than one drug, stop the drugs one by one. Phenobarbitone stopped the last

Repeat phenobarbitone 10 mg/kg every 30 min until a total of 40 mg/kg is reached

Seizure cont.

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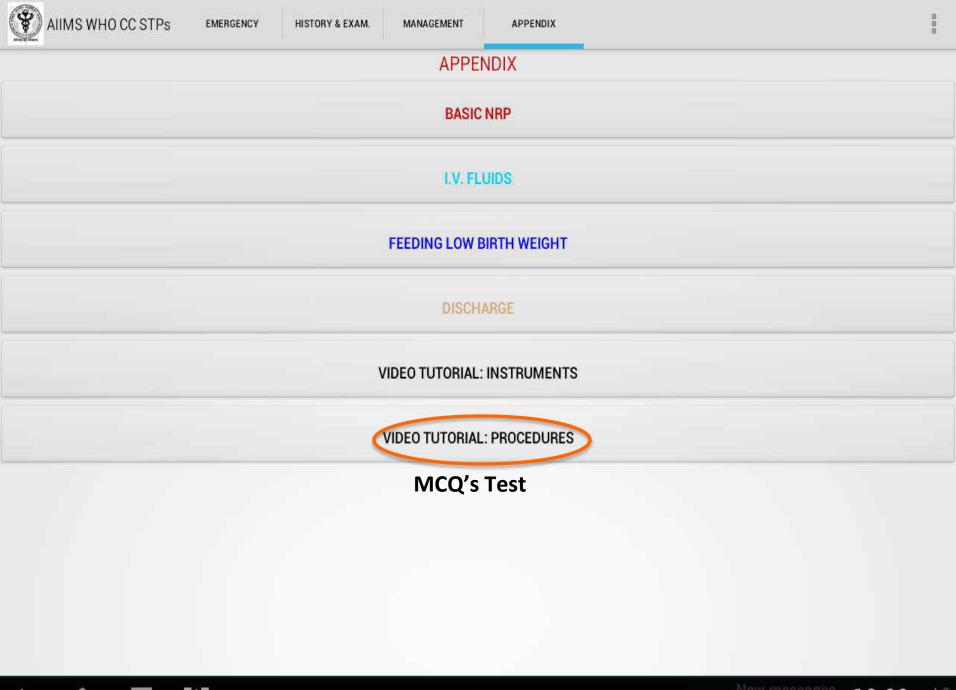








No seizure

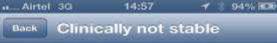












Start IV fluids

If baby on IV fluids is hemodynamically stable:

- Start Minimal Enteric Nutrition / trophic feeds 10-15 ml/kg/day by oro/naso-gastric tube, & Monitor for feed intolerance#
- if the baby tolerates the feed Gradually increase the feed by 10-15 ml/kg/day Taper and Stop IV fluids once feed reach 2/3rd of total daily requirement

Then put the baby on oro/naso-gastric feeding;if the baby tolerates feed well:

- . Try to spoon-feed once or twice a day Also, put onto mothers' breast
- If the baby accepts this well:gradually increase the frequency and amount of spoon/paladai feed Reduce tube feeds accordingly

Then put the baby on spoon/paladai feed:





#### Instrument videos



In these online videos, our team demonstrates how to operate various neonatology instruments

#### Procedure videos

In these online videos, our team demonstrates how to carry out various neonatology procedures

### Evaluation of Apps as training tool

### Knowledge, skills & Focus group discussions

### Nursing

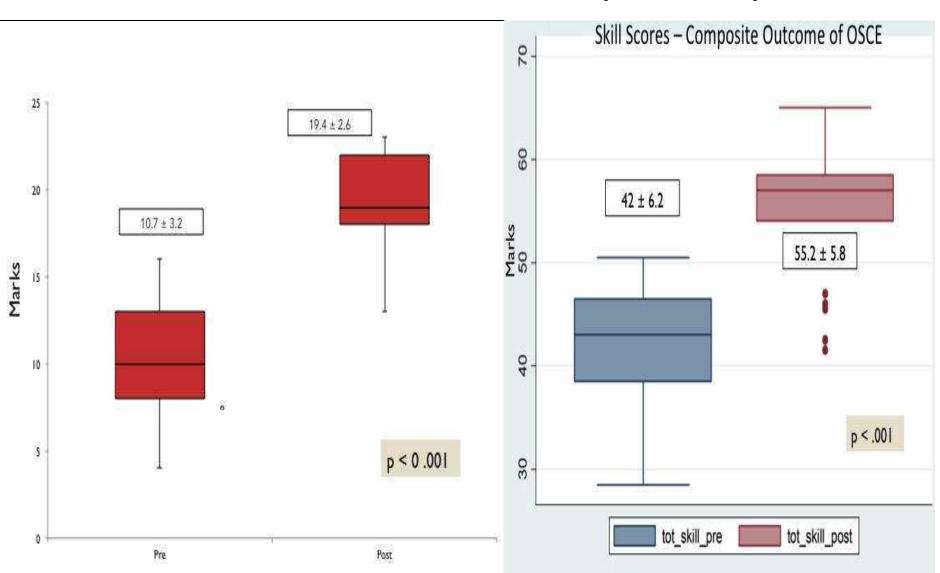
Apps for management of sick newborn: Evaluation of impact on health care professionals. J Trop Ped 2014

### Medical Officers (SNCUs) of Tamil Nadu \*

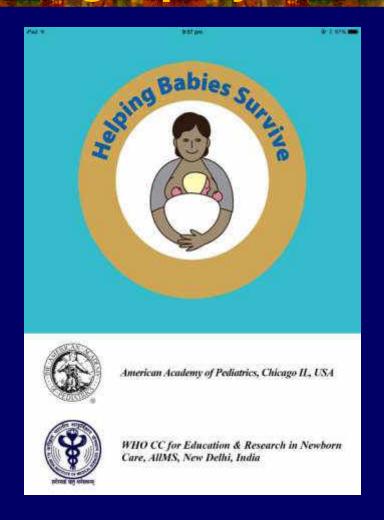
Efficacy and acceptability of an "App on sick newborn care" in physicians from newborn units . BMC Medical Education 2015 under publication

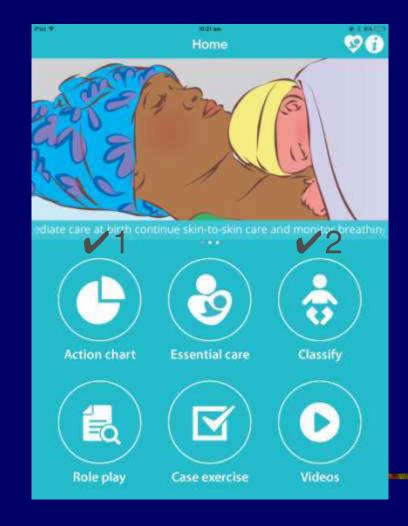
Reevaluation after 3 week & 6 month\*

# Improvement in knowledge scores and skill scores in SNCUs (N=27)

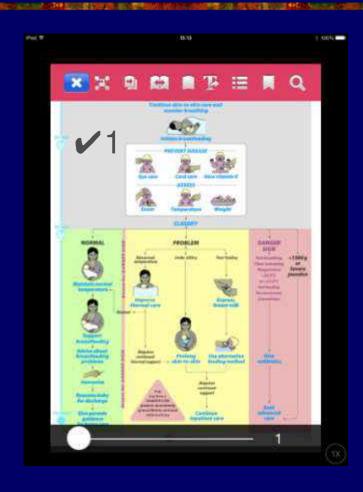


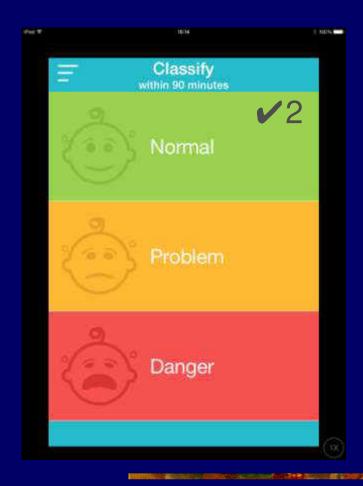
# HBSECEB on iOS Essential Newborn Care AAP on Google play 2015



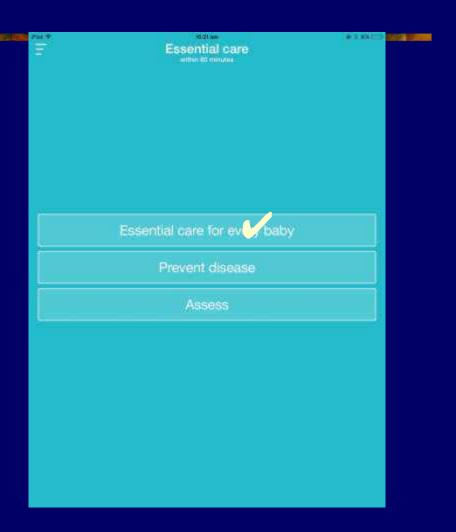


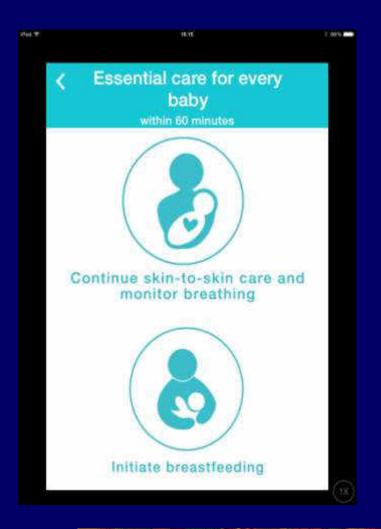
### **Action chart or Classify**





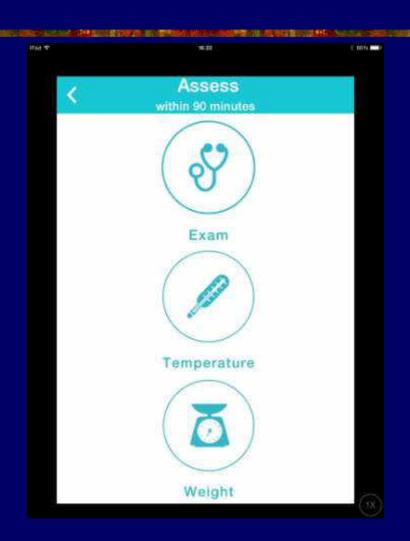
### **Essential care**

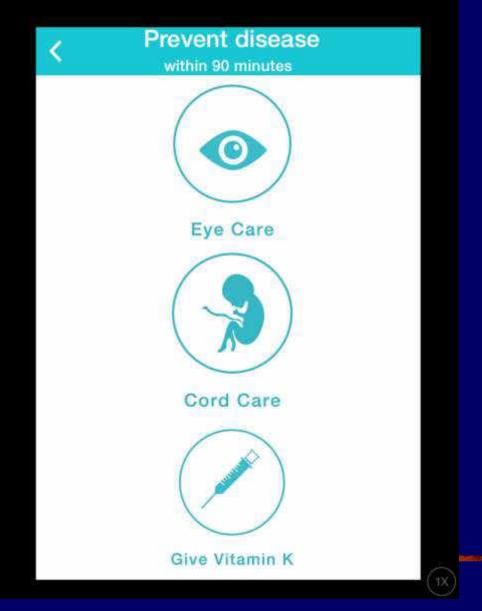




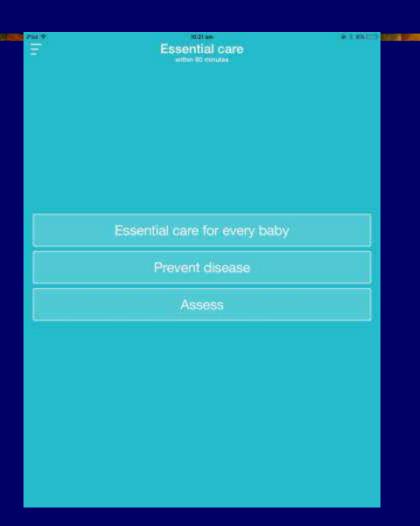
### **Essential care**

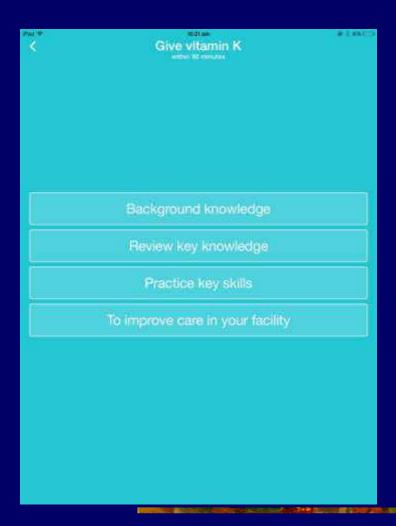
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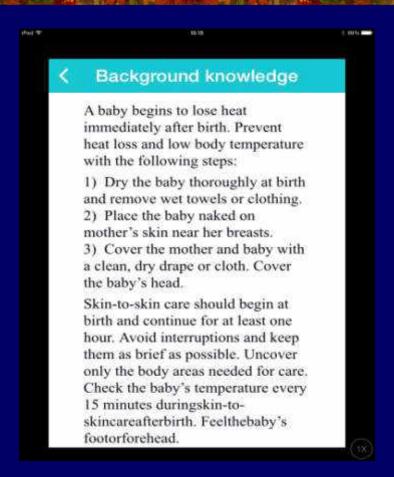


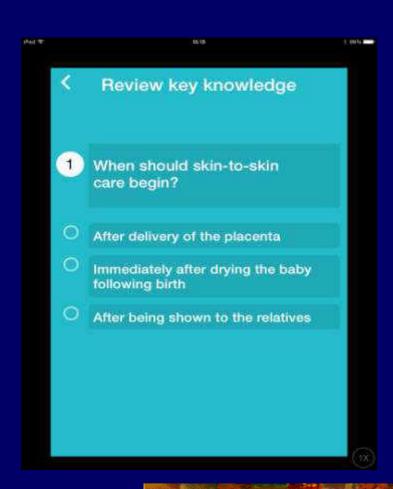
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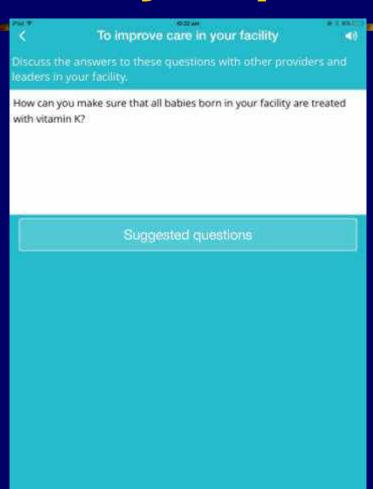


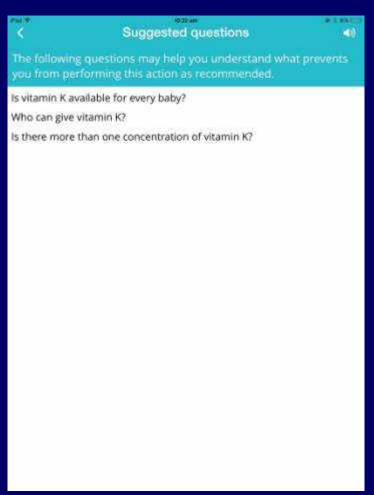
## Knowledge check- if correct green with bleep, red if wrong; scores cumulated



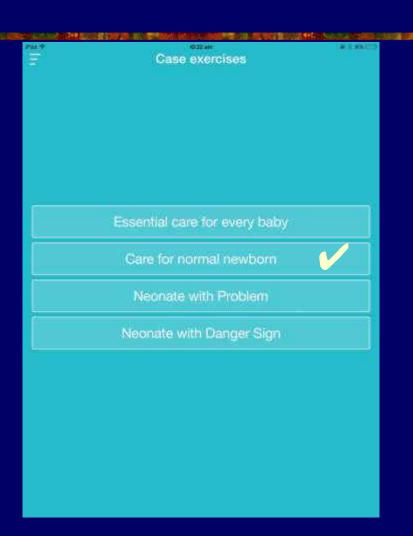


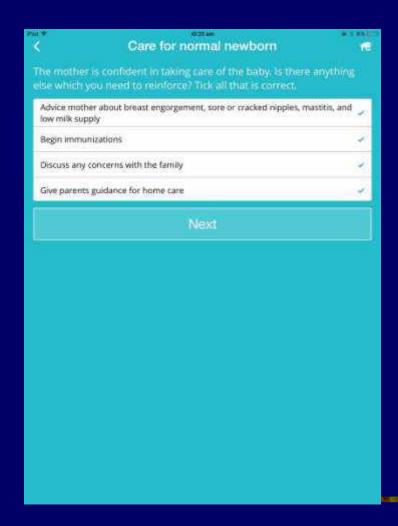
### **Quality improvement**



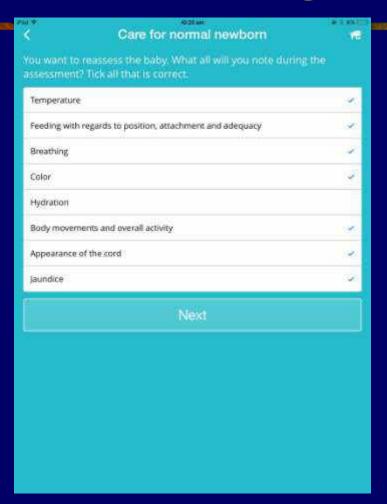


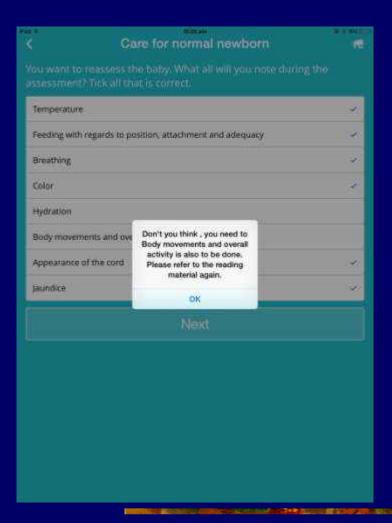
### Case exercises - four



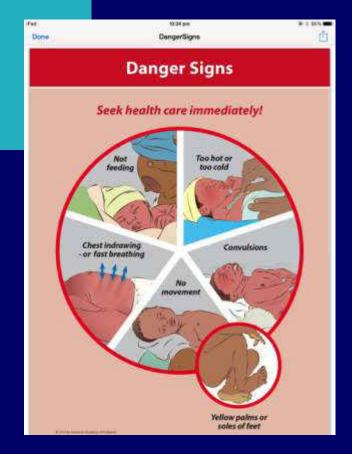


## Walk through



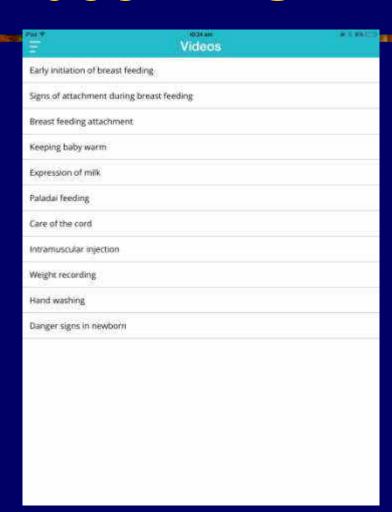


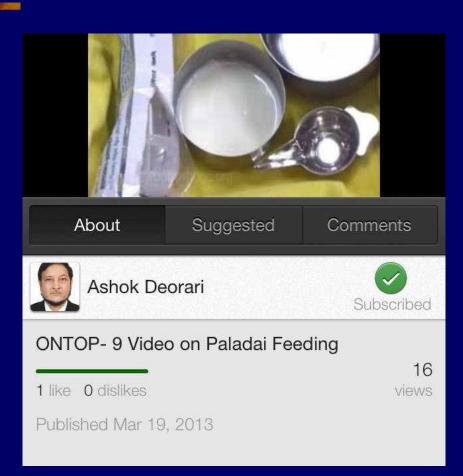






## Video links

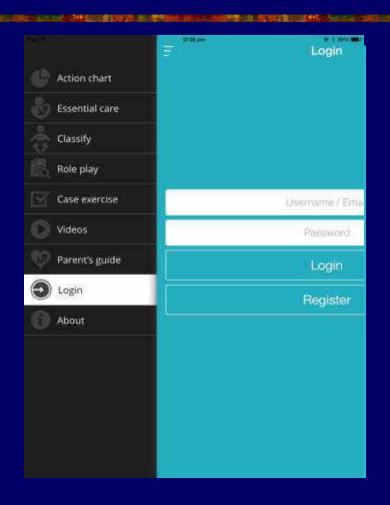




#### What works for Saving Newborn Lives

- Coverage with Quality
- Concept of contextual Quality Improvement

# Log in for data





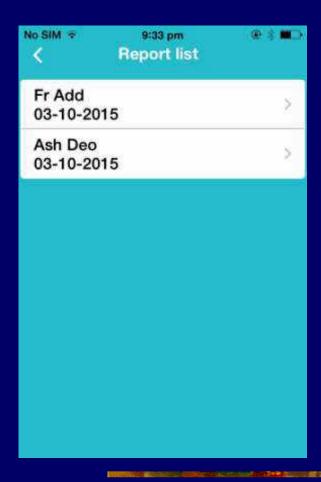
## QI Data on local smart phone



No SIM ♥	9:37 pm Report	
Examine the	baby	
Measure tem (°C)	perature	
Weigh the ba (grams)	by	
Immunised		
Danger signs explained		
Follow up advised given		
	Submit	

## Data to sync on server





### AIIMS WHO CC, IANN,UNICEF,NIPI,WHO-SEARO-2014

- Workshop small group
- -Participatory learning with basics of QI
- -Uses modern educational methods of teaching learning simulators, tablets,
- Available as print ,web, DVD ,smart phone app











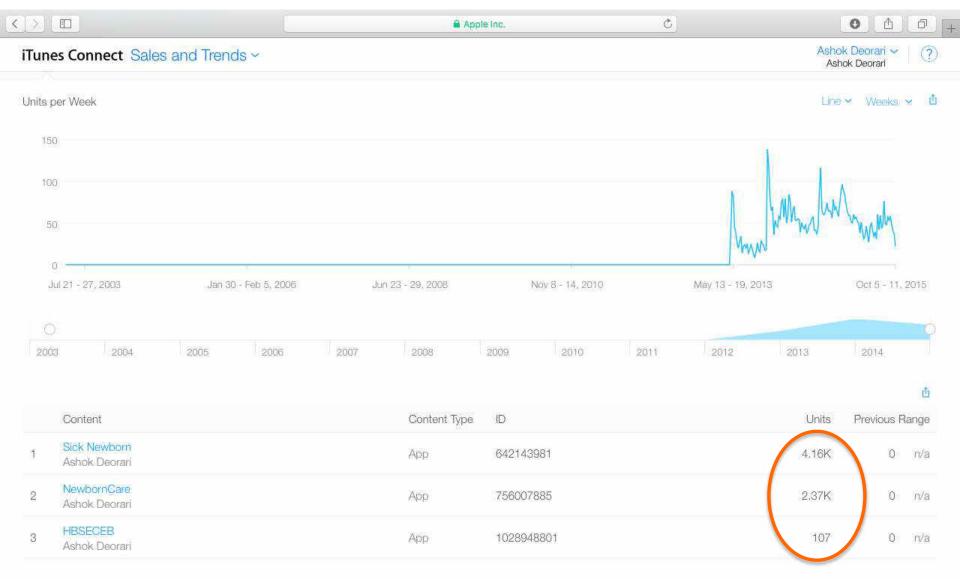
## Acknowledgment

- Team at WHO-CC -AIIMS
- Ministry of Health FW /NHM
- WHO- SEARO Delhi /WHO HQs Geneva
- UNICEF India Country Office
- NIPI/ UNDP/ QEDJT- UK
- Network institutions-students & facilitators

# Where to look for resources AIIMS has the Best Tools in the Region

- www.newbornwhocc.org
- www.ontop-in.org
- Apps on Android AllMS WHO CC STPs
- Apps for iphone/ iPad SickNewborn

#### iOS downloads



#### **Android downloads**

