

Changing the Game for Healthcare Professionals



RetainLabs

Up to one in five babies need help to breathe at birth



This is called Neonatal Resuscitation

Neonatal resuscitation is stressful



This can result:

Distraction

Decision making deficiencies

Impaired working memory

Deviations from the resuscitation algorithm

Medical errors

Poor patient outcomes

Fatal errors / Death



66% of newborn deaths
during resuscitation are
caused

by break down in
non-technical skills like
decision making,
communication, and
teamwork

rather than technical skills like
mask ventilation or chest
compression

Existing training options



Simulation Training

Financial- and human-capital intensive

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Reading Textbook

Lacks clinical relevance

???

Focus on technical skills

Resource intensive

Time consuming

Requires Simulation Specialist

Simulation Training

Resource intensive

- ▶ Simulation center start-up costs \$200,000 to \$1.6 million USD
 - ▶ Limited space and funding for equipment
- ▶ Annual maintenance at least \$15,000 USD
- ▶ Annual Salary for Simulation Specialist \$90,000 USD

Time consuming

- ▶ Staff scheduling, Set-up time, Administration

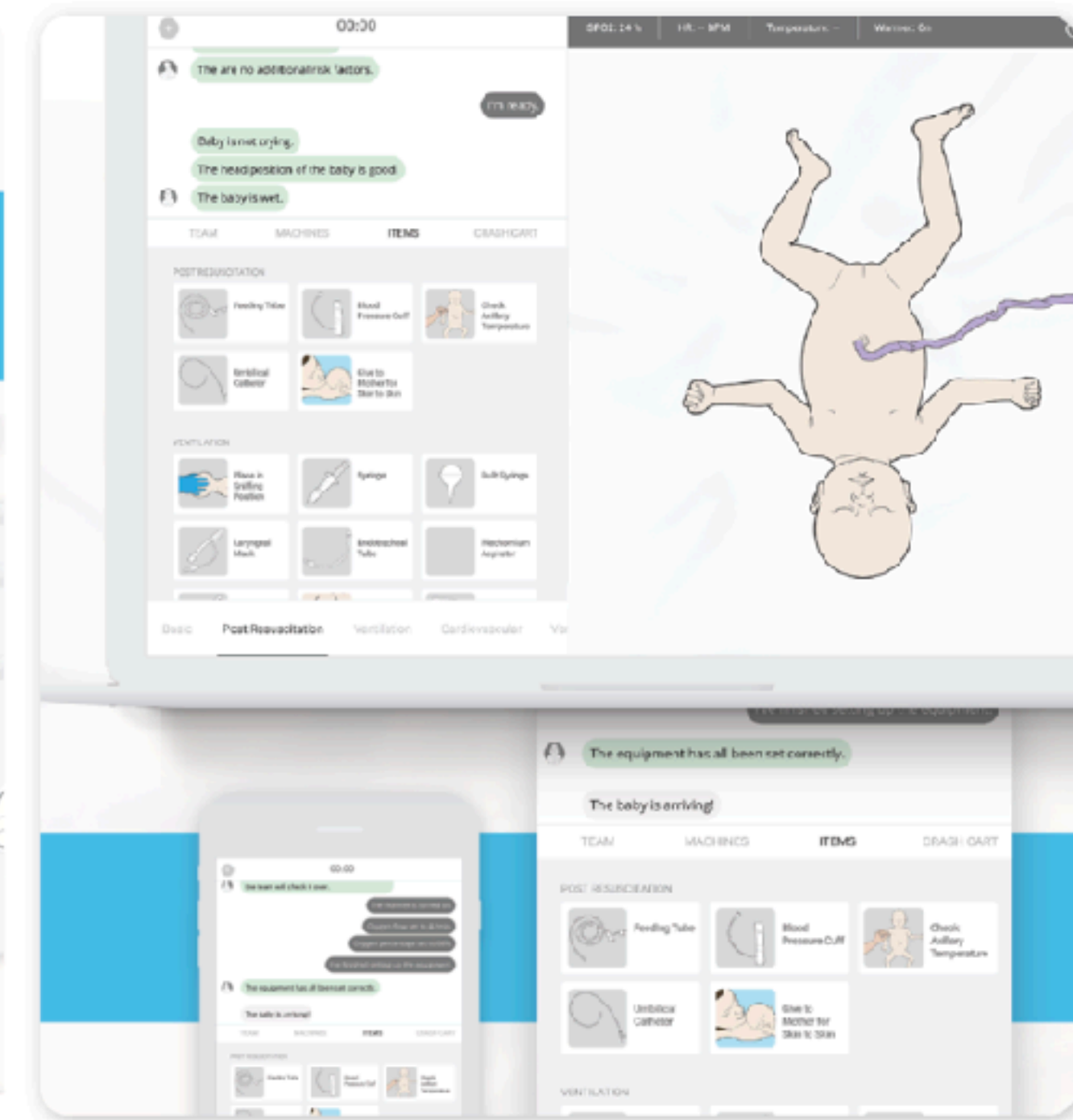
Requires a specially trained Simulation Specialist to run the scenarios/simulation

(Someone who knows what will happen to the baby in response to an action)

Our Solution

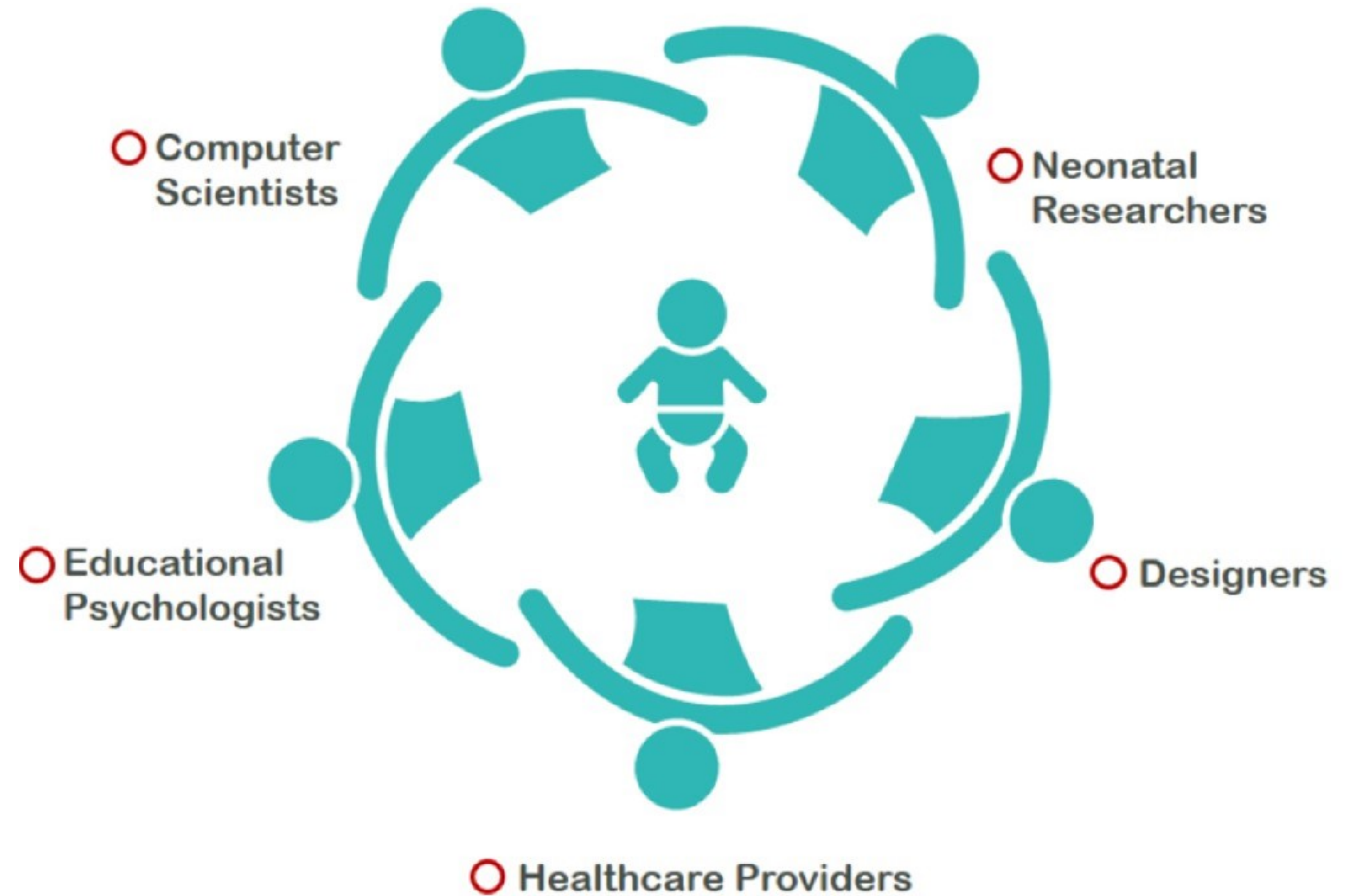
RETAIN

RESUSCITATION TRAINING for Healthcare Providers



<https://retainlabsmedical.com/index.html>

developed by a
multi-disciplinary
team



Our Mission

To improve Training of Healthcare Professionals to reduce errors and improve the lives of newborn babies and their families

Goals of RETAIN

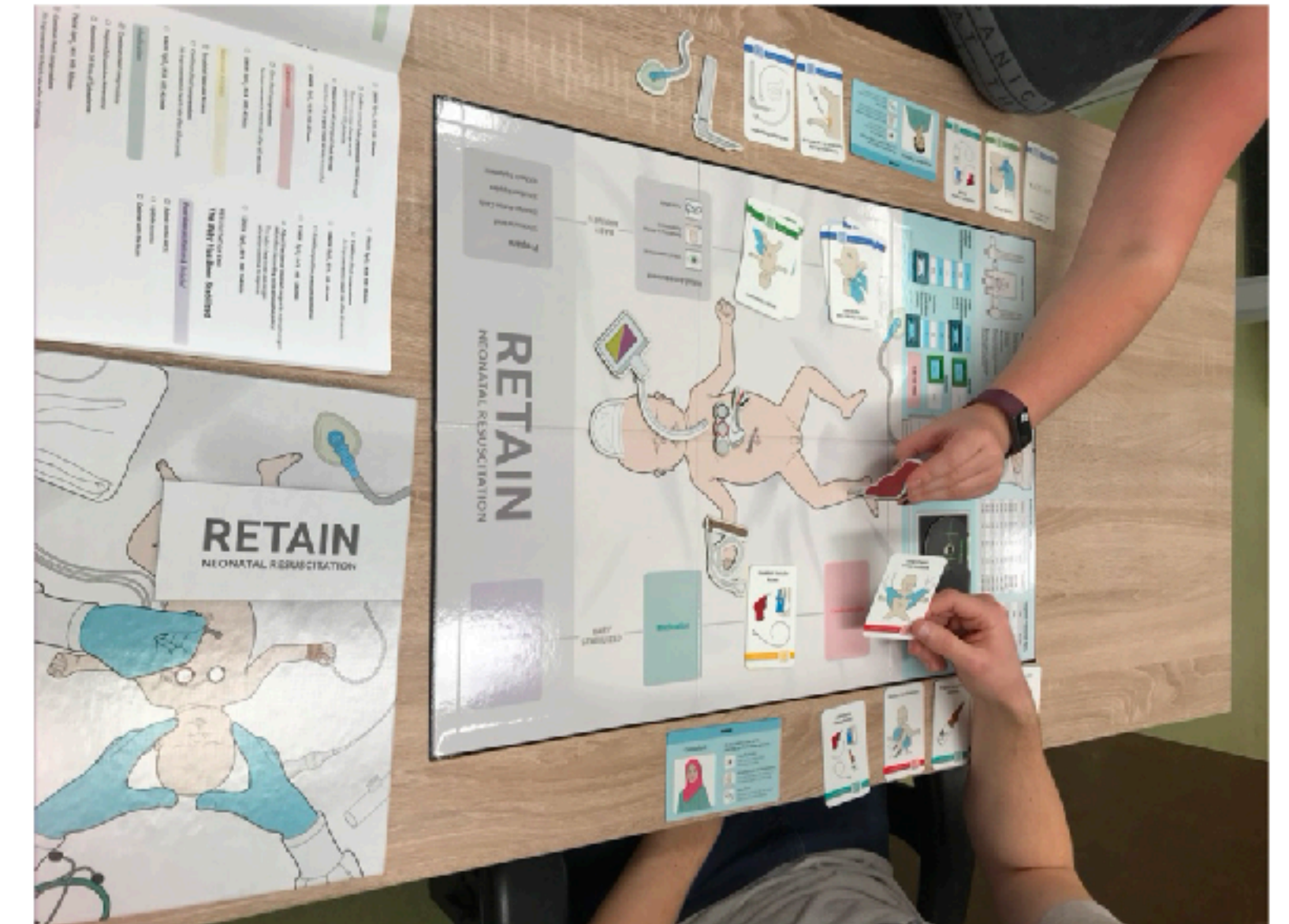
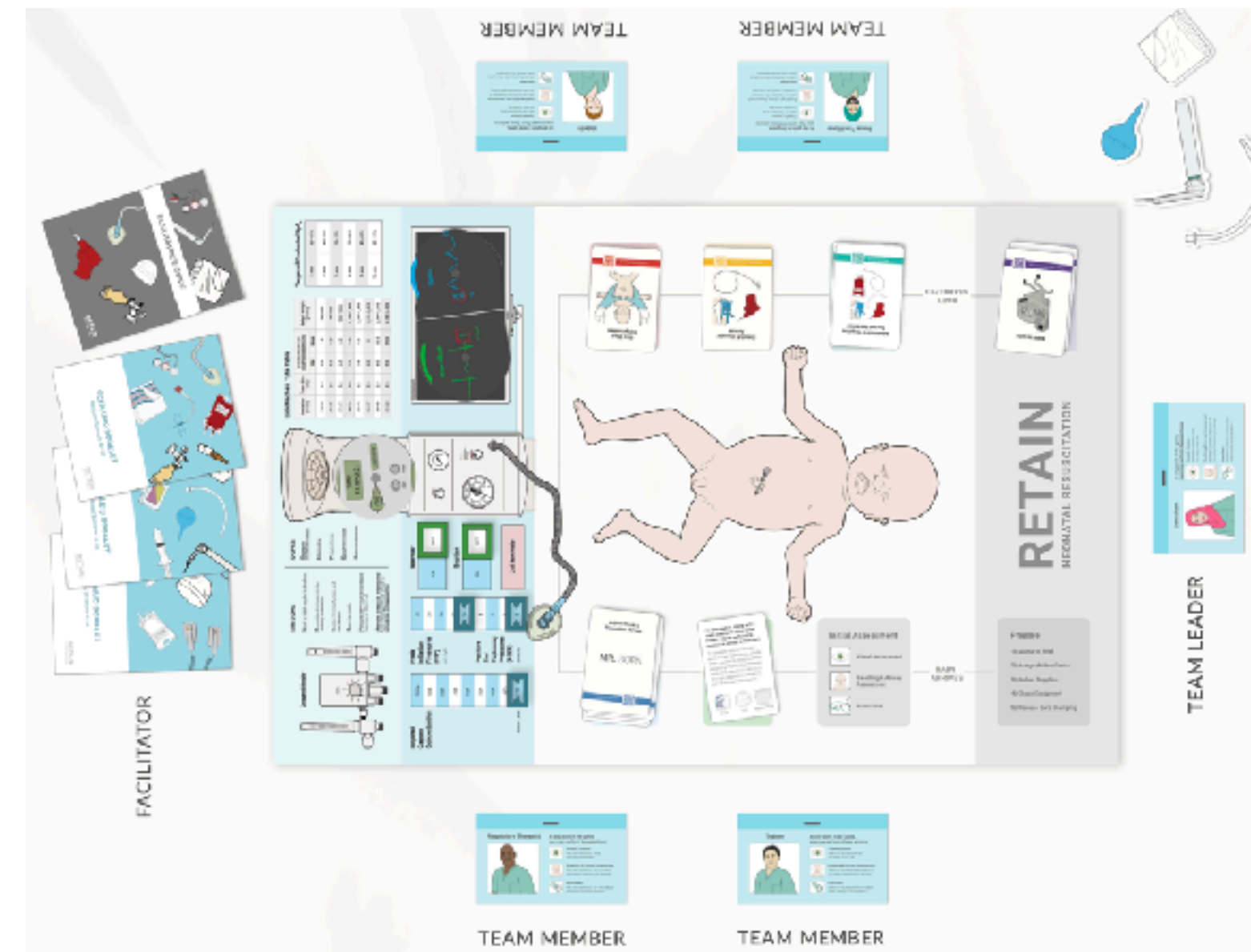
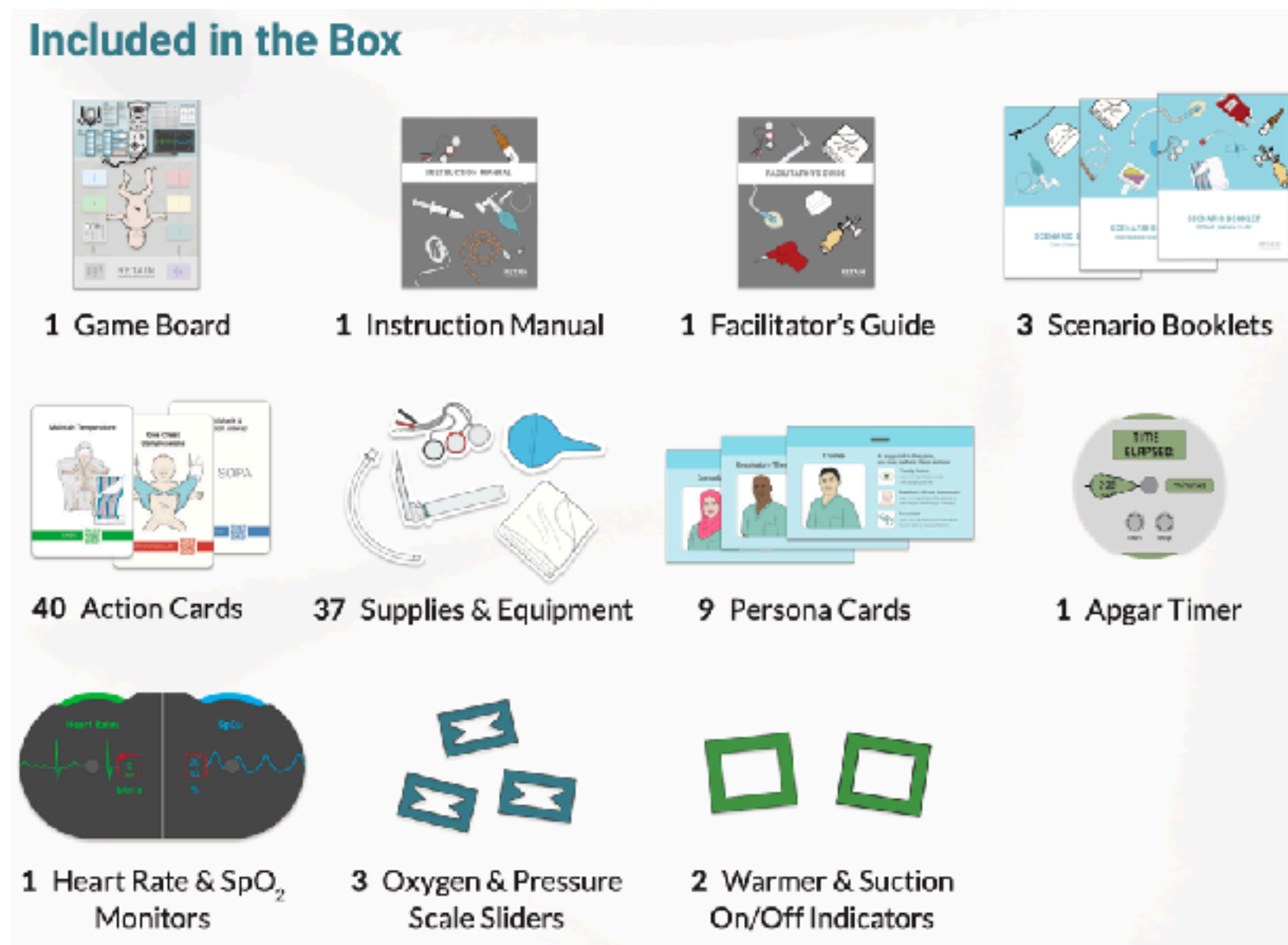
- ▶ Medical errors rates during neonatal resuscitation are reported to be between **16-55%**
- ▶ Most fatal errors or medical errors, which result in **poor patient outcomes** were due to **non-technical skills** like decision making, communication, and teamwork rather than technical skills like mask ventilation or chest compression depth
- ▶ The RETAIN table-top or digital simulator **strengthens these non-technical skills**

RETAIN Table-top Simulator

- ▶ **Efficient and effective alternative** to train non-technical skills
- ▶ **Self-directed** or **Facilitator-directed**
- ▶ **50 evidence-based scenarios**, including term and preterm infants as well as surgical cases, Hydrops, and congenital heart diseases
- ▶ **Low cost**
- ▶ **Accessible** anytime and anywhere

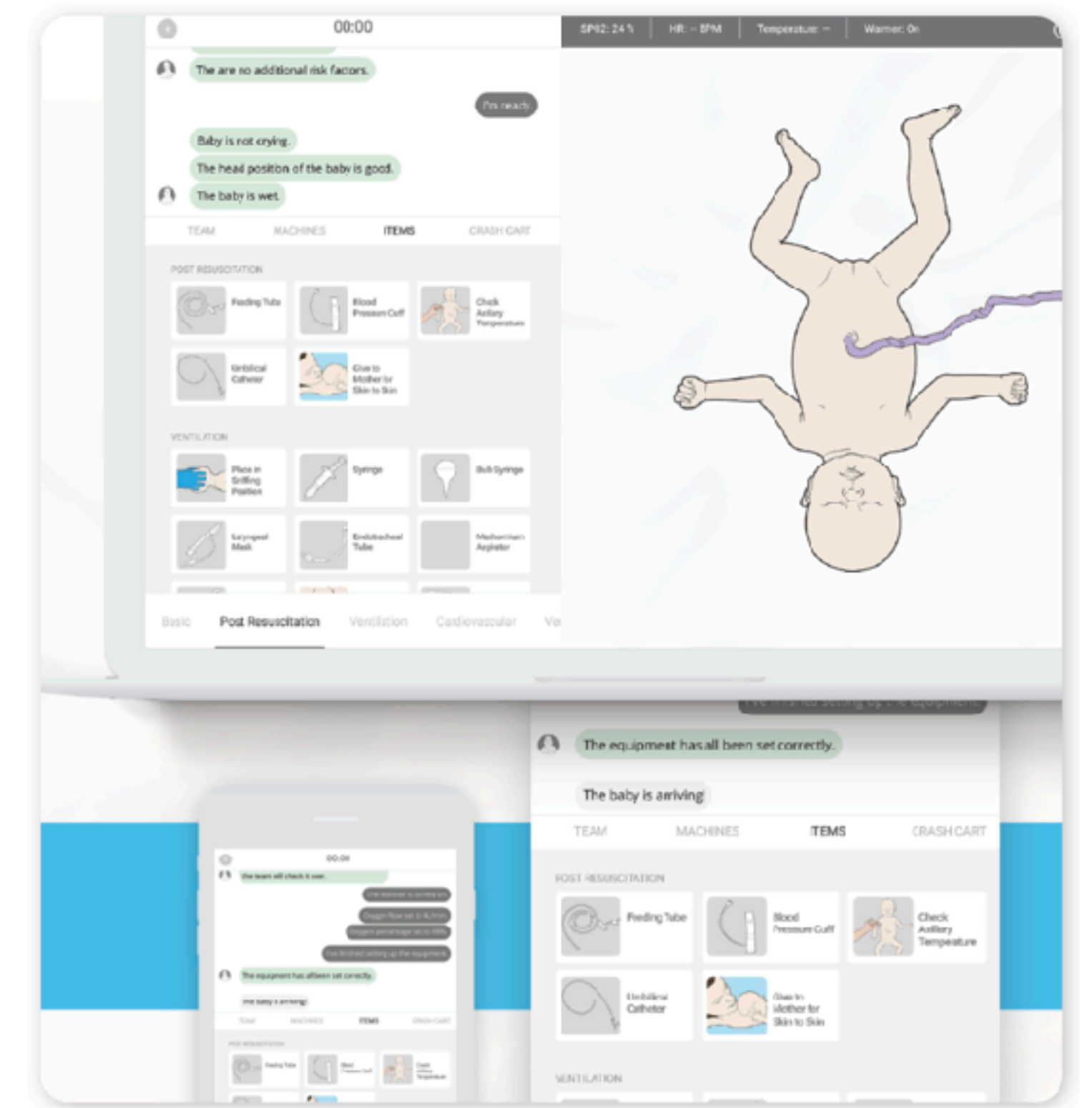


What is in the RETAIN Box?



RETAIN Digital Simulator

- ▶ **Efficient and effective approach** to train the resuscitation algorithm and knowledge retention
- ▶ **Self-directed**
- ▶ **Facilitator can send test-scenarios** to healthcare professionals to assess current knowledge and training needs
- ▶ **200 evidence-based scenarios** with various difficulties
- ▶ **Low costs**
- ▶ **Accessible** anytime and anywhere




The Digital Simulator

- ▶ Check Medical History
- ▶ Set-up equipment
- ▶ Provide resuscitate care according to patients need
- ▶ Heart beep and crying sounds
- ▶ Debrief at the end of the scenario

Actions

Equipment


EQUIPMENT

 Oxygen flow rate, L/min

-

10


+

 Oxygen gas percent, %

-

21


+

 Peak inspiratory pressure (PIP), cm H2O

-

30


+

 Pos. end expirat. pressure (PEEP), cm H2O

-

5


+

 Pop off pressure, cm H2O


-

40


+

 Heart monitor beep


ON

 Warmer

ON

 Suction machine

ON

 Suction pressure, mm Hg

-


80


+


x10


II


02:17


 Peak inspiratory pressure is 25 cm H2O


 Peak inspiratory pressure is 30 cm H2O


 Called for assistance. Pressing the Help button will also provide advice on what steps to take.


 Stopping PPV that was in progress.


 Performing intubation ...


 Intubation attempt failed, must try again. Attaching mask and starting PPV.


 Stopping PPV that was in progress.


 Performing intubation ...

 Intubation completed successfully. There is chest rise and exhaled CO₂.

 PPV is continuing through alternate airway.


 Starting chest compressions.


 Inserting intraosseous line ...


 Intraosseous line inserted


Actions


Equipment

 Dry


 Resusc wrap


 Suction


 Suction mouth and nose


 Meconium aspirator


VENTILATION


 Adjust mask


 Reposition head / airway


 Open mouth


 Start PPV

 Stop PPV


 Intubate


 Start CPAP


 Stop CPAP


 Insert lary


CARDIOVASCULAR, VENOUS ACCESS, AND MEDICATION


 Start chest compressions


 Stop chest compressions


 Insert peripheral IV

 Insert umbilical catheter


 Insert intraosseous line

 Give normal saline


 Give blood

 Epinephrine

SPO2: 47% | HR (ECG): 30 | Temp 37.0C



SPO2: 46% | HR (ECG): 25 | Temp 37.0C



How does RETAIN fit into your Environment?

RETAIN does not replace
skills training

Training of non-technical skills

- ▶ Non-technical skills are responsible for most medical error
- ▶ Training sessions with a focus on communication, decision-making, teamwork

Virtual Immersion

- ▶ Use RETAIN via Telehealth or Videoconferencing tools
- ▶ Focus training sessions on your healthcare professional needs

Just-in-time training

- ▶ Just-in-time training improves outcomes for newborn babies at birth
- ▶ For most delivery there is not enough time practise before delivery
- ▶ Enables in-time training during Pre-Brief
- ▶ Prepares healthcare providers for the birth of a baby as a team by practicing communication and decision making

Bridge in-between training sessions

- ▶ Healthcare providers re-certified once every two years
- ▶ Knowledge significantly decays three months after training
- ▶ Healthcare providers are underprepared to provide lifesaving care
- ▶ Frequent training to maintain their competence



Serious games, a game changer in teaching neonatal resuscitation? A review

Simran K Ghoman,^{1,2} Siddhi D Patel,^{1,3} Maria Cutumisu,^{1,4,5} Patrick von Hauff,^{1,6} Thomas Jeffery,^{1,6} Matthew R G Brown,^{1,5} Georg M Schmölzer ^{1,2}

Simulation-Based Summative Assessment of Neonatal Resuscitation Providers Using the RETAIN Serious Board Game—A Pilot Study

Simran K. Ghoman^{1,2}, Maria Cutumisu^{1,3}

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Digital Simulation Improves, Maintains, and Helps Transfer Health-Care Providers' Neonatal Resuscitation Knowledge

Simran K. Ghoman^{1,2}, Maria Cutumisu^{1,3,4} and Georg M. Schmölzer^{1,2*}

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Purpose: To safely care for their newborn patients, health-care professionals (HCP) must undergo frequent training to improve and maintain neonatal resuscitation knowledge and skills. However, the current approach to neonatal resuscitation simulation training is time and resource-intensive, and often inaccessible. Digital neonatal resuscitation simulation may present a convenient alternative for more frequent training.

Method: Fifty neonatal HCPs participated in the study (44 female; 27 nurses, 3 nurse practitioners, 14 respiratory therapists, 6 doctors). This study was conducted at a tertiary perinatal center in Edmonton, Canada from April–August 2019, with 2-month (June–October 2019) and 5-month (September 2019–January 2020) follow-up. Neonatal HCPs were recruited by volunteer sampling to complete a demographic survey, pre-test (baseline knowledge), two digital simulation scenarios (intervention), and post-

already known on this topic?

Healthcare professionals require simulation-based education to improve psychomotor and communication

RETAIN: A Board Game That Improves Neonatal Resuscitation Knowledge Retention

Siddhi D. Patel^{1,4}, Matthew R. G. Brown^{1,3}, Caroline Frerking^{1,5}, Thomas Jeffery^{1,5} and Georg M. Schmölzer^{1,6*}

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The current resuscitation guidelines recommend frequent simulation-based education (SBME). However, the current SBME approach is not feasible at all hospitals. We designed the board game “RETAIN” to improve neonatal resuscitation knowledge retention (HCPs) in neonatal resuscitation in a cost-friendly

Growth Mindset Moderates the Effect of the Neonatal Resuscitation Program on Performance in a Computer-Based Game Training Simulation



healthcare



Review

The RETAIN Simulation-Based Serious Game—A Review of the Literature

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Using Games to Train Doctors and Nurses to Save Babies at Birth

Authors

Simran K. Ghoman Georg M. Schmölzer

Young Reviewers

Edward



ABSTRACT

For parents, the sound of their newborn baby crying is a wonderful sign that the baby is healthy and breathing. However, millions of babies each year are born sick and depend on doctors and nurses to help them start breathing. Helping a baby breathe is called neonatal resuscitation. It is important that doctors and nurses practice performing the correct steps of neonatal resuscitation so that they are ready when a newborn baby needs their help. We created the boardgame RETAIN for doctors and nurses to play, to train

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RETAIN supported by Reserach

User experience

- ▶ Neonatal healthcare providers reported that RETAIN was **clinically valid, engaging, and conveyed important aspects** of neonatal resuscitation
- ▶ 95% stated RETAIN it useful for training neonatal resuscitation.

Knowledge improvement

- ▶ After one RETAIN training session adherence (i.e., 100% correct) to the correct steps on neonatal resuscitation increased by **36%**
- ▶ **Knowledge retention increased by 100%** and was sustained 2 and 5 months after the initial session
- ▶ Knowledge decay occurs after 3 months after traditional simulation training

Assessment

- ▶ RETAIN table-top can be used as an assessment tool to evaluate healthcare providers' competence
- ▶ Allows to focus on individual weaknesses of healthcare providers

Anticipated Impact of RETAIN

1 million newborn babies who need resuscitation die each year around the world.

66% of these deaths are related to deficiencies in healthcare providers knowledge and communication (660,000 babies).

RETAIN improves healthcare providers' ability to **safely and correctly provide resuscitation care by 36%** and **improves knowledge retention by 100%**

RETAIN has the potential to **save the lives of more than 230,000 newborn babies each year.**

Purchase the RETAIN Simulator

RETAIN Table-Top Simulator

- ▶ Order at <https://retainlabsmedical.com/purchase>
- ▶ \$400 US (+ tax, shipping, and handling)

RETAIN Digital Simulator

- ▶ Available May 2021 at <https://retainlabsmedical.com/purchase>
- ▶ \$10 US per month per licences





Everyone deserve the best start to life

Through **RETAIN**, we hope to transform
the future of communities around the
world, by **improving care for babies at
birth**



Dr. Georg Schmolzer

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<https://retainlabsmedical.com/index.html>

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