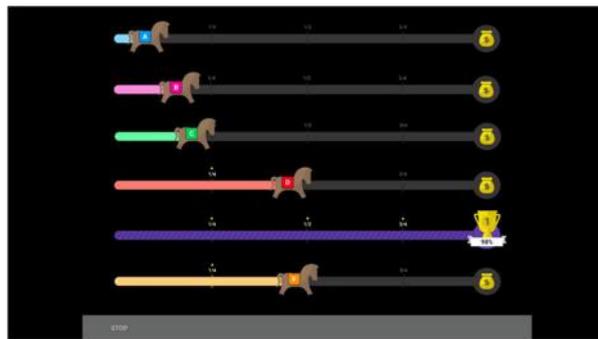QCPR Learner

QCPR Instructor

INSTRUCTOR & LEARNER APP
LITTLE & RESUSCI PORTFOLIO

Distribution Manager:
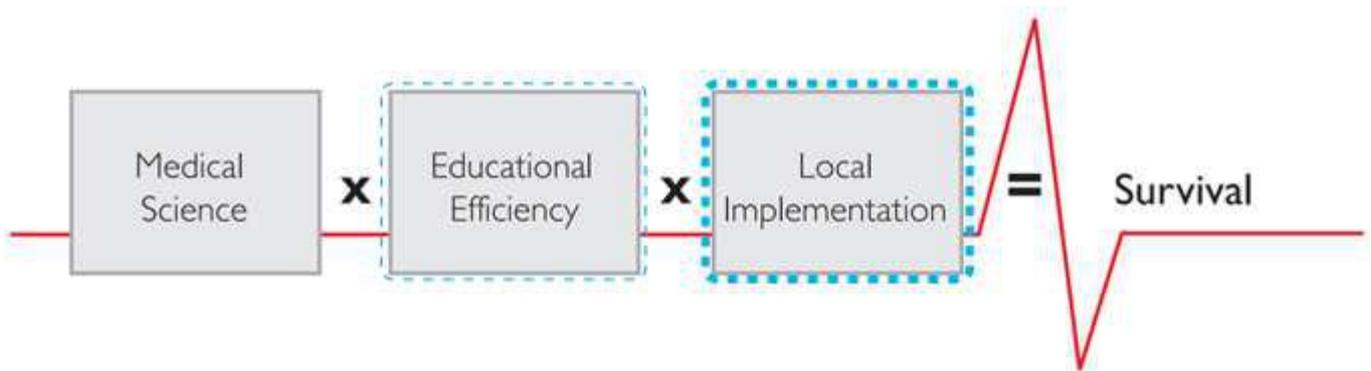Willems Gregory

Table of Contents

1 Introduction

We know that high quality CPR has been shown to save lives and has been called the "primary component in influencing survival from cardiac arrest"[1]. We also know that survival from cardiac arrest in the communities can be increased with a factor of four if lifesavers are mobilized and provide Quality CPR within minutes after the cardiac arrest takes place.

We have found solutions to help course providers with those challenges. As a result, helping them to improve their CPR courses, ultimately improving outcomes from sudden cardiac arrest in the community.

We know that instructors' judgments alone are not sufficient to determine learners' competence in performing compressions. Assessment, technology, and Guidelines must be better aligned so that learners can receive accurate feedback.[2]

Furthermore, there is good evidence supporting the use of feedback during CPR training to improve CPR skill acquisition and retention.[3] It is clear however, that existing instrumented CPR manikins are perceived to be expensive.

In this document, we will present the "Why, How and What" of the product to facilitate local implementation. This is in line with the principles of the Utstein Formula of Survival, where the biggest need and impact has to do with implementation.

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[1] Meaney PA, Bobrow BJ, et al CPR quality: improving cardiac resuscitation outcomes both inside and outside the hospital: a consensus statement from the American Heart Association. *Circulation.* 2013;128:417-35

[2] Resuscitation (2008) 76, 233—243

[3] Resuscitation 80 (2009) 743–751

2 Guidelines recommendation:

American Heart Association (AHA) Requirement on Use of Feedback Devices in Adult CPR Training Courses

CPR & Emergency Cardiovascular Care

Issued August 15, 2017

By January 31, 2019, the AHA will require the use of an instrumented directive feedback device or manikin in all AHA courses that teach the skills of adult CPR. Specifically, an instrumented directive feedback device or manikin is one that, at a minimum, provides audio or visual (or both) feedback on the rate and depth of compressions during CPR training. This requirement will impact AHA Basic Life Support (BLS), Advanced Cardiovascular Life Support (ACLS), ACLS for Experienced Providers, and Heartsaver® Courses taught in the US and internationally.

In the future, as more devices become available for child and infant CPR, the AHA will also require the use of feedback devices in courses that teach the skills of child and infant CPR.

Science Supporting this Requirement*
The *2015 AHA Guidelines Update for CPR and ECC* highlighted research showing the benefit of feedback devices that provide learners with real-time, audio-visual corrective feedback on aspects such as chest compression rate, depth, and recoil

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ERC Resuscitation Guidelines 2015

- High Quality CPR remains essential to improve outcomes

- The critical importance of a well-trained and motivated dispatcher to recognise CA and get good CPR started thru bystanders before ambulance arrival is recognised and endorsed

- Guidelines recommend more frequent training.In general the use of high fidelity manikins and recommend the use of video self-instruction and blended

- Performance focused debriefing has been shown to improve performance is highly recommended

- Curricula should be tailored to the target audience and kept as simple as possible

- CPR feedback is strongly recommended in training to learn psychomotoric skills.

3   The QCPR System

The new generation of Little Anne and Little Junior includes QCPR measurement and feedback technology. Bluetooth Smart enables connectivity to smartphones and tablets. Furthermore, SkillGuide can connect via cable. All existing Little Anne and Little Junior manikins can be upgraded with QCPR technology, which enables:

- Real-time feedback on compressions and ventilations, to identify compliance and quality improvement
- A summary with an overall score and improvement suggestion
- Details on compression release, depth and rate, ventilation volume, number of compressions/ventilations/cycles

The QCPR feedback interface is consistent with other Laerdal QCPR solutions and has been proven to be intuitive and effective for performing and improving quality CPR.
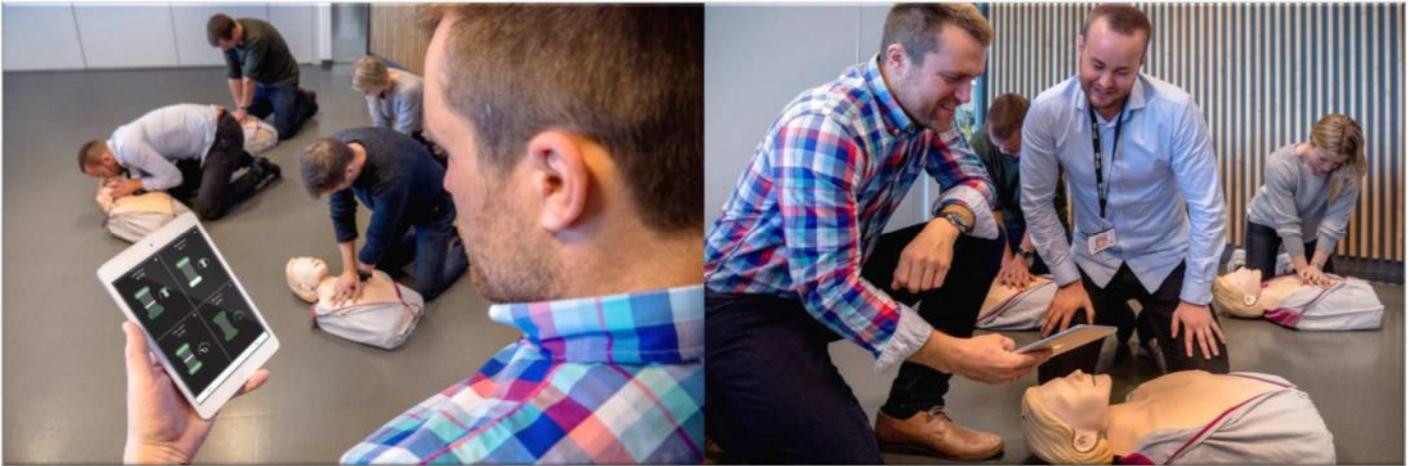
Little Anne QCPR and Little Junior QCPR works with:

- Little Anne QCPR Instructor app
    - iOS (Download from App Store)
    - Connects to 1-6 manikin(s)
    - Shows live and summative feedback of CPR performance
    - Automatic CPR improvement recommendation, post-session

- Little Anne QCPR Learner app
    - iOS and Android (Download from App Store/Google Play)
    - Connects to 1 manikin (only)
    - Shows live and summative feedback of CPR performance
    - Automatic CPR improvement recommendation, post-session

- SkillGuide
    - Can be used standalone or as a supplement to either of the apps

3.1 Little Anne QCPR Instructor app

- With the Little Anne QCPR Instructor app, the instructor can get an overview of all the manikins in a class (up to six manikins).
- By naming the manikins in the app, and labeling the manikins with the same name, it is easy to locate the specific manikin.
- Together with his/her own observations, the instructor can quickly identify students learning needs and provide tailored instructions based on the objective QCPR monitoring.

- It is quick and easy to connect.

- Other use opportunities:
  - o Display on a TV screen or projector using Apple TV or a HDMI adapter. The competition aspect is appreciated for some types of learners.

3.1.1 How Little Anne QCPR Instructor app Works

1. The instructor can choose to run either a Compressions Only or 30:2 session. The timer can be set at 1-10 minutes, or infinite (Figure 1).

2. The app will explain how to connect the manikins to the tablet. Up to six manikins can be connected. Due to technical specifications of Bluetooth Low Energy, six is the maximum limit. (Figure 2)

3. The manikins will appear on the screen as they are connected. The instructor can rename the manikin by using the pen-icon to the left. It is recommended that users label the manikin with the same name. Stickers will be provided.
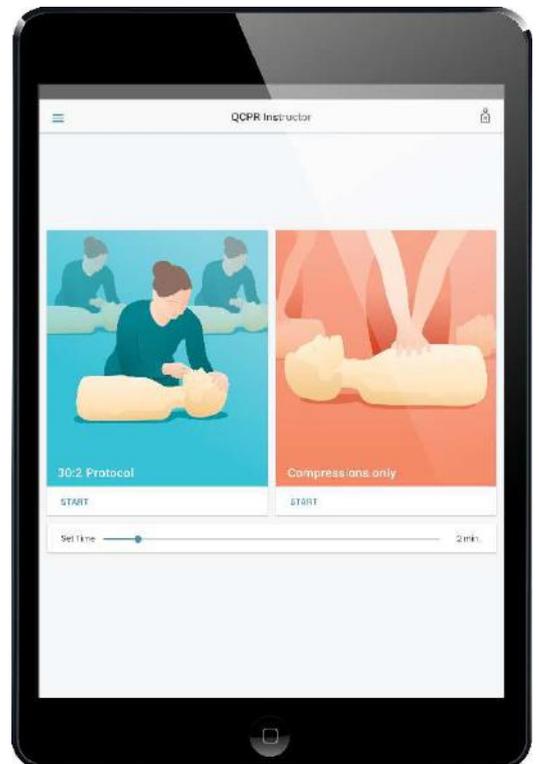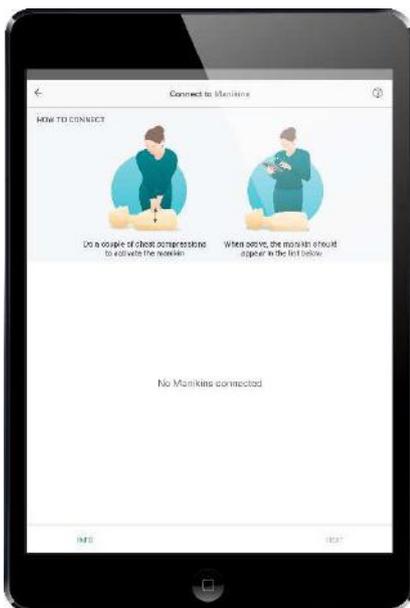

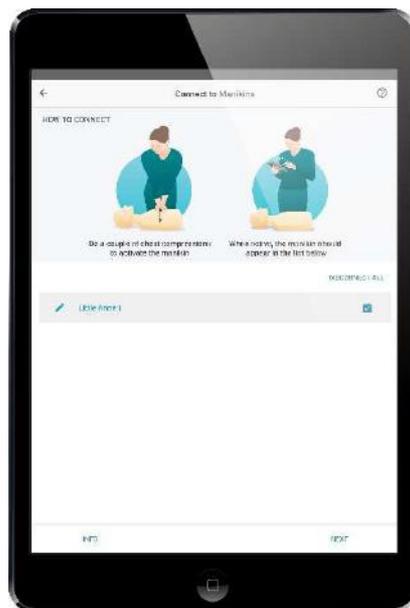*Figure 1 Select training type*

Figure 2 No manikin connected

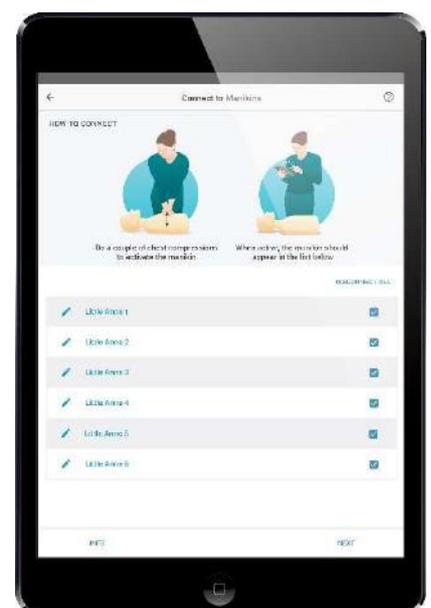*Figure 3 One manikin connected*

Figure 4 Six manikins connected

4. Following the instructors' guidance, the learners start their CPR training session. The session starts by performing compressions.

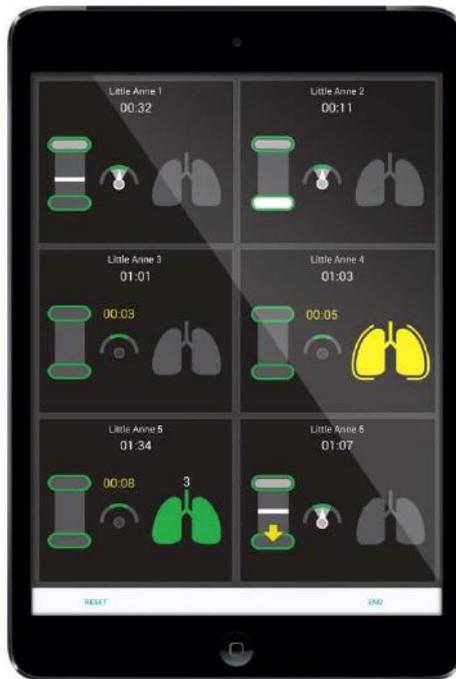*Figure 5 Ready to start session*

Figure 6 Live Feedback on compressions and ventilations

5. Post event the training session, the results from each manikin is presented. An overall score with the most important CPR improvement suggestion is presented (Figure 7). The instructor can tap one of the manikins for more details (Figure 8).

Figure 8 Result overview

Figure 7 Detailed results

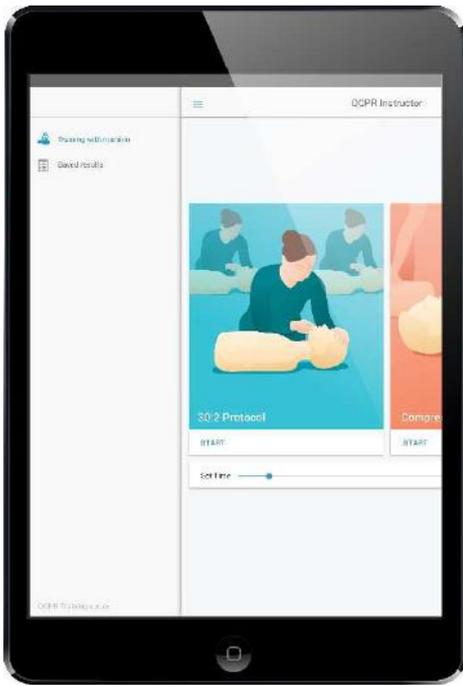6. The instructor can save the result and go back and review later.

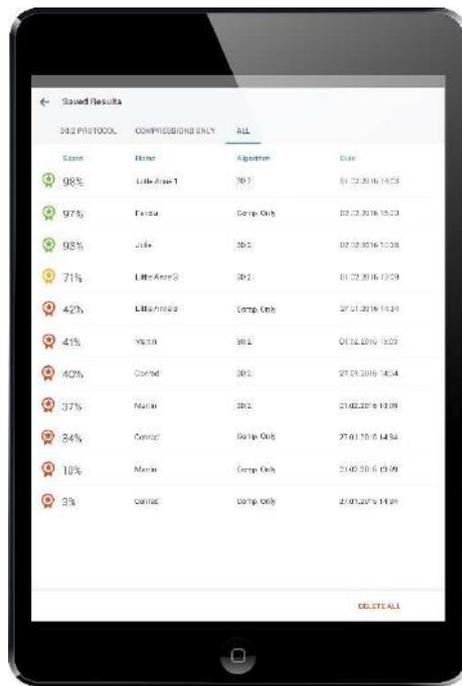*Figure 9 The saved results can be found in the side menu*

Figure 11 List of all saved results

Figure 10 View details of a saved result

3.1.1 Little Anne QCPR Instructor app Value proposition

- **Affordable**
  - QCPR at an affordable price

- **Motivation & Engagement**
  - Learners and instructors find objective feedback and scoring motivating[4]
  - The system allows for competition between individuals and teams. Competition used in a positive way and non-punitive manner can have positive impact on performance and motivation[5]

- **Transportability**
  - Light weight and robust systems, which are easy to transport to offsite CPR classes

- **Efficiency**
  - Multi-manikin (student) monitoring allows instructor to manage six students easily and accurately, following the objective QCPR technology.
  - Fast, easy and accurate overview of the student's CPR performance, which enables identification of learners needs for tailored instructor guidance.

- **Quality Improvement**
  - Assurance of CPR quality performed by the learner
  - Objective feedback gives the instructor more authorization while giving feedback to the Learner
  - More reliable assessment of learners
  - Set minimum pass criteria and three levels of quality CPR performance
  - There is good evidence supporting the use of CPR feedback during CPR training to improve CPR skill acquisition and retention[6]

- **Differentiation**
  - Low-cost QCPR monitoring functionality enables organizations to be perceived as innovative and offer new and engaging learning technology.

- **Simplicity**
  - Plug and Play
  - Easy to use as part of existing course curriculums

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[4] With a very brief training supported by hands-on instructor-led advice and visual feedback, naïve laypeople are able to perform good-quality CC-CPR. Simple instructions, feedback, and motivation were the key elements of this strategy, which could make feasible to train big numbers of citizens. (Am J Emerg Med. 2016 Jun;34(6):993-8. doi: 10.1016/j.ajem.2016.02.047. Epub 2016 Feb 21)

[5] Competition, especially between participants, appeared to encourage staff to practice and this study suggests that competition might have a useful role to help motivate staff to perform CPR training (Scand J Trauma Resusc Emerg Med. 2015; 23: 79)

[6] Joyce Yeung, Reylon Meeks, Dana Edelson, et al. Resuscitation 2009;80:743-51

3.1.2 Skillguide

- The existing SkillGuide feedback instrument offers simple and intuitive plug and play
- The SkillGuide and the QCPR app presents feedback simultaneously.
- The learners can coach each other using the SkillGuide.
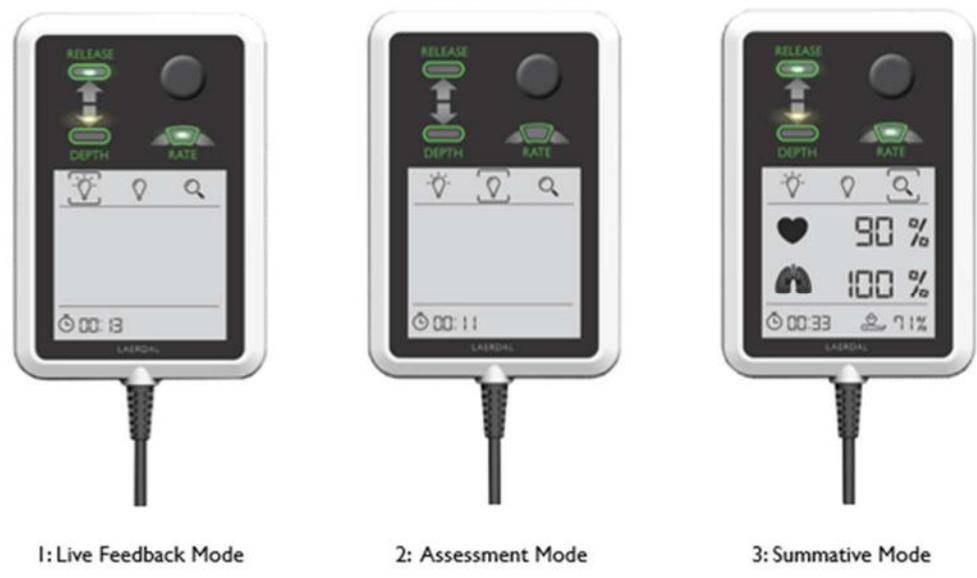- The SkillGuide can be used solo (without the QCPR app).

3.1.2.1 How SkillGuide works

1. SkillGuide connects to the manikin via an extension cable going out through a slot in the shoulder.
   - The extension cable needs to be connected *(one-time only)* to the sensor mounted to the Rib Plate and then guided through the slot in the shoulder.

2. When used as a supplement to the QCPR app, plug in SkillGuide and connect the app. The SkillGuide now will work automatically. Note:
   o The toggle button on the SkillGuide is deactivated when used with the QCPR app.
   o SkillGuide will automatically change from Live Feedback mode to Summative when the session ends, following the app settings.

1: Live Feedback Mode   2: Assessment Mode   3: Summative Mode

3. To use SkillGuide solo (no app): Connect to manikin and activate by performing one compression. The toggle button can be used to switch between, Live Feedback Mode, Assessment Mode, and Summative Mode.

3.1.2.2   SkillGuide Value Proposition

- Engagement
  o Scoring and competition

- Quality
  o Peer to peer feedback and coaching

- Efficiency
  o Peer to peer feedback and coaching enables the instructor to focus on the teams with the most problems

- Reliability
  o A tethered proprietary feedback device. No need for Bluetooth connectivity
  o No risk of connection to the wrong manikin

3.1.3 Little Anne QCPR Learner app

- Little Anne QCPR Learner app can connect to one manikin.
- There are three options on how to use the Little Anne QCPR learner app:
    1. Only the instructor watches the feedback
    2. The learner follow the feedback himself/herself on his/hers own smartphone (self-directed learning)
    3. The learners coach each other

3.1.3.1 How Little Anne QCPR Learner works

1. The Learner can choose to run Compressions Only, 30:2 session, or look at saved results (Figure 12).

Figur 12 Choose Algorithm

2. The app guides the user on how to connect the manikin to the smartphone.
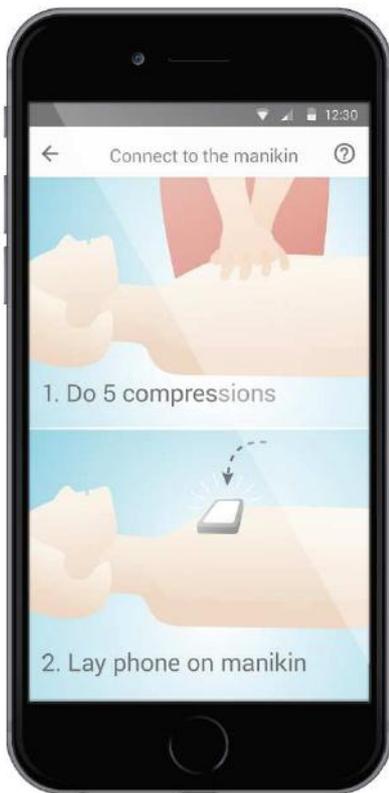

Figure 13 No manikin connected

Figur 14 manikin connected

3. The session starts by doing compressions. The sessions ends by pushing END.

Figure 15 ready to start session

Figure 16 Live Feedback on compressions and ventilations

4. When the session is ended, the user is awarded a score and an automatic suggestion for CPR improvement, following the objective CPR assessment accordingly to latest Guidelines.

Figure 17 Result with Top Hint for Improvement

Figure 18 Detailed results

5. The Learner can save the results and view later.

Figure 19 List of saved results

3.1.3.2 Little Anne QCPR Learner app Value Proposition

- **Motivation & Engagement**
  - Learners and Instructors find objective feedback and scoring engaging and motivating

- **Quality Improvement**
  - CPR quality assurance by objective real-time and post-event feedback
  - Accurate, automatic and Guidelines compliant assessment of learners

- **Efficiency**
  - Peer to peer feedback and coaching enables the instructor to focus on the students in need of coaching
  - Easy to help provide quality training to learners, and demonstrate quality improvements over time.

- **Affordable**
  - QCPR at an affordable price

- **Transportability**
  - Light weight and robust systems

- **Simplicity**
  - Simple to implement into existing courses curriculum

3.1.4   Little Anne QCPR- and Little Junior QCPR Upgrade Kits

- Upgrade kits enable all installed base of Little Anne (after 2009) and Little Junior to be used with QCPR apps and SkillGuide.
- Upgrade kits include:
  - A modified rib plate with pre-assembled QCPR Sensor
  - Ventilation sticker placement aid
  - Ventilation sticker
  - Reflector for compressions
  - 2x AA batteries
  - Jaw assembly with flexible valve holder
  - Little Anne QCPR Sticker
  - Little Anne QCPR label for bag

3.1.4.1   How to install the Upgrade Kit
1. Open manikin chest skin
2. Remove existing Rib Plate
3. Place the Reflector in the bottom of the manikin
4. Insert the Batteries into the QCPR Sensor
5. Mount Rib Plate to manikin
6. Place Sticker Placement Aid on the inside of the chest skin.
   - Place the Ventilation Sticker into the designated area on the Sticker Placement Aid.
7. Replace existing jaw with the new Jaw assembly with flexible valve holder, which enables flexible valve holder and improved ventilation functionality *(prevents lung potentially disconnecting during head-tilt)*
8. Close the chest skin
9. Write manikin name on the sticker and put on the manikin

3.1.5 Overview per Stakeholder

Stakeholders	Value Proposition
The Instructor	**1** Efficiency **2** Transportability **3** Quality Improvement
The Learner	**1** Motivation & Engagement **2** Quality Improvement **3** Efficiency
The Decision Maker	**1** Affordable **2** Quality Improvement **3** Differentiation
The Organizer	**1** Efficiency **2** Simplicity **3** Transportability
The Maintainer	**1** Reliability **2** Simplicity **3** Transportability
The Resource Team	**1** Transportability **2** Simplicity **3** Reliability
The Company (Customer)	**1** Affordable **2** Efficiency **3** Quality Improvement

4 Nieuw product references:

4.1 Little

Little Anne QCPR

123-01050 : Little Anne QCPR

124-01050 : Little Anne QCPR pack de 4

Little Junior QCPR NEW

128-01050 : Little Junior QCPR
*Consommables restent les mêmes.

129-01050 : Little Junior QCPR pack de 4

Little Family Pack QCPR

NEW

126-01050 : Little Family QCPR

4.2   Resusci :

Resusci Junior QCPR

NEW

181-00150 : Resusci Junior QCPR

Resusci Anne QCPR (Smart bluetooth)

NEW

Gamme without AED

Resusci Anne QCPR torso
171-00160

Resusci Anne QCPR torso with airway
head
172-00160

Resusci Anne QCPR full
body
171-01260

Resusci Anne QCPR full body with airway
head
172-01260

Resusci Anne QCPR (Smart bluetooth)

NEW

Gamme with AED possibilities (link) or real shock (shocklink).

Resusci Anne QCPR AED torso
173-00160

Resusci Anne QCPR AED torso with Airway
head
174-00160

Resusci Anne QCPR AED full body
173-01260

Resusci Anne QCPR AED full body with
airway head
174-01260

Resusci Anne QCPR AED shocklinck
torso

Resusci Anne QCPR AED shocklinck full body