



European Society of
Regional Anaesthesia
& Pain Therapy
ESRA ITALIA

ESRA Italian Chapter

XXVIII CONGRESSO NAZIONALE

PRESIDENTE
DEL CONGRESSO
Luciano Calderone





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Advanced simulation for better management of emergency in the delivery room and safe birth

(La simulazione avanzata per una migliore gestione dell'emergenza in sala parto e della nascita sicura)



**SIMULATION ALLOWS YOU TO DEAL
WITH UNUSUAL AND COMPLEX
SITUATION**



L. Calderone



Delivery room is a particular environment

CHARACTERISTICS OF EMERGENCIES IN OBSTETRICS

They are rare

Experience is required

They are unpredictable

They require an immediate response

They are at high risk

Inevitable medico-legal involvement



Delivery room is a particular environment

Characterized by:

- **Acute stress**
- **Heavy work**
- **2 patients in 1**
- **High risk of errors in decision-making and action**

Requires:

- ❖ **Problem planning and anticipation**
- ❖ **Error surveillance**
- ❖ **Effective communication**
- ❖ **Multidisciplinary work**



STRESS

Psychophysical response to a quantity of emotional, cognitive or social tasks perceived by the person as excessive

The stress caused by management of a difficult airway “in obstetrics” has long been underestimated

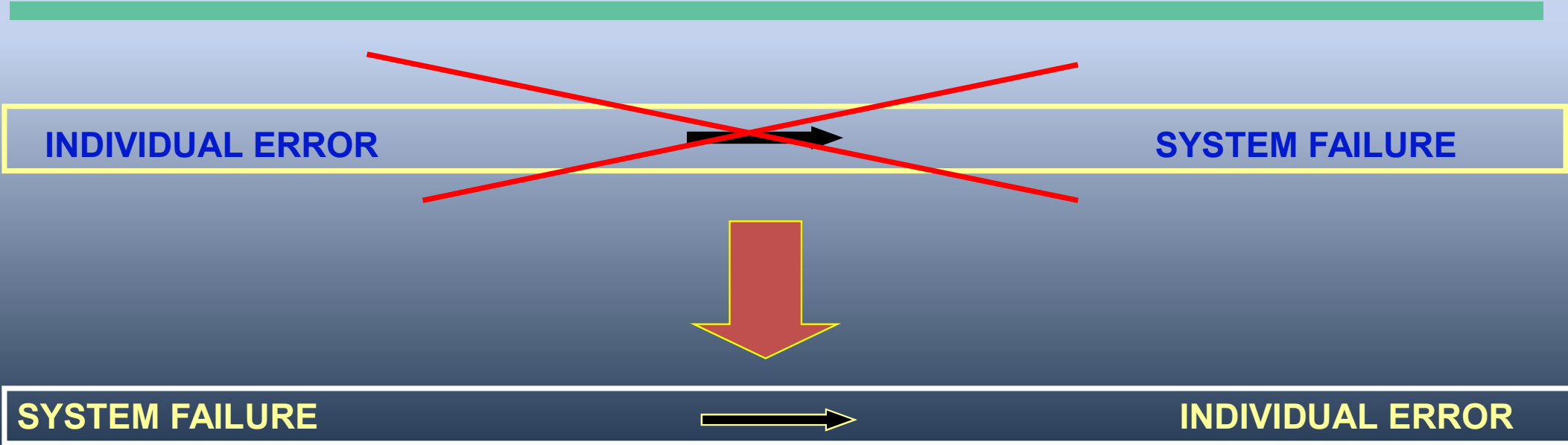
- The only medical context where the mortality rate can be 200%
- The unpredictability of the emergency.
- Difficulty in obtaining “expert help” .
- Inexperience of younger operators in airway management in the “obstetric patient”



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The approach to error





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Reason's systems approach

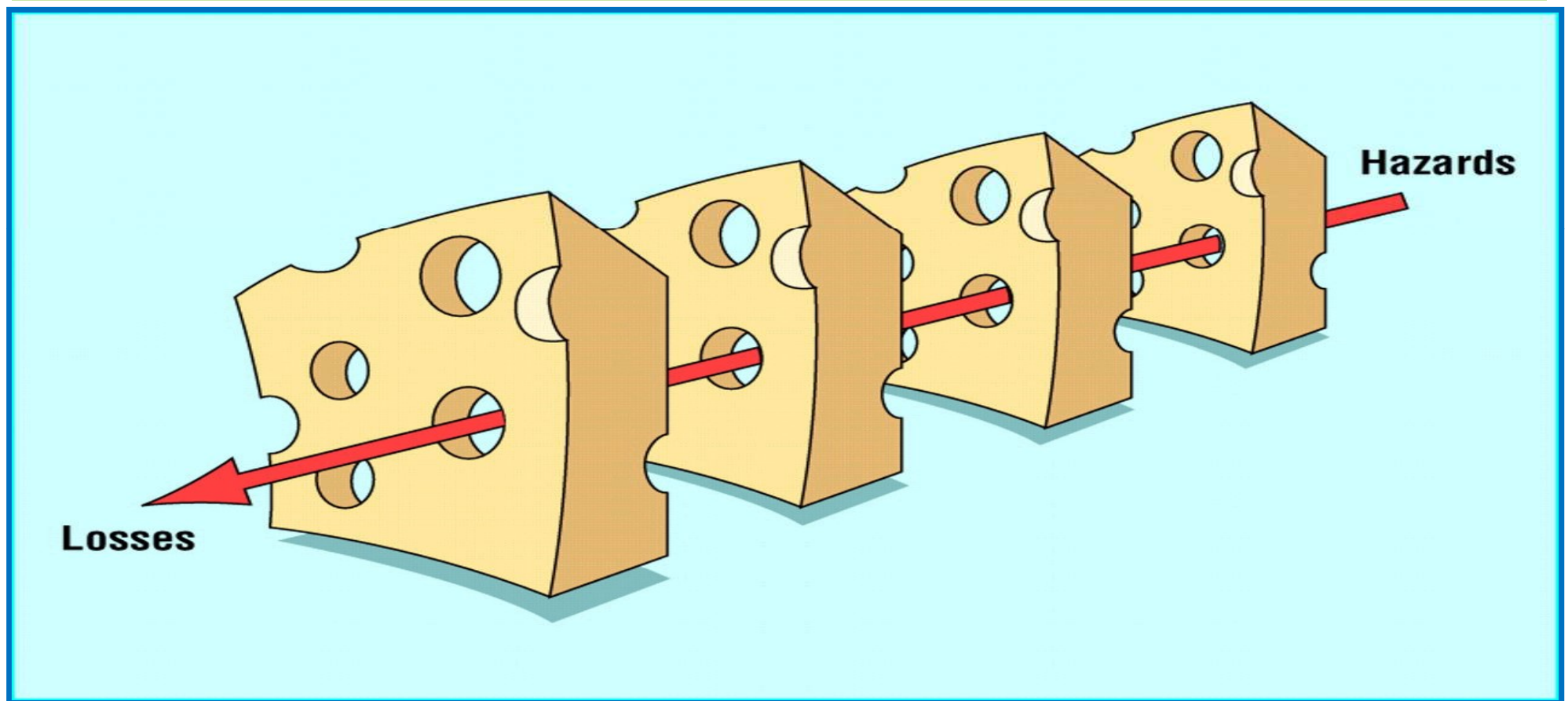
- ❖ **Errors** -> are consequences of organized action and not causes of system failure.
- ❖ **Organized systems have:**
 - **Latent conditions of insecurity (latent failure)**
->in which human actions take place
 - **Actions/Omissions (active failure)**
->the accident occurs when the actions of the individual find openings in the security of the system



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Reason's systems approach



Multi-professional team





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Multi-professional team

- ✓ Know and disclose any high-risk pregnancies in the department or in the antenatal and anesthetic clinics.
- ✓ Supervise and collaborate in the peripartum also with the use of the **ultrasound**.
- ✓ Conduct periodic meetings (audits) and periodic reviews of the protocols.
- ✓ Participate in ACLS courses
- ✓ Participate in **interactive and dynamic simulation courses of clinical scenarios**

Why such a training course?

BECAUSE THE AWARENESS OF THE ROLE AND RESPONSIBILITY OF OPERATORS IN THE MANAGEMENT OF OBSTETRICAL EMERGENCIES IS NOT ALWAYS CLEAR

And the critical issues in the management of critical events in obstetric anesthesia are contained in the knowledge:

- **Techniques**
- **Organizational**
- **Management**



Lipman et al. found a dramatic deficit in CPR performance during simulated maternal cardiac arrest

The authors assessed CPR performance by 18 multidisciplinary teams (1–2 obstetric providers, 1–2 obstetric nurses, and one anesthesia provider) using a standardized, 10-item checklist.

Table 1. Proportion of teams performing essential cardiopulmonary resuscitation interventions during simulated obstetric cardiac arrest

Intervention	Number (%) performing task	Potential harm*
Remove monitors before defibrillation	0/18 (0)	Burn to patient or staff
Place firm support under back	1/18 (6)	Inadequate CPR
Switches compressor every 2 min	4/18 (22)	Inadequate CPR
Left uterine displacement during CPR	6/18 (33)	Inadequate CPR
Correct ventilation rate	8/18 (44)	Inadequate ventilation
Correct compression rate	10/18 (65)	Inadequate CPR
Report given to neonatal team	14/18 (78)	Inadequate/inappropriate
Cricoid pressure during mask ventilation	14/18 (78)	Aspiration of gastric contents
Correct hand position of sternum	15/18 (83)	Inadequate CPR

Lipman SS, Daniels KI, Carvalho B, et al. Deficits in the provision of cardiopulmonary resuscitation during simulated obstetric crises. *Am J Obstet Gynecol* 2010; 203:179 e1–179 e5.



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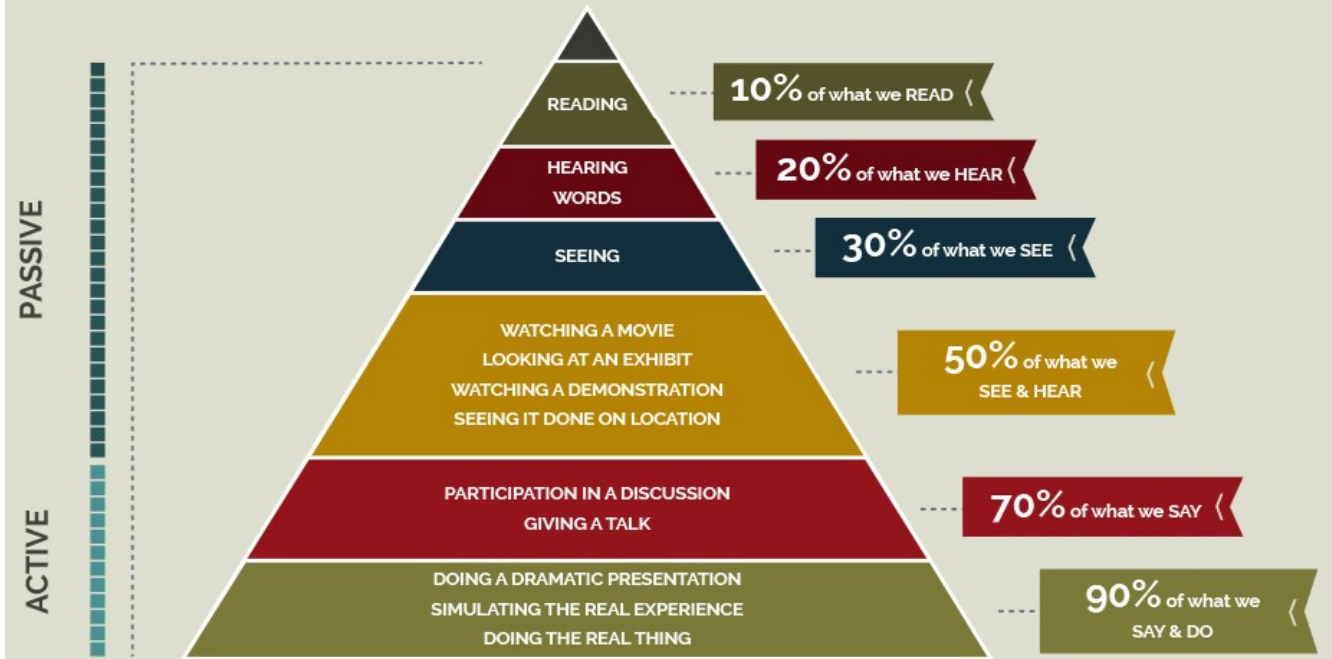


**“Tell me and I forget.
 Teach me and I remember.
 Involve me and I learn.”**

~ Benjamin Franklin

THE CONE OF LEARNING

AFTER TWO WEEKS, WE TEND TO REMEMBER...



SOURCE: EDGAR DALE (1969)



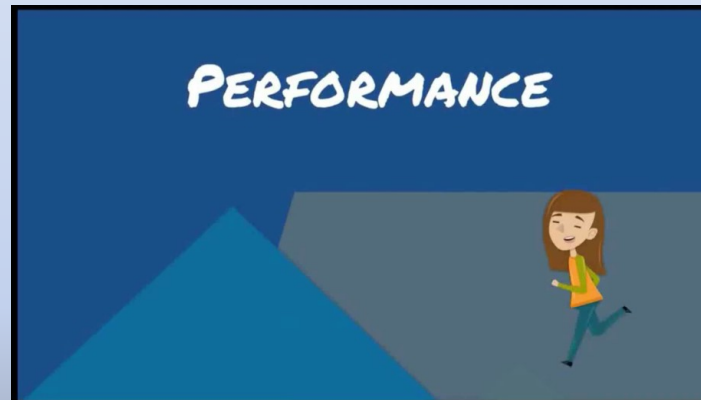
**EDGAR
 DALE**



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RATIONAL



- Use the advanced simulation methodology **to best deal with emergency management in the delivery room**
- Exercise teamwork, leadership and communication skills in an interactive and dynamic clinical scenario totally risk-free**, acquiring behavioral automatisms useful for dealing with various critical maternal and neonatal situations.



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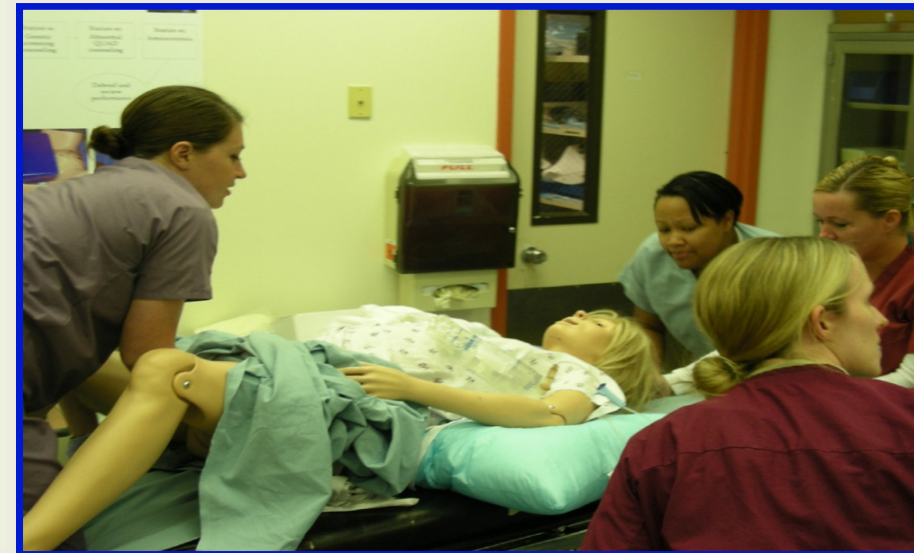
Simulation in anesthesia, obstetric and neonatal emergencies is carried out through:

- 1) technical skills training
- 2) training of non-technical or teamwork skills
- 3) evaluation of the clinical competence of individuals
- 4) evaluation of the safety of the clinical environment

Pratt SD. Focused review: simulation in obstetric anesthesia. *Anesth Analg* 2012; 114:186–190.

With particular focus on teamwork:

- *Communication*
- *Situational awareness*
- *Clarity of role*
- *Leadership*
- *Decision process*
- *Cross-monitoring (cross-check)*





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An interdisciplinary approach

- Acquire and exercise leadership
- Recognize appropriate strategies based on information
- Work in a team effectively and quickly
- Distribute roles
- Recognize clinical and organizational priorities
- Use closed-loop communication during an emergency
- Prevent errors with CRM principles





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THE SAFETY MODEL OF AIRLINE PILOTS APPLIED IN HEALTHCARE

CRM (Crisis resource management) **is the set of resources and strategies put in place to best manage a crisis situation.**

It has the peculiarity of **emphasizing the human behavioral factor** in the management of an emergency, since it is scientifically proven that it has a significant influence on overall performance.





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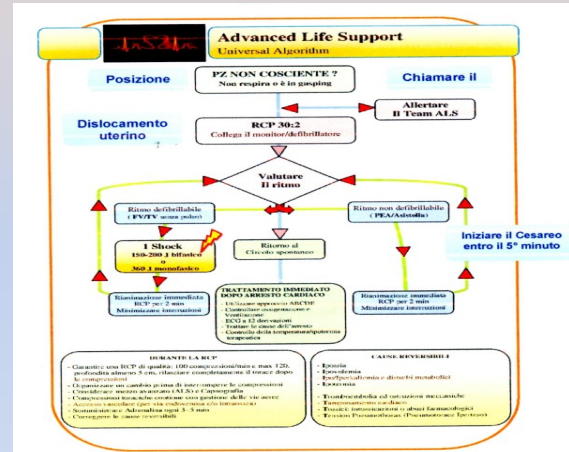
GOALS

➤ Be able to manage **critical events in obstetric anaesthesia** according to clinical guidelines and CRM principles (resource management in critical situations)

➤ Develop multi-professional integration

➤ Stimulate critical thinking in the participants

➤ Identify the critical issues related to logistics, organization and individual skills

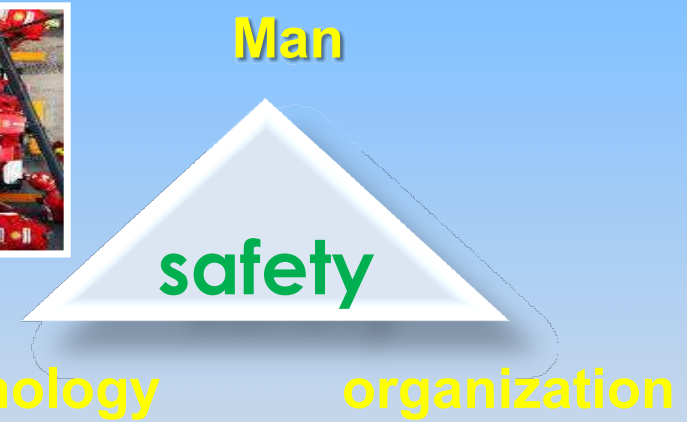




1	Know the environment
2	Anticipate and plan
3	Call for help quickly
4	Carry out the leadership and fellowship role
5	Distribute the workload
6	Mobilize all available resources
7	Communicate effectively
8	Use all the information
9	Prevent and manage the fixation error
10	Ross-check and double-check
11	Use all cognitive aids
12	Reevaluate repeatedly
13	Do good team work
14	Focus your attention wisely
15	Establish priorities dynamically

CRM (Crisis Resource Management)

Decalogue of 15 points to analyze critical situations and best manage available resources (equipment and people)



- people working in teams
- who face critical high-risk situations
- who have to make high quality decisions
- who operate in conditions of high stress and in short times



Key principles of CRM

1. Know the environment

- a. Resources
- b. Staff
- c. Equipment
- d. Who may be called
- e. The system





Key principles of CRM

2. Anticipate and plan

- a. Mentally simulate problems that may arise
- b. Correct and resolve problems early
- c. Try to have a plan
- d. Don't get overwhelmed by events





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Key principles of CRM

3. Call for help quickly

- a. Know your limits
- b. Respect the patient...and not your pride
- c. It is better to be many in difficult times





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Key principles of CRM

4. Carry out the leadership and fellowship role





Team Leader in obstetric emergencies

Team leader is someone who positively influences the group to achieve a common objective:

✓ Can be leader and collaborator at the same

✓ Keeps calm Facilitates

✓ Facilitates communication between group members

✓ Gives guidance on what to do





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Key principles of CRM

5. Distribute the workload





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Key principles of CRM

6. Mobilize all available resources

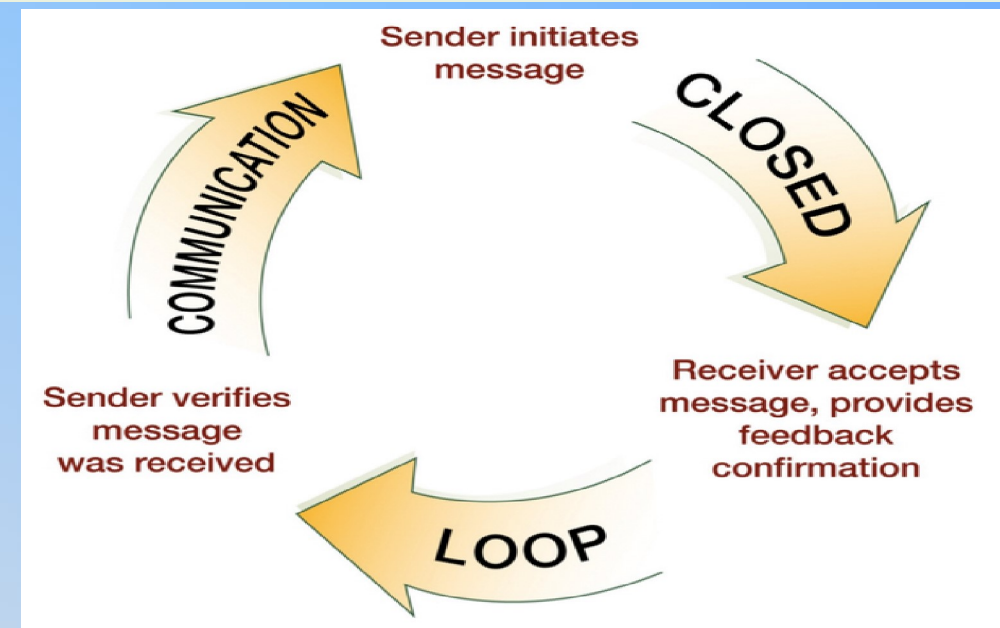
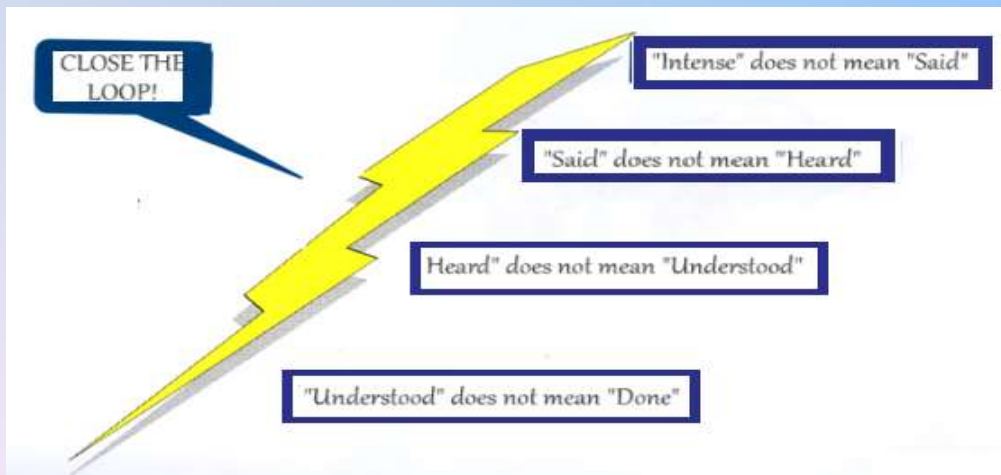




Key principles of CRM

7. Communicate effectively

a. Close loop communication





Key principles of CRM

8. Use all the information

- a. A little extra information can make the difference
- b. Only one source of data can be wrong
- c. Cross-check the data flow





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Key principles of CRM

9. Prevent and manage the fixation error

a. Always change perspective and look at the situation as a whole





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Key principles of CRM

10. Cross-check and double-check

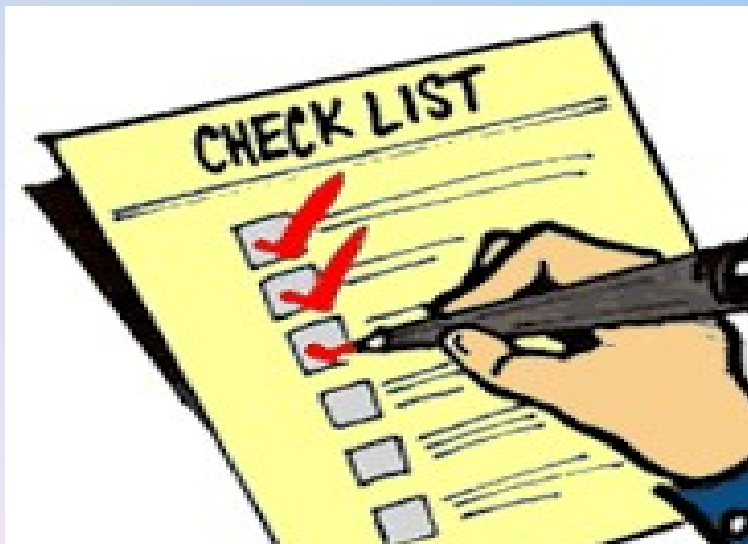




Key principles of CRM

11. Use all cognitive aids

- a) Use the checklists
- b) Calculate the doses with the calculator
- c) Call your pharmacy
- d)

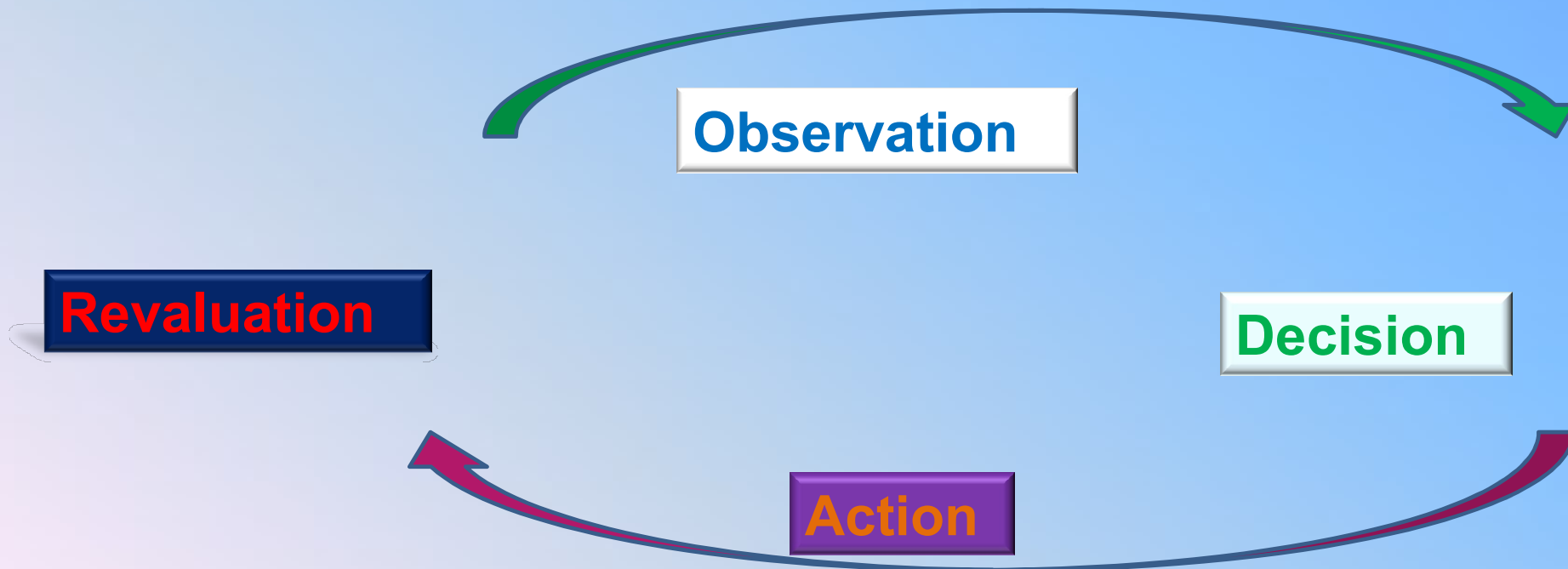




Key principles of CRM

12. Reevaluate repeatedly

a) Dynamic decisions...For dynamic situations



10 second x 10 minute rule

DIAGNOSIS



STOP
NOW
AND
THINK
AGAIN

- ✓ Problems
- ✓ Team
- ✓ Facts
- ✓ Planning
- ✓ Distribution



Key principles of CRM

13. Do good team work

- a) If all members know their work and their task, coordination is easier





Key principles of CRM

14. Focus your attention wisely

- a) Human beings cannot perform multiple important tasks at the same time
- b) Focus on the most important aspects
- c) Let others control less important aspects





Key principles of CRM

15. Establish priorities dynamically

- a) Dynamic situations require dynamic measures
- b) Reevaluate and define new priorities





CRM

(CRISIS RESOURCE MANAGEMENT)

CRM is based on 15 points aimed at acquiring complete awareness of how to manage:

1. the knowledge
2. the communication
3. team work
4. the possible sources of error during a clinical emergency.





Technical skills

- Theoretical knowledge
- Application of procedures
- Technical skills skills

Non-technical skills

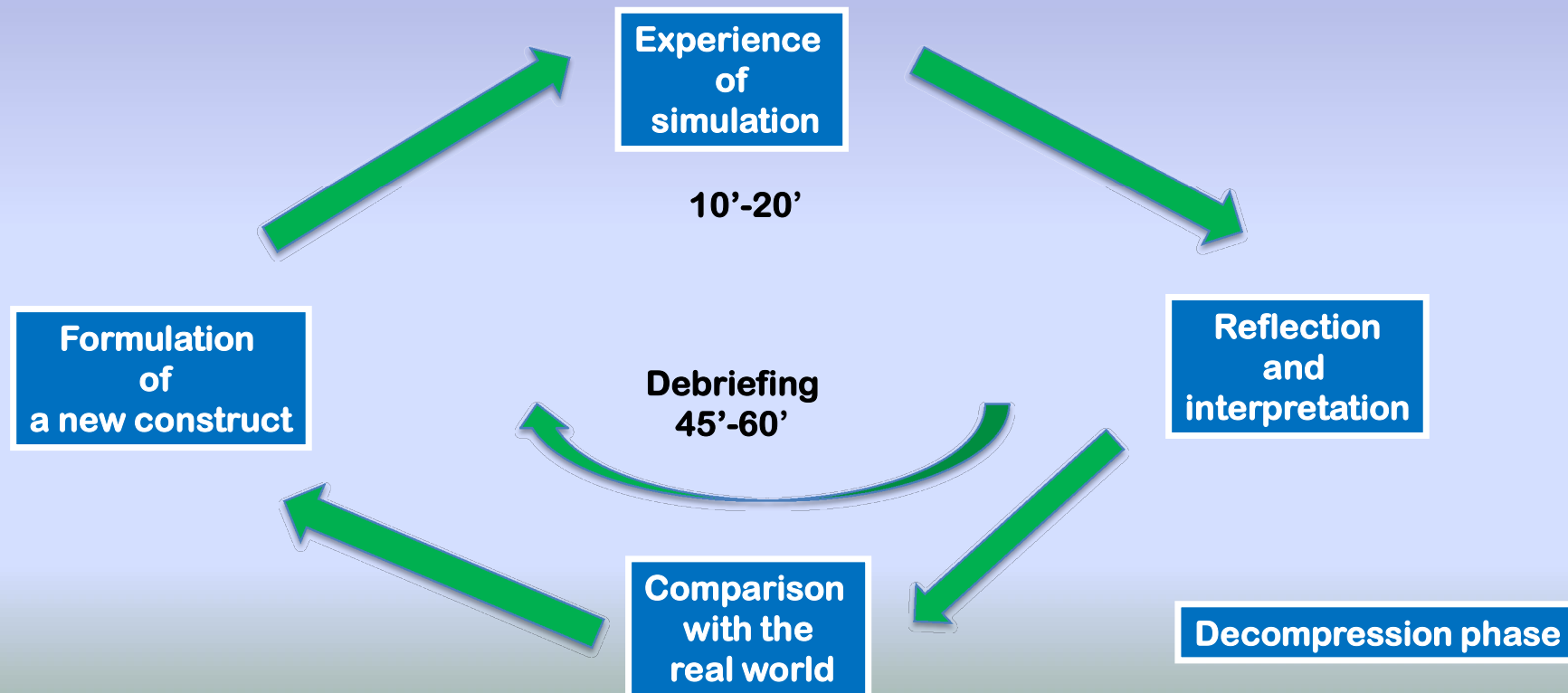
- Communication
- Leadership
- Teamwork

- **Create Create interactive and dynamic clinical scenario totally risk-free**
- **Reproduce procedures in realistic environments**
- **Repetitive learning**
"practice makes perfect"
- **Personalized learning**
- **Discussion and evaluation of therapeutic interventions carried out with the help of audio/video reproduction (debriefing) without fear of being judged.**

Key role of the instructor: manage the complexity of all aspects of the simulation



The experiential cycle in simulation





DEBRIEFING

Using the CRM points during the debriefing allows you to analyze behaviors in a climate of collaboration ("no-blame theory" or not looking for those who made a mistake)



1. discussing the technical data (which drugs to use and why, which procedure to follow) but above
2. all analyzing the behavior of the team as a whole of relationships, skills and emotions



Debriefing

- **DESCRIPTION**
 - The first impression of the experience: how do you feel?
 - Reconstruction of events: what happened?
 - Evaluation of the actions undertaken
- **ANALYSES**
 - Analysis of key elements
 - What did I do that was positive?
 - What helped me?
 - Video recording to stimulate reflection
- **APPLICATION**
 - What have I learned?





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SCENARIO

Carrying out the scenario in your own working environment with the people you work with on a daily basis allows you to evaluate the associated clinical risk:

1. to the environment (an emergency in the room is different from an emergency in the delivery room)
2. to equipment (check your knowledge especially on rarely used devices)
3. to procedures (do we all follow the same procedure?, do we need other procedures?)





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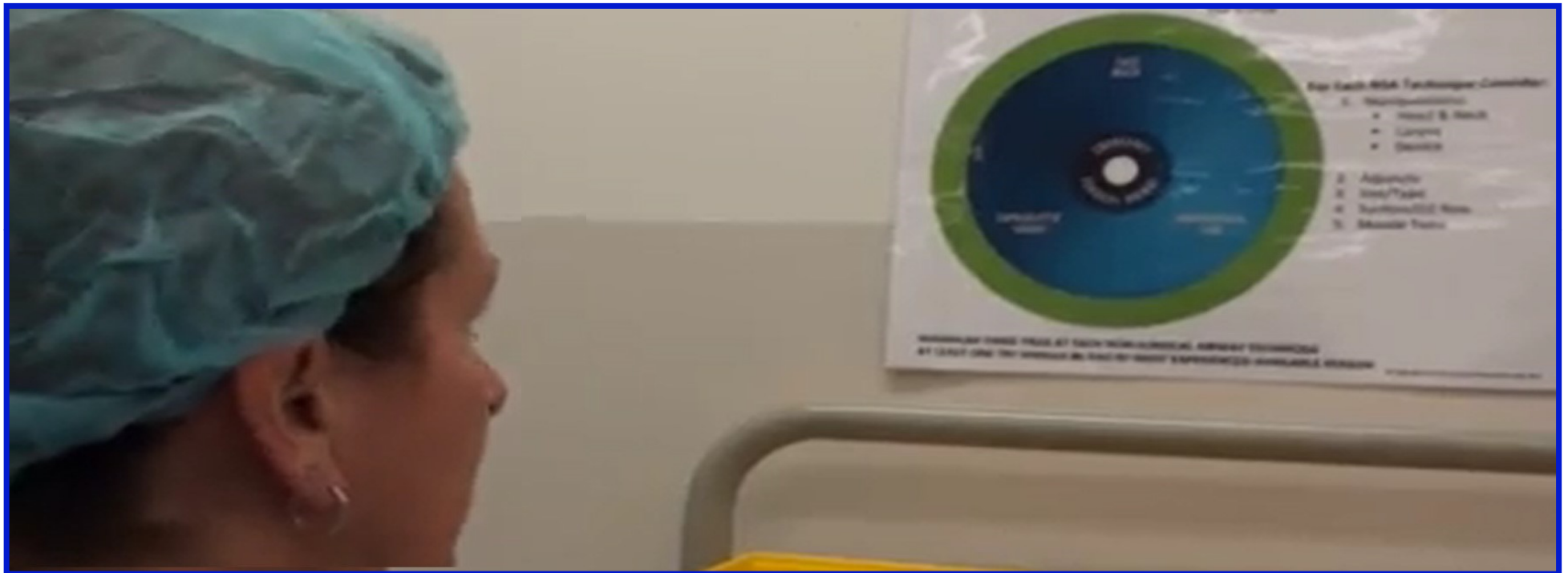
Conclusions

- ✓ Training must be ongoing through at least a two-year program aimed at all healthcare workers
- ✓ The training of a close-knit multi-professional team
- ✓ The low-tech simulation technique can be used by all operational units
- ✓ The high-tech simulation technique (simulator) is available in only a few centers
- ✓ The training is aimed at reducing clinical risk





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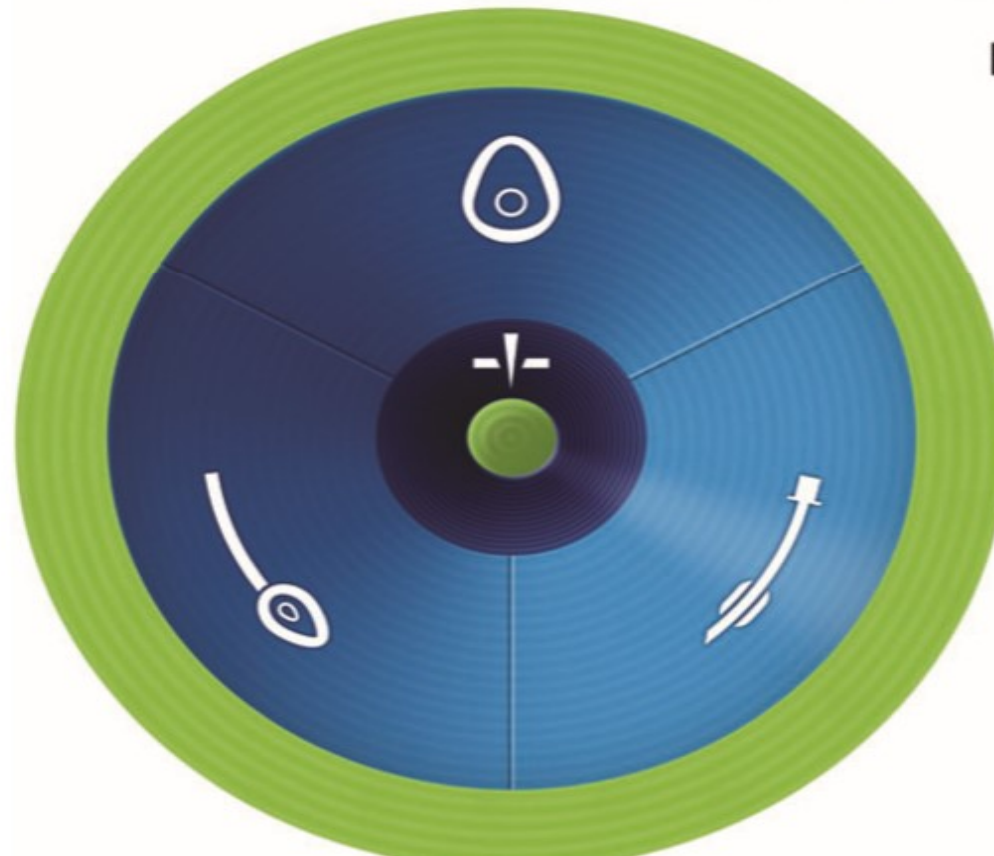


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T H E V O R T E X

FOR EACH LIFELINE CONSID



MANIPULATIONS:

- HEAD & NECK
- LARYNX
- DEVICE



ADJUNCTS



SIZE/TYPE



SUCTION/O₂ FLOW



MUSCLE TONE



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Cu mancia,
fa muddichi
Cu prima nun pensa,
all'ultimo suspira.

