

Avilés, 16 noviembre 2013

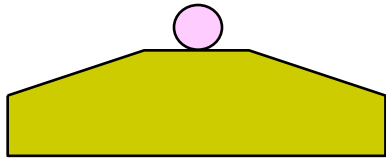
La simulación, el factor humano y la seguridad del paciente

Tommaso Bellandi, PhD – Eur.Erg.

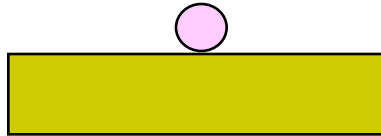
@: bellandit@aou-careggi.toscana.it
skype: tommasobellandi



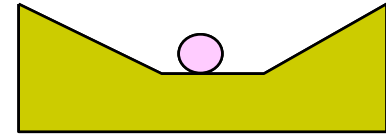
Los sistemas vulnerables y los de alta fiabilidad



Sindrome
Sistema
vulnerable

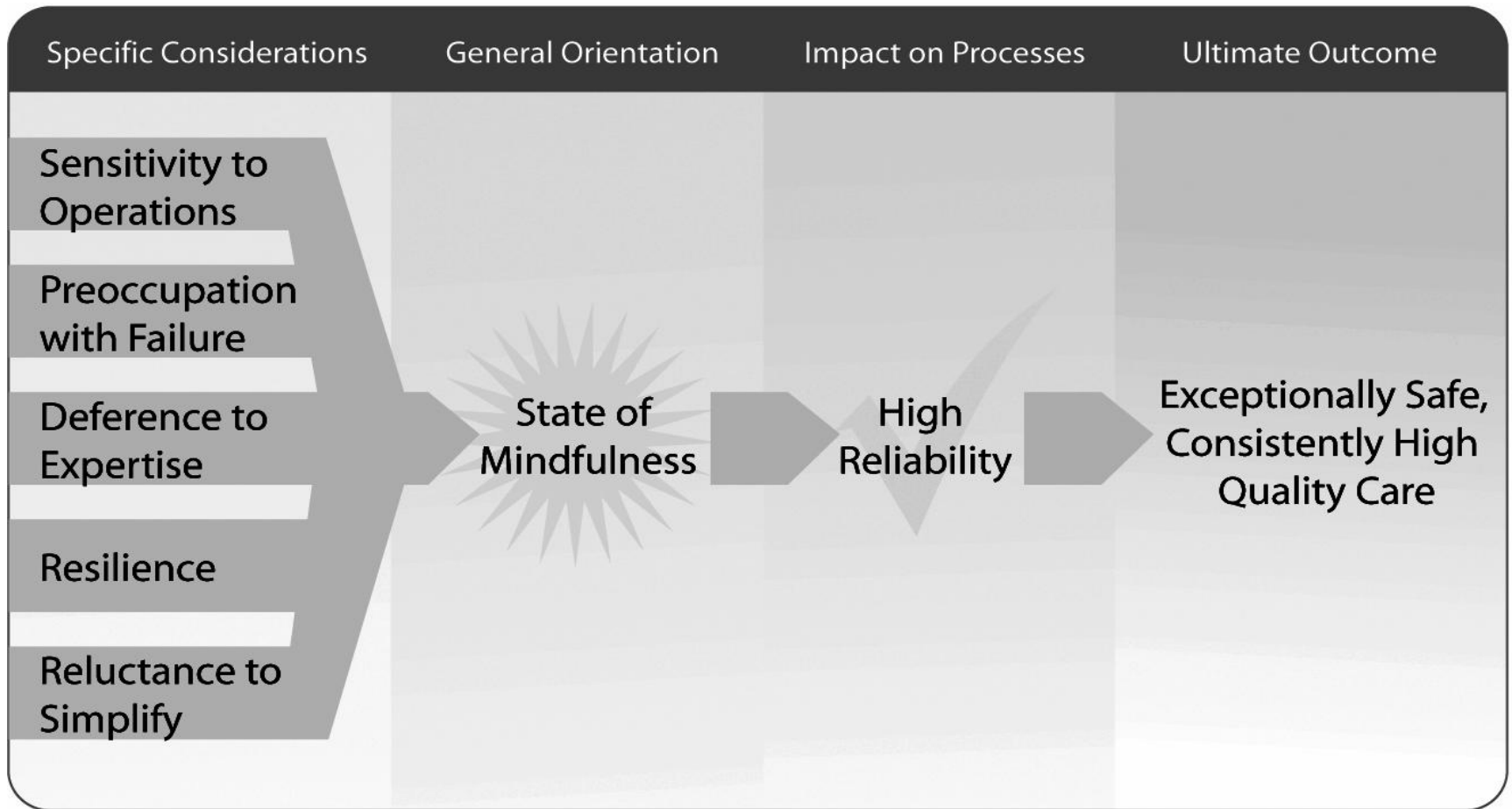


Sistema
medio



Organizacion
de alta
fiabilidad

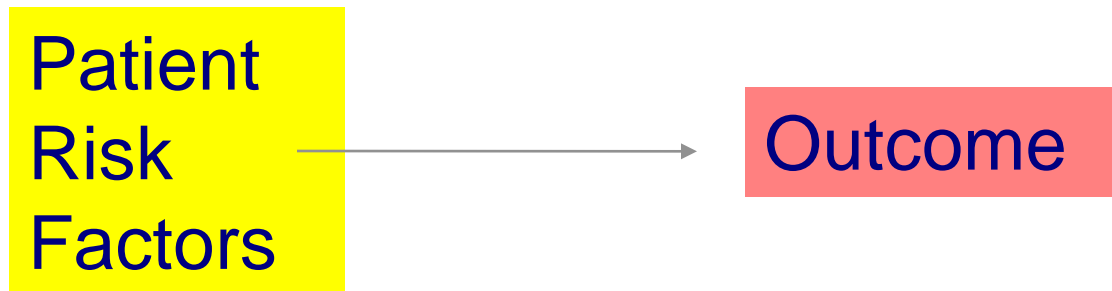
Hasta una organización de alta fiabilidad



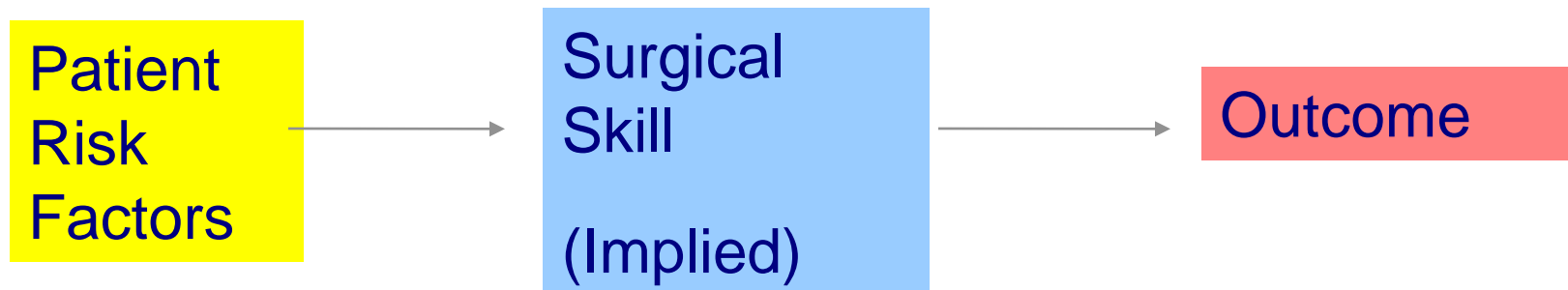
Hines S, Luna K, Lofthus J, et al. Becoming a High Reliability Organization: Operational Advice for Hospital Leaders. (Prepared by the Lewin Group under Contract No. 290-04-0011.) AHRQ Publication No. 08-0022. Rockville, MD: Agency for Healthcare Research and Quality. February 2008.

- Auditoria sistemática sobre los problemas
- Premios para reforzar el comportamiento apropiado
- Training con enfoque sobre los equipos
- Alta percepción de los riesgos
- Prácticas de trabajo controlados
- Flexibilidad de los roles formales

La “vieja escuela”...



La “vieja escuela” ver 2.0...



Systems Approaches to Surgical Quality and Safety *From Concept to Measurement*

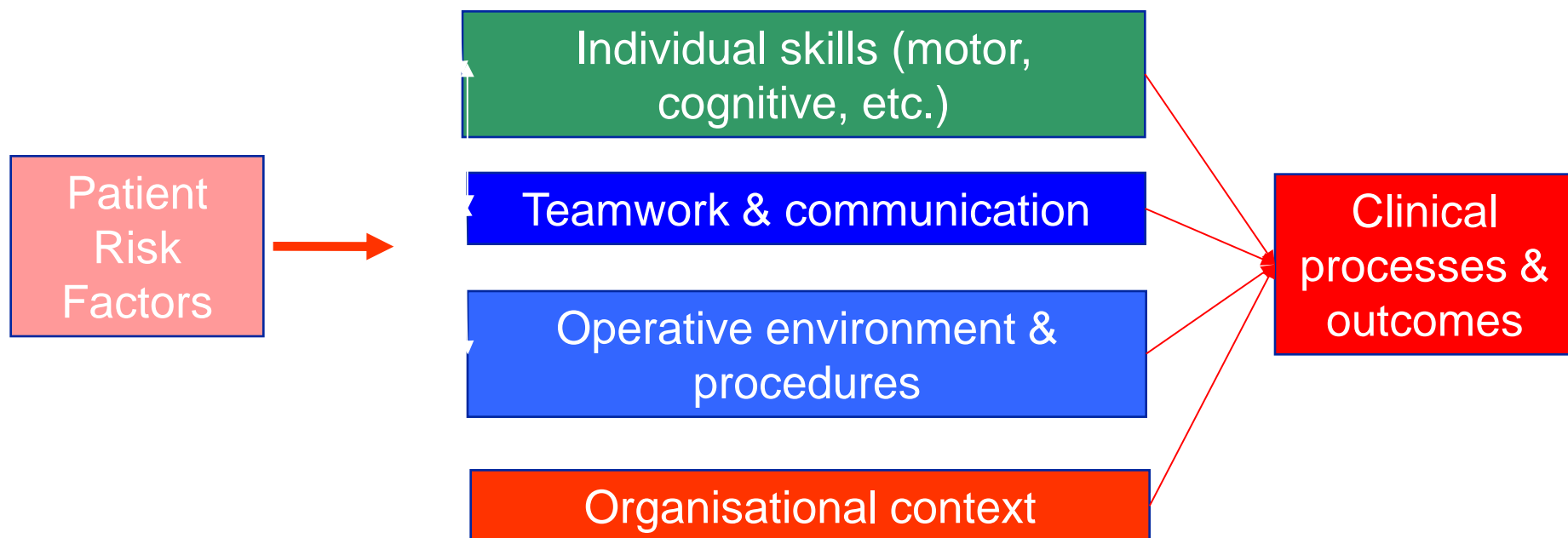
Charles Vincent, PhD, Krishna Moorthy, FRCS,† Sudip K. Sarker, FRCS,† Avril Chang, FRACS,†
and Ara W. Darzi, MD‡*

Objective: This approach provides the basis of our research program, which aims to expand operative assessment beyond patient factors and the technical skills of the surgeon; to extend assessment of surgical skills beyond bench models to the operating theater; to provide a basis for assessing interventions; and to provide a deeper understanding of surgical outcomes.

Summary Background Data: Research into surgical outcomes has primarily focused on the role of patient pathophysiological risk factors and on the skills of the individual surgeon. However, this approach neglects a wide range of factors that have been found to be of important in achieving safe, high-quality performance in other high-risk environments. The outcome of surgery is also dependent on the quality of care received throughout the patient's stay in hospital and the performance of a considerable number of health professionals, all of whom are influenced by the environment in

Research into surgical outcomes has primarily focused on the role of patient pathophysiological risk factors, and on the skills of the individual surgeon. The outcome of surgery is, however, also dependent on the quality of care received throughout the patient's stay in hospital and the performance of a considerable number of health professionals, all of whom are influenced by the environment in which they work. Drawing on the wider literature on safety and quality in healthcare, and recent papers on surgery, this article argues for a much wider assessment of factors that may be relevant to surgical outcome. In particular we suggest the development of an "operation profile" to capture all the salient features of a surgical operation. The aims of this initiative are: to expand operative assessment beyond patient factors

La “nueva escuela”



Vincent et al. 2004



Crew Resource Management Training

Essential to a Medical Team's Performance

Article



Paul
N

Approaching the Evidence Basis for Aviation-Derived Teamwork Training in Medicine

American Journal of Medical Quality
25(1) 13-23

© 2010 by the American College of
Medical Quality

Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>

DOI: 10.1177/1062860609351236

Article



Marina V. Z

Crew Resource Management Improved Perception of Patient Safety in the Operating Room

American Journal of Medical Quality
25(1) 60-63

© 2010 by the American College of
Medical Quality

Reprints and permission: <http://www.sagepub.com/journalsPermissions.nav>

DOI: 10.1177/1062860609351236

<http://ajmq.sagepub.com>

Attitudinal Changes Resulting from Repetitive Training of Operating Room Personnel Using High-Fidelity Simulation at the Point of Care

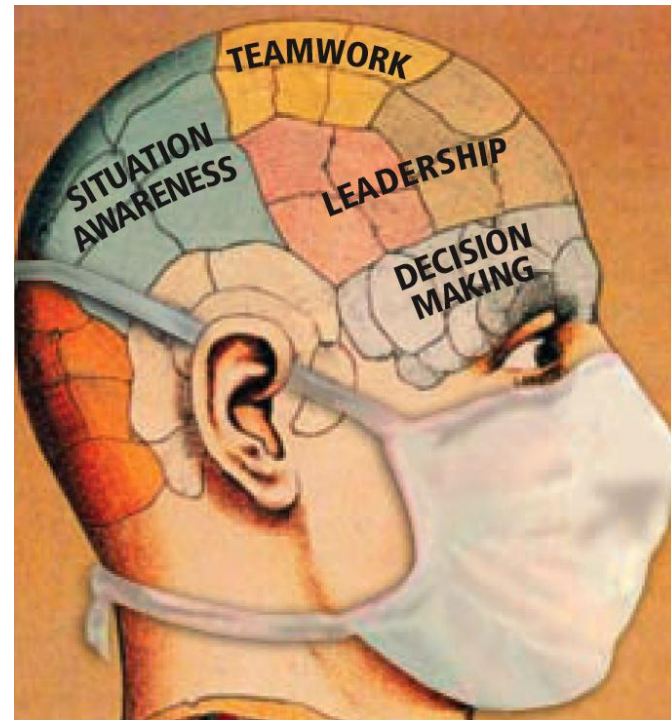
JOHN T. PAIGE, M.D., VALERIY KOZMENKO, M.D., TONG YANG, M.D., M.S., RAMNARAYAN PARAGI GURURAJA, M.D.,
CHARLES W. HILTON, M.D., ISIDORE COHN, JR., M.D., SHEILA W. CHAUVIN, M.Ed., Ph.D.

From Louisiana State University Health Sciences Center, New Orleans, Louisiana

Non technical skills

Las habilidades cognitivas e interpersonales complementarios a las habilidades técnicas

- Communication & Teamwork
- Leadership
- Decision making
- Stress management
- Situation awareness



S. Yule, R. Flin, S. Paterson-Brown, N. Maran

Non-technical skills for surgeons in the operating room: A review of the literature

Surgery, 2009, 139 (2): 140-149



UNIVERSITY OF ABERDEEN



Framework for Observing and Rating Anaesthetists' Non-Technical Skills



Anaesthetists' Non-Technical Skills (ANTS) System Handbook v1.0

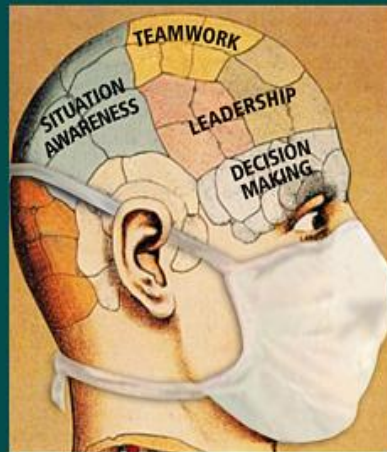


UNIVERSITY OF ABERDEEN



NHS Education for Scotland

The Non-Technical Skills for Surgeons (NOTSS) System Handbook v1.2



Structuring observation, rating and feedback of surgeons' behaviours in the operating theatre



UNIVERSITY OF ABERDEEN

NHS Education for Scotland

Scrub Practitioners' List of Intraoperative Non-Technical Skills (SPLINTS)



Structuring observation, rating and feedback of scrub practitioners' behaviours in the operating theatre

Las habilidades técnicas y no técnicas



El tiempo dedicado a la simulación = 99%

El tiempo dedicado al desempeño = 1%



Las tipología de simulacion

Table 1 A summary of simulation based training in high risk industries

| Simulation type | Teamwork competencies | Primary strengths | Primary weaknesses |
|--------------------------|-----------------------|--|---|
| Case studies/role plays | Knowledge, attitudes | Low cost, positive trainee reactions | Few opportunities for skills practice |
| Part task trainers | Knowledge, skills | Low cost, distraction free environment | No opportunity for dual task practice |
| Full mission simulations | Knowledge, skills | Can simulate rare (but critical) tasks in a safe environment | High cost, currently limited to a few medical specialties |

Beaubie and Baker, Qual Saf Health Care 2004;13(Suppl 1):i51–i56.

Un modelo comun

- > compartir las reglas del juego
- > hacer la experiencia del caso clinico
- > reflexionar sobre lo que paso en el individuo y en equipo, con el apoyo del instructor

Las tipología de simulación

<http://www2.iavante.es/>

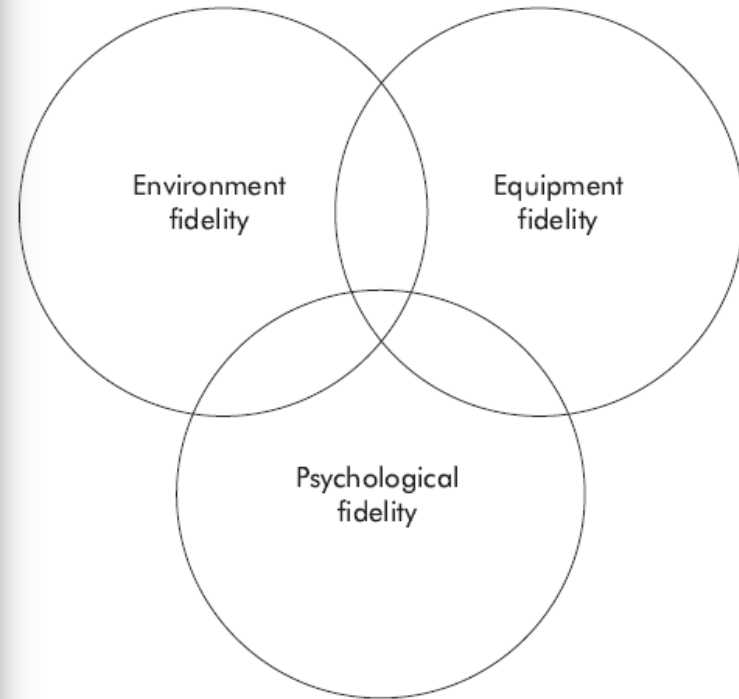












Figure 1 A Typology of simulation fidelity (adapted from Rehmann *et al*, 1995).¹⁰

La evidencia de la eficacia de la simulación

| COMPETENCY | DESCRIPTION |
|-----------------|---|
| Medical Expert |  Strong evidence base for the use of simulation to teach procedural skill, and emerging evidence that this protects patients from risk. Opportunities to routinely teach healthcare practitioners by simulation remain rare in many settings. |
| Communicator |  Strong evidence of the use of simulation to teach and assess communication skills. While OSCEs are often used to assess communication skills, simulation is still underused to teach communication skills, with the exception of some medical schools. |
| Collaborator |  Strong evidence base for the use of simulation to teach team working skills. Team working scenarios are expensive and time consuming to run, so are seldom used in practice. |
| Scholar |  Simulation may be used to promote reflective practice, and encourage learning by observing and reflection. The evidence base for its use remains poor. |
| Professional |  Simulation is increasingly seen as a means to assess professionalism. As simulation is grounded in scenarios, which are observed and discussed, rather than didactic classroom lessons, it provides a rich opportunity for teaching professionalism that is currently being missed. |
| Manager |  Simulation has potential to be used to teach management and leadership skills which are important for patient safety, but the evidence base is weak. |
| Health Advocate |  Simulation has potential to be used to train patient safety advocates, but its use in this area has not been developed. |

 Simulation has no use in this role

 Simulation has potential to be used in this area, but is either underused or its evidence base remains weak

 Simulation is shown to work in this area, although evidence for its use in patient safety may still be under researched

Qual Saf Health Care 2010;19(Suppl 2):i34ei43. doi:10.1136/qshc.2009.03856
Rajesh Aggarwal et al.



Lessons for Continuing Medical Education From Simulation Research in Undergraduate and Graduate Medical Education*

**Effectiveness of Continuing Medical Education:
American College of Chest Physicians
Evidence-Based Educational Guidelines**

*William C. McGaghie, PhD; Viva J. Siddall, MA; Paul E. Mazmanian, PhD;
and Janet Myers, MD, FCCP*

Results: The Agency for Healthcare Research and Quality Evidence Report suggests that simulation training is effective, especially for psychomotor and communication skills, but that the strength of the evidence is low. In another review, the Best Evidence Medical Education collaboration supported the use of simulation technology, focusing on high-fidelity medical simulations under specific conditions. Other studies enumerate best practices that include mastery learning, deliberate practice, and recognition and attention to cultural barriers within the medical profession that present obstacles to wider use of this technology.

Conclusions: Simulation technology is a powerful tool for the education of physicians and other healthcare professionals at all levels. Its educational effectiveness depends on informed use for trainees, including providing feedback, engaging learners in deliberate practice, integrating simulation into an overall curriculum, as well as on the instruction and competence of faculty in its use. Medical simulation complements, but does not replace, educational activities based on real patient-care experiences. *(CHEST 2009; 135:62S–68S)*

Caso estudio: introduccion

La simulación in situ es un método sostenible para capacitar y evaluar el rendimiento de los equipos clínicos.

En este estudio se analiza la variación en el rendimiento (habilidades técnicas y no técnicas) en el tratamiento de un paciente pediátrico en shock anafiláctico, que es una enfermedad poco frecuente pero difícil, que requiere un diagnóstico rápido y la aplicación de un protocolo de tratamiento minucioso con la participación activa de los médicos y enfermeras del equipo de emergencia.



Caso estudio: protocolo de investigacion

**High fidelity "in situ"
Simulation**

Risk management

5 escenarios de anafilactico shock (Pre-group)



Incident reporting form



Reactive Audit



Alert Report and improvement actions
Es . a new protocol shared with allergologists

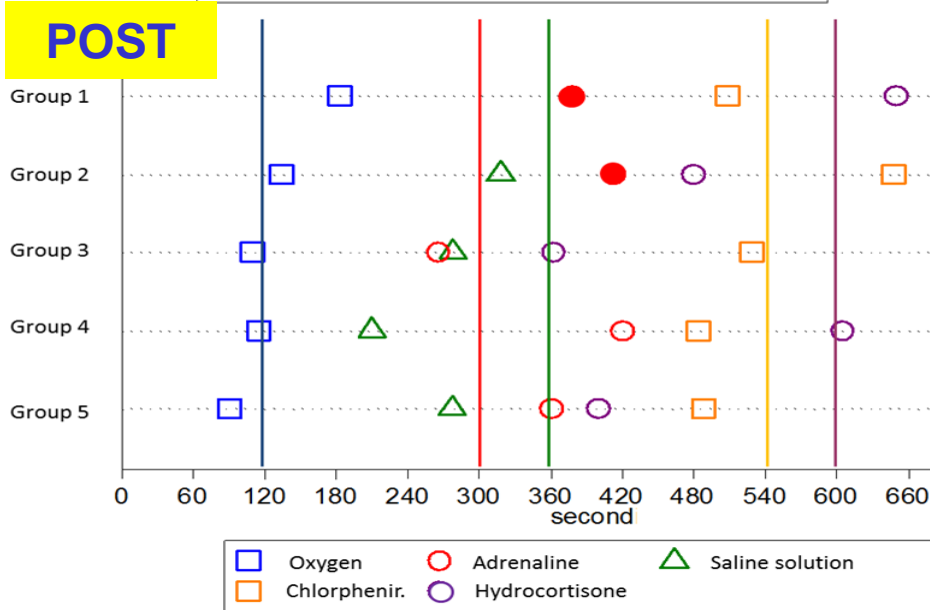
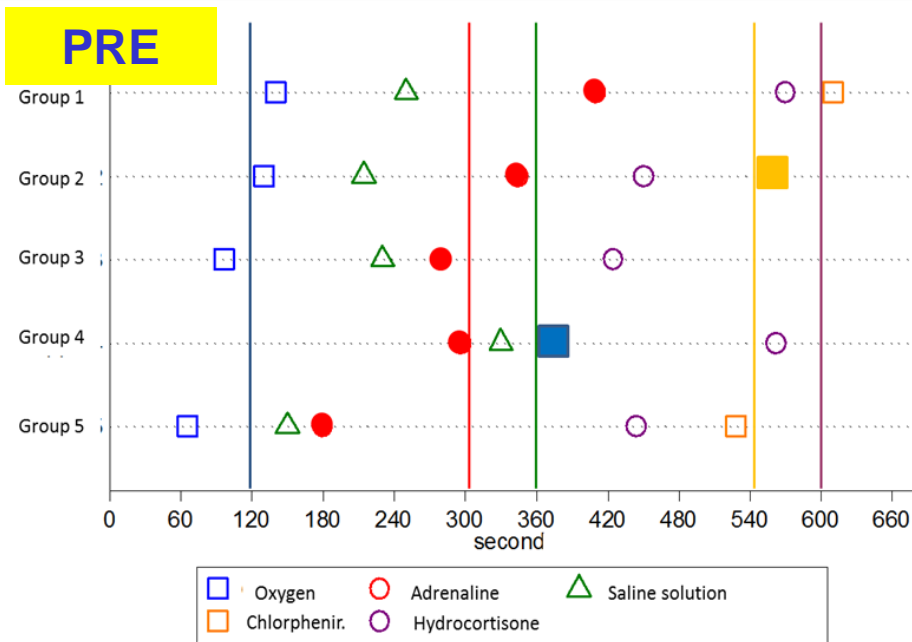


New 5 escenarios de anafilactico shock (Post-group)



Data analysis

Caso estudio: resultados



Se encontraron diferencias estadísticamente significativas entre el rendimiento de los grupos antes y después del análisis de sistemas.

Los grupos posteriores mostraron una clara reducción de los errores en la prescripción ($P < 0,001$) y la administración ($p < 0,001$) de medicamentos para el tratamiento de shock anafiláctico (en particular, la adrenalina, el gráfico 1-2).

Caso estudio: resultados

El mejor resultado se obtuvo en el análisis de la comunicación: no hay error de comunicación en los 5 grupos posteriores ($p = 0,0119$), con una mejora en el 100% de los grupos analizados (tabla 1).

| | | Pre | Post | var % pre-post | OR | IC 95% | exact Fisher test |
|--------------------------------|--|-----|------|-------------------|-----|--------|-------------------|
| Total | Diagnosis and Prescription (30 BMs) | 11 | 3 | 73% | 19% | 3% 88% | $p=0,015$ sign |
| | Administration of medications (30 BMs) | 9 | 2 | 78% | 17% | 2% 96% | $p=0,021$ sign |
| | Communication and teamwork (30 BMs) | 6 | 0 | 100% | | | $p=0,012$ sign |
| Technical performance (60 BMs) | | 20 | 5 | 75% | 18% | 5% 56% | $p=0,0007$ sign |
| Total (90 BMs) | | 26 | 5 | 81% | 14% | 4% 41% | $p=0,00$ sign |

Caso estudio: comentario

Este estudio mostró que el uso de la simulación de alta fidelidad in situ, combinado con un análisis estructurado de incidentes críticos, puede resultar en una mejora significativa del rendimiento en la gestión de shock anafiláctico en un paciente pediátrico. Este tipo de intervención es que consume tiempo y requiere **instructores entrenados para la simulación** in situ y un **sistema** en el lugar **para la gestión de la seguridad del paciente**.



Las oportunidades de la simulación

Hoy...

- > Formación habilidades manuales
- > Formación de las habilidades técnicas
- > La capacitación de habilidades no técnicas



...Manana

- > Evaluación del desempeño individual
- > Evaluación del rendimiento del grupo
- > Evaluación de usabilidad de los dispositivos médicos

Arrivederci a Firenze!

