

# Developing an evaluation method for assessing the quality of resuscitative maneuvers in simulation manikins by thermal imaging



A. Vazquez-Casares <sup>a,\*</sup>, L. Sanchez-Valdeon <sup>a</sup>, E. Mauriz <sup>a</sup>

<sup>a</sup> Profesoras del Departamento de Enfermería y Fisioterapia. Miembros del Grupo de Innovación docente CUIDAs. University of León, 24071 León, Spain

\*ana.vazquez@unileon.es



## 1 SIMULATED PATIENT SCENARIOS

Education in Nursing Practice

Attainment of sufficient technical skills and socioemotional competences for the development of professional expertise.

Interactive Clinical Experiences

Utilization of simulated scenarios that replicate the real world in emergency related situations such as **cardiopulmonary resuscitation (CRP)**

CRP quality parameters



Recommendations on chest compression (compression fraction, depth, and rate) and ventilations (volume, number, rate, time spent).



Simulation manikins and thermal imaging

Validation of innovative instruments for measuring compression and ventilation performance during CPR training.

## 2 DESIGN AND PROCEDURE

Manikin-Integrated Accelerometer Measuring System



Undergraduate and postgraduate nursing students.

Cross-sectional studies

Cardiac arrest simulation scenarios

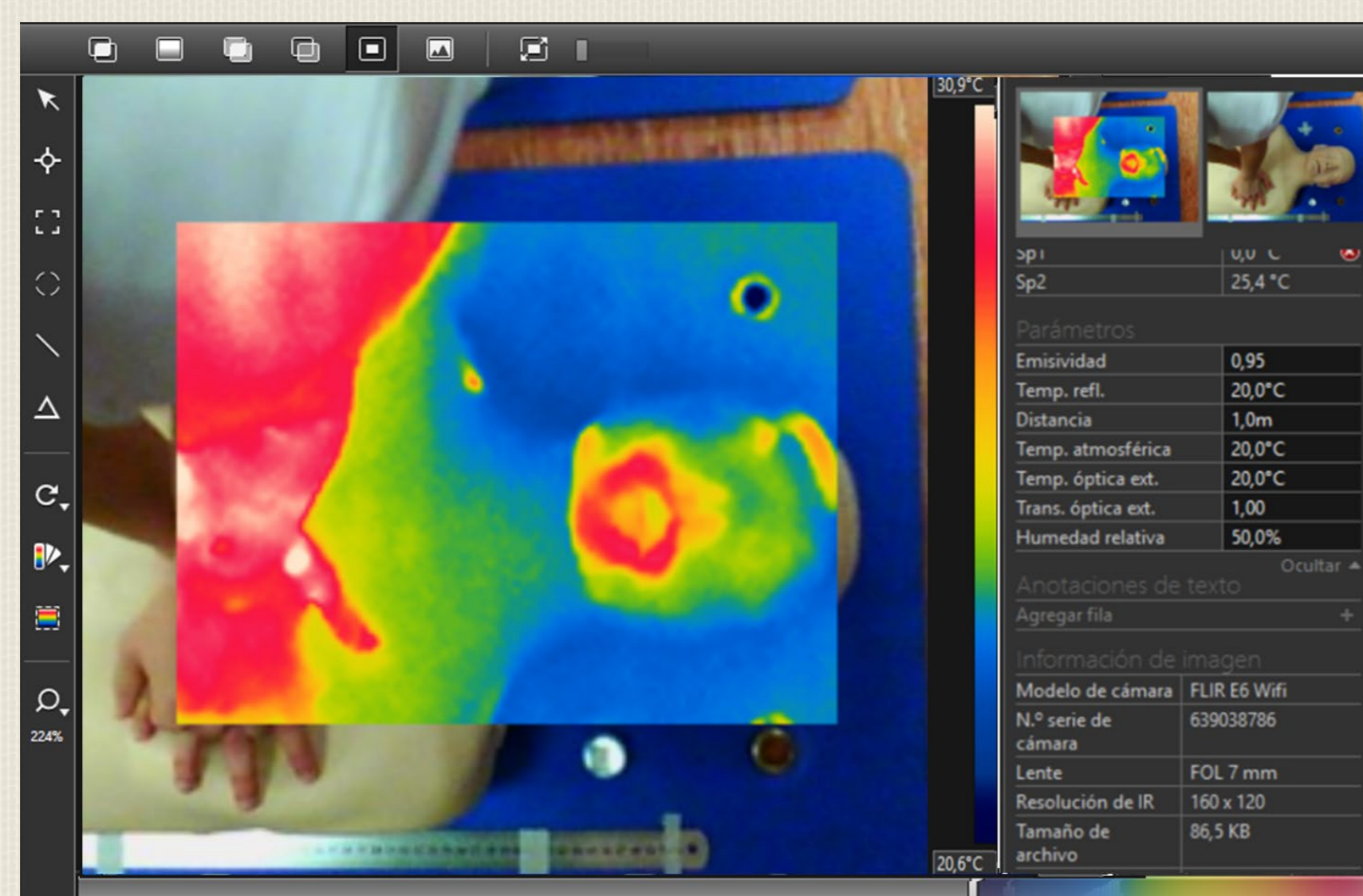
Thermographic images acquisition by a thermal imaging camera



## 3 CPR performance and Thermographic measurements

Compression and ventilation rate

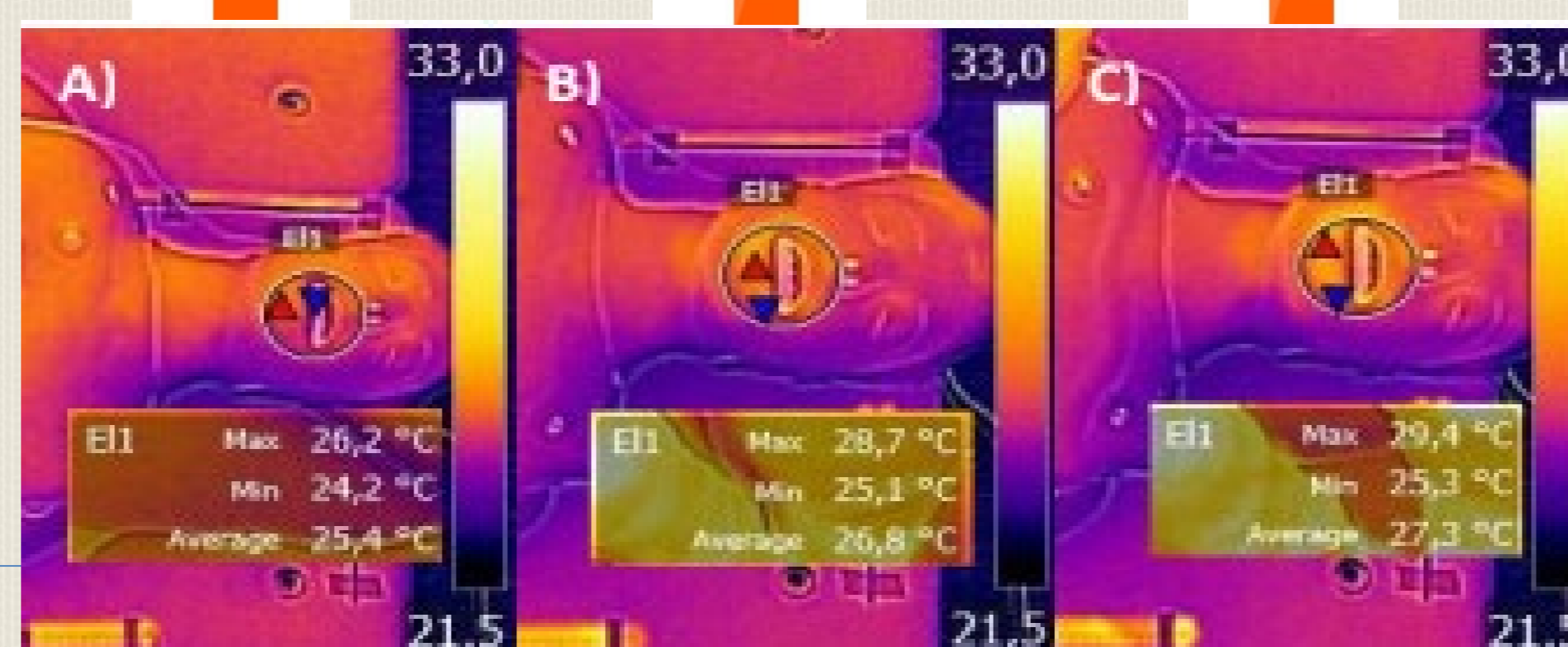
Thermal imaging



0:00

1:00

2:00



## 4 CONCLUSIONS

The performance of nursing students along cardiac arrest simulation training requires a comprehensive evaluation through reliable quantitative methods. To this end, the combination of sensor accelerometer measurements with infrared thermography imaging seems to be a promising approach for monitoring the administration of compressions and ventilations in manikin-based simulations.