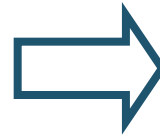


HUMANIZING EXPERIENCE AT THE HEPATIC ICU HOSPITAL CLÍNIC DE BARCELONA

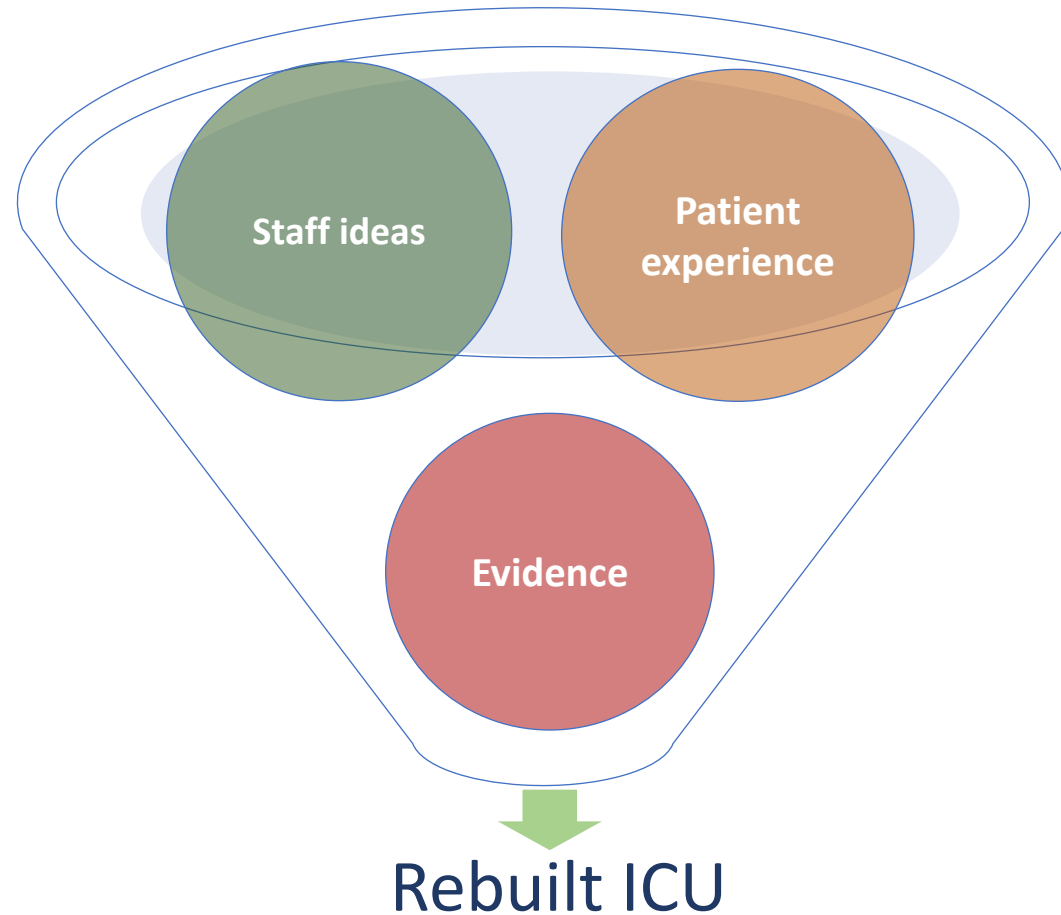
LEARNINGS ACQUIRED IN THE FIRST YEAR OF SERVICE



Clara Rius, architect
Mario Garcia, biomedical engineer
Miquel Sanz, assistant co-ordinator



How can we make the ICU
better for patients ...
... and for the staff?





KEY POINTS



PATIENT SAFETY



COMFORT



KEY POINTS



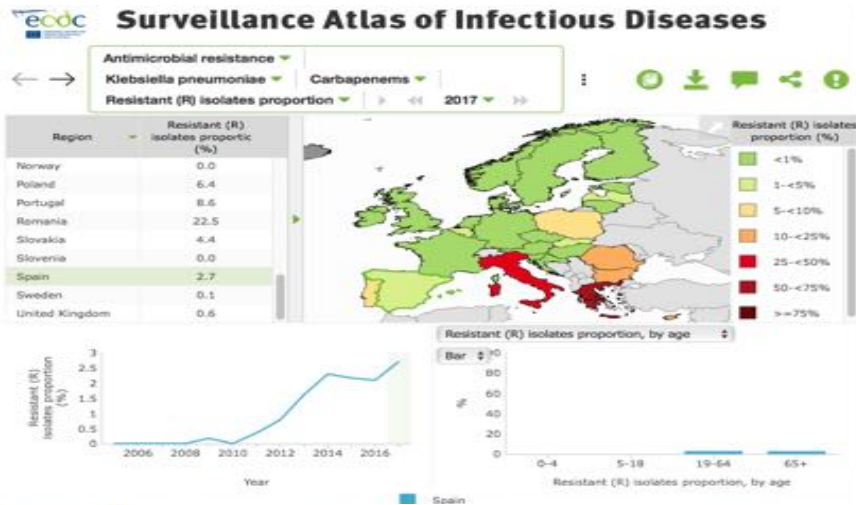
PATIENT SAFETY



COMFORT



PATIENT SAFETY



Campaign to Prevent Antimicrobial Resistance

Centers for Disease Control and Prevention
 National Center for Infectious Diseases
 Division of Healthcare Quality Promotion

Clinicians hold the solution!



A multi-modal interventions

Visibility and accessibility of dispensers

Available online at www.elsevier.com/locate/jhin
Journal of Hospital Infection
 Journal homepage: www.elsevier.com/locate/jhin

Review

Strategies to improve hand hygiene compliance among healthcare workers in adult intensive care units: a mini systematic review

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ARTICLE INFO

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Keywords:
 Effectiveness
 Hand hygiene compliance
 Healthcare worker
 Intensive care unit
 Intervention

SUMMARY

Background: Hand hygiene compliance among healthcare workers (HCWs) in intensive care units (ICUs) is disconcertingly low.
Aim: To identify the effective interventions for increasing HH compliance among HCWs in adult ICUs.
Methods: Two major electronic databases, OVID Medline and CINAHL, were searched by using a combination of MeSH terms and text words (e.g. hand hygiene, hand washing, compliance, 'adher', 'improv', 'devic' and intensive care unit) for relevant articles. This was supplemented by Google Scholar and hand searching of included bibliographies. Data from identified articles were then abstracted, quality-assessed, and combined into a summary effect.
Findings: Of 89 titles and abstracts that were identified, 14 articles were finally included. Overall study quality was good. However, variations in design, setting, sample size, and interventions tested precluded a meta-analysis; hence a narrative synthesis was conducted. The interventions included education, observation, provision of supplies, improving access and directive support, tested singly or in combination, resulted in positive outcomes in all but one study. A combination of administrative support, 'nudges', education and training, reminders, surveillance, and performance feedback raised the compliance from a baseline of 51.3% to a record of 80.1%, but no set of interventions could improve the compliance to the desired near-100% level.
Conclusion: Available data suggest that multi-modal interventions are effective in raising the compliance to a 'plateau' level but not up to the desired standard. Methodologically appropriate trials of combined interventions could enhance the evidence about interventions to improve hand hygiene compliance among ICU staff.
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Major article

Effect of hand sanitizer location on hand hygiene compliance

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Key Words:
 Hand sanitizer dispenser
 Location
 Usability
 Standard
 Hand hygiene compliance

Background: Hand hygiene is the most important intervention to prevent infection in hospitals. Health care workers should clean their hands at least before and after contact with patients. Hand sanitizer dispensers are important to support hand hygiene because they can be made available throughout hospital units. The aim of this study was to determine whether the usability of sanitizer dispensers correlates with compliance of staff in using the sanitizer in a hospital. This study took place in a Midwest, 404-bed, private, nonprofit community hospital with 15 inpatient care units in addition to several ambulatory units.
Methods: The usability and standardization of sanitizers in 12 participating inpatient units were evaluated. The hospital measured compliance of staff with hand hygiene as part of their quality improvement program. Data from 2010-2012 were analyzed to measure the relationship between compliance and usability using mixed-effects logistic regression models.
Results: The total usability score ($P = .0046$), visibility ($P = .003$), and accessibility of the sanitizer on entrance to the patient room ($P = .00055$) were statistically associated with higher observed compliance rates. Standardization alone showed no significant impact on observed compliance ($P = .37$).
Conclusion: Hand hygiene compliance can be influenced by visibility and accessibility of dispensers. The sanitizer location should be part of multifaceted interventions to improve hand hygiene.
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PATIENT SAFETY

1. Individual rooms, barrier effect & security booth





PATIENT SAFETY

1. Individual rooms, barrier effect & security booth



Electric installation for
all the devices

Hand paper rolls

RFID pre installation

Gloves boxes (3 sizes)

Alcohol solution

Hand washing sink

Waste removal



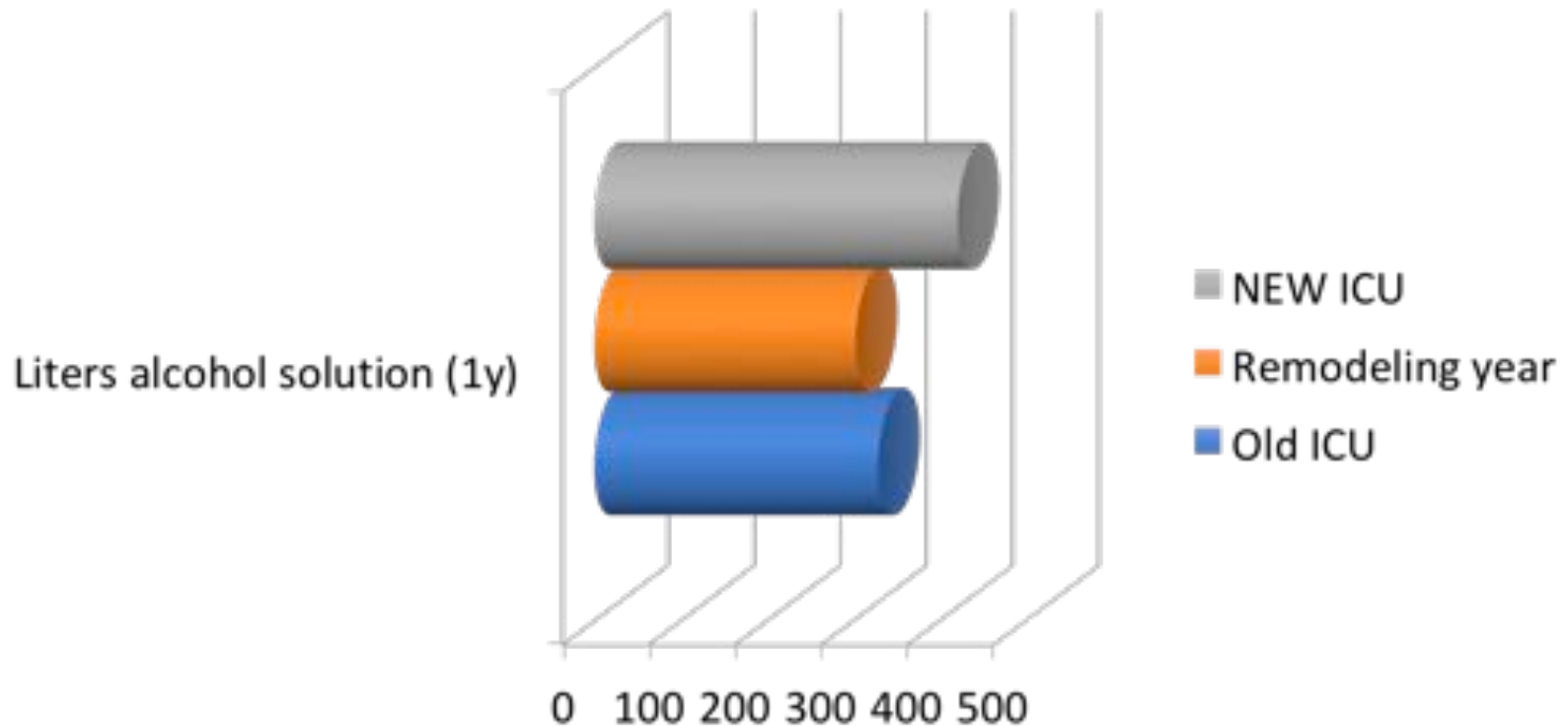
PATIENT SAFETY

1. Individual rooms, barrier effect & security booth



PATIENT SAFETY

1. Individual rooms, barrier effect & security booth





PATIENT SAFETY

1. Individual rooms, barrier effect & security booth

PROS

- ✓ Detachable design, versatile enough to adapt its structure when technology changes
- ✓ Functional physical barrier, not just a door. Integrates all the safety elements required to go inside an ICU room

CONS

- Detachable design compromises air tightness inside the room
- There are some situations like emergency episodes or carrying things inside the room where the hands hygiene protocol cannot be accomplished but the automatic door must be activated



PATIENT SAFETY

2. Technology



Manual light switch

Air conditioning

Nurse call system

House automation
control station

- light management
- privacy system
- blue code activation





PATIENT SAFETY

2. Technology



Patient video
surveillance control

Nurse call and alarm
management
workstation

Vital signs work station
(14 rooms)

Infusion pump work
station (14 rooms)



PATIENT SAFETY

2. Technology

PROS

- ✓ The technology within an ICU is useful when several mechanisms must be managed (e.g. lights, alarms, security access...) improving patient safety
- ✓ Enhances dynamic control of several clinical tasks at the same time
- ✓ Enables other clinical activities and protocols that couldn't be performed without it.

CONS

- Due to innovative solutions implemented, its functioning is not as reliable as desirable for an ICU environment
- Staff needs time to adapt. Providing on-going training is necessary for all technical and clinical staff
- Wireless technologies are not developed enough to be implemented in a critical unit, so the visual contamination is significantly incremented, disturbing the healing environment



KEY POINTS



PATIENT SAFETY



COMFORT

COMFORT

EASL European Association for the Study of the Liver

Evaluating patient's experience in liver transplantation: role of the focus group technique

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INTRODUCTION
 Liver transplantation is the treatment of choice for patients with acute or chronic liver disease without other therapeutic alternatives. This is a common procedure in our environment and it is evaluated primarily using objective data. Most recently patients' feedback is also assessed to know the patients' subjective aspects (feelings, expectations, perceptions of liver transplantation, and it is known as "the patient's experience").

AIM
 The aim of this study was to know the experience patients undergoing liver transplantation, and identify improvement opportunities in the procedure.

METHOD
 In order to know the experience of the patients, 7 relatives during the liver transplantation process, the technique of the focus group was applied to prepare the group. The professionals involved in liver transplantation sampled and the following activities: to a brainstorming session, applying the method's technique to gather the most relevant ideas and opinions about the process. In preparation of a document, based on the evidence information, we find evidence that psychological could motivate the focus group and in the selection of the participants in the focus group, it compares and it transcribed questions. The group was held on 10/03/2016. Subsequently, the psychologist who prepared a document with the information gathered from the focus group met with the transplant team to analyze the data and to identify possible improvement opportunities, which could be implemented in the early part of the team.

RESULTS
 "Translated criteria and their relative considered, the liver transplantation process was structured. They pointed out that the information about the process provided by the different professionals of the transplant team is unclear, and offer a high degree of satisfaction with the staff. On the other hand, they emphasize the feeling of isolation in the Intensive Care Unit and the lack of psychological support throughout the process. Accordingly, an attention was used to enhance patient communication and visiting hours were more flexible. In addition, efforts are being made to incorporate a psychologist into the team, to help patients and relatives. Moreover, structural and environmental measures have been carried out to enhance the stay in the Intensive Care Unit.

CONCLUSIONS
 The focus group has been an effective technique to identify improve and to enhance aspects in liver transplantation. Knowing the liver transplant patients experience allowed us to identify measure aimed at improving the waiting time. The interventions should help patients in their recovery and should increase their satisfaction with the service.

POSITIVE ASPECTS
 - Feeling of isolation
 - Lack of psychological support

NEGATIVE ASPECTS
 - Feeling of isolation
 - Lack of psychological support

STRUCTURAL AND ENVIRONMENTAL IMPROVEMENTS TO ENHANCE THE STAY IN INTENSIVE CARE UNIT
 - Reception decorations and colors modify to promote a feeling of well-being and positive disposition
 - Place elements to facilitate the monitoring of patients
 - Increase the natural light to improve sleep quality
 - Light to create a feeling of space
 - Attention to enhance patient communication

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Noise reduction

Loneliness feeling reduction

Family presence

 COMFORT

1. Noise reduction



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Page 1 of 2

EDITORIALS



Excessive noise in intensive care units

Bad for staff and very bad for patients

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Simons et al. *Critical Care* (2018) 22:250
<https://doi.org/10.1186/s13054-018-2182-y>

Critical Care

RESEARCH

Open Access



Noise in the intensive care unit and its influence on sleep quality: a multicenter observational study in Dutch intensive care units

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Abstract

Background: High noise levels in the intensive care unit (ICU) are a well-known problem. Little is known about the effect of noise on sleep quality in ICU patients. The study aim is to determine the effect of noise on subjective sleep quality.

Methods: This was a multicenter observational study in six Dutch ICUs. Noise recording equipment was installed in 2–4 rooms per ICU. Adult patients were eligible for the study 48 h after ICU admission and were followed up to maximum of five nights in the ICU. Exclusion criteria were presence of delirium and/or inability to be assessed for sleep quality. Sleep was evaluated using the Richards Campbell Sleep Questionnaire (range 0–100 mm). Noise recordings were used for analysis of various auditory parameters, including the number and duration of restorative periods. Hierarchical mixed model regression analysis was used to determine associations between noise and sleep.

Results: In total, 64 patients (68% male), mean age 63.9 (± 11.7) years and mean Acute Physiology And Chronic Health Evaluation (APACHE) II score 21.1 (± 7.1) were included. Average sleep quality score was 56 ± 24 mm. The mean of the 24-h average sound pressure levels (L_{night,24h}) was 54.0 dBA (± 2.4). Mixed-effects regression analyses showed that background noise ($\beta = -0.51, p < 0.05$) had a negative impact on sleep quality, whereas number of restorative periods ($\beta = 0.53, p < 0.01$) and female sex ($\beta = 1.25, p < 0.01$) were weakly but significantly correlated with sleep.

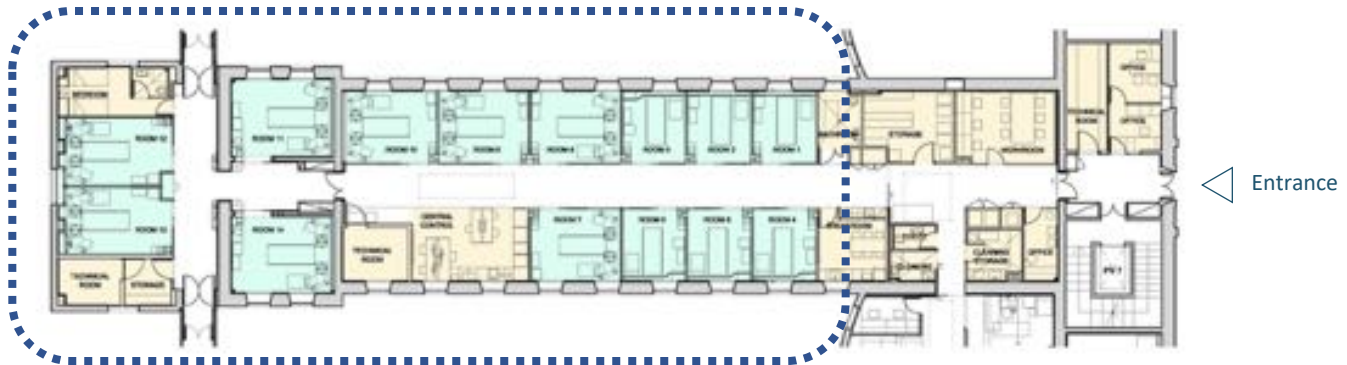
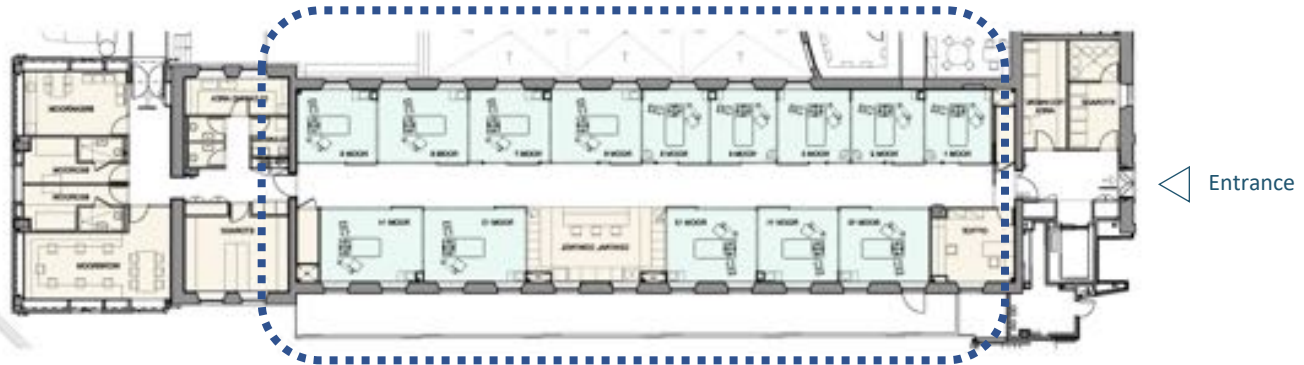
Conclusions: Noise levels are negatively associated and restorative periods and female gender are positively associated with subjective sleep quality in ICU patients.

Trial registration: www.ClinicalTrials.gov, NCT01826799, Registered on 9 April 2013.

 COMFORT

1. Noise reduction

A) Staff circulation improvement, and patient privacy



COMFORT

1. Noise reduction

B) Acoustic comfort

- . All the alarms generated by the equipment inside the room are sent where they are needed
- . Reduce as much as possible the noise impact on the patient through architectural design
- . Sound monitoring performed in the unit





COMFORT

1. Noise reduction

B) Acoustic comfort

PROS

- ✓ Reducing noise inside the room improves patient sleep quality and reduces anxiety
- ✓ Other acoustic projects can be performed
- ✓ Contributes to create a healing environment

CONS

- On-site acoustic alarms are replaced by mobile based management systems, so clinical staff protocols must be readjusted
- Light alarms are not as reliable as acoustic alarms, so the management alarm system must be improved



COMFORT

1. Noise reduction

C) Music project



COMFORT

2. Lonliness feeling reduction

A) Communication with the outside
& entertainment center



COMFORT

2. Lonliness feeling reduction

A) Communication with the outside & entertainment centre

PROS

- ✓ An open platform to communicate with everyone through secure channels
- ✓ Versatile platform for commercial and non-commercial solutions and apps

CONS

- Software update dependence
- Mounted arm is needed in order to fix the tablet, usually being a disturbing element





COMFORT

3. Family presence

A) Privacy of patient and family



 COMFORT

3. Family presence

B) Patient area





COMFORT

4. Professional and staff comfort

A) Rest area with active surveillance

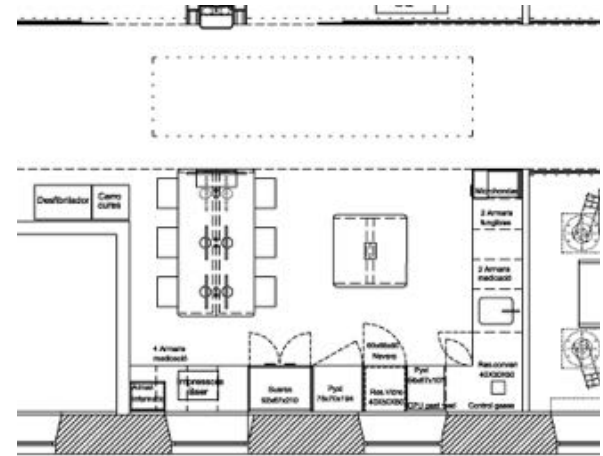


COMFORT

4. Professional and staff comfort

B) Staff area

- Open space vs confidential clinical information
- Versatile designed area for cooperative working physician and nurses staff, team work



COMFORT

5. Atmosphere effects





CREATION OF A HEALING SPACE

HC wants to be a leading hospital, with a high innovation capacity

In order to achieve excellence: try things and take risks

Train staff for cultural and technological change.
Adaptation effort





CREATION OF A HEALING SPACE

"... the challenge in the ICUs is not the technology, it is humanizing the attention and making the technology more human"



G. Heras

