Joint Faculty of
Intensive Care Medicine of Ireland

College of Anaesthesiologists of Ireland • Intensive Care Society of Ireland
Royal College of Physicians of Ireland • Royal College of Surgeons in Ireland

JFICMI Guidelines for Sustainable Intensive Care Practice

Introduction

Modern healthcare may contribute to patient and societal harm through wasteful and unrefined practices that damage our environment. Intensive care units are resource-intensive areas that offer a practical opportunity to improve efficiency, reduce unnecessary waste, and support high-value care, while maintaining patient safety and clinical outcomes. The JFICMI has established a Sustainability Working Group focused on incremental, evidence-based improvements that are realistic within the Irish health system and are aligned with existing clinical priorities. This document outlines some suggested sustainability improvement strategies for ICUs to implement.

The strategies are divided as follows:

- Lean Service Delivery
- Prevention
- Low Carbon Alternatives
- Clinical Leadership and Climate-informed Workforce
- Adaptation and Resilience
- Research and Audit

Lean Service Delivery

1) Minimise the ordering of routine investigations e.g. daily chest x-rays, laboratory and point-of-care blood tests.

2) Avoid using gloves and other PPE when hand hygiene is sufficient. Each ICU should have clear practice guidelines in this regard, developed in concordance with local infection control expertise.

3) Procure and use biodegradable PPE wherever possible.

4) Minimise stock of single-use equipment kept within the room of a patient under infection-control precautions to minimise unnecessary waste.

5) Minimise the supply of non-essential single-use items within standard procedure kits e.g. CVC pack.

6) Regularly review the need for high cost, high energy, high waste therapies (e.g. continuous renal replacement therapy)

7) Appropriately segregate types of waste at point of disposal. Simplify this process for staff in order to reduce cognitive burden.

8) Consider re-use of approved medical devices where permitted by regular and infection prevention standards

9) Consider implementation of re-usable stock in appropriate items and where possible avoid single use items

Prevention

1) Only start or continue intensive care if it is consistent with the patient's values, wishes, and realistic goals of care. Prior to ICU admission, if possible, all patients should have their goals of care and treatment escalation plan discussed, agreed, and documented in the clinical notes.

2) Discontinue mechanical ventilation as early as is reasonable. Avoid over-use of sedatives and analgesics for the purposes of mechanical ventilation. Perform daily sedation breaks and spontaneous breathing trials where appropriate.

3) Review lines and other invasive devices daily and remove them as early as possible.

4) Sustainability should be incorporated into the "daily housekeeping" tasks of individual patient care.

5) Adopt a healing clinical environment for patients by reducing noise and light, thereby reducing the risk of delirium

Low Carbon Alternatives

1) The environmental cost of equipment and consumables should be routinely included in all procurement evaluations and decisions. Furthermore, ICU staff should be aware of the environmental cost of equipment and consumables that they use in their daily practice. Companies producing clinical equipment should be asked to support a circular economy by recovering equipment waste for re-use.

2) Choose PO medications over IV when the enteral route is suitable and discontinue IV medicines as soon as an appropriately safe and effective alternative route is available.

3) Review medicines daily and discontinue those that are no longer clinically indicated.

4) Senior medical and MDT input should be available to perform medication reconciliation prior to discharge from critical care, to optimise pharmacotherapy, and reduce polypharmacy.

5) Optimise ICU energy efficiency through LED lighting, motion-sensor lighting systems, automatic shutdown of unused equipment, energy-efficient HVAC systems and by reducing unnecessary standby power consumption.

6) Adopt pharmaceutical sourcing that supports green chemistry principals to reduce toxic waste products where feasible.

Clinical Leadership and Climate-Informed Workforce

1) Each department should have a clinical lead responsible for environmental sustainability. This lead should coordinate the local ICU Green Team and collaborate with other specialities and disciplines within the wider hospital as well as with other ICUs both regionally and across the country.

2) Environmental sustainability should be a standing item on departmental meetings, induction programmes and educational sessions.

3) Encourage and lead audit, research and clinical education on environmental sustainability within the department.

4) Link with hospital-wide sustainability groups to make use of organisational initiatives.

5) Empower frontline staff to identify and report sustainability improvement opportunities through quality improvement frameworks.

Adaptation and Resilience

1) Environmental sustainability should be included at all stages of building and infrastructure design and construction, including post-hoc works. While clinicians cannot be expected to have a detailed knowledge of environmental strategies in building design and construction, their role as sustainability advocates during these processes is important. Therefore, ICU design teams should include senior ICU clinical staff familiar with the principles of sustainability in intensive care practice.

2) Departmental major emergency plans should include responses to climate change related extreme weather events such as flooding, heatwaves and storms.

3) Ensure ICU infrastructure planning accounts for future climate-related pressures including; increased cooling requirements, water scarcity, supply-chain disruption, infectious disease surges and poser interruptions.

4) Develop sustainable supply-chain contingency plans for critical consumables and medications.

Research and Audit

1) All elements of sustainable service delivery should be audited regularly (for example clinical waste, drug disposal, blood sampling, IV-to-enteral drug switching).

2) Develop a research agenda focusing on sustainability and environmental practice in ICU, to include performing life-cycle assessments, procurement data reviews and material flow analyses to better understand the environmental impact of consumables used in the ICU.

3) Develop guidelines to direct sustainable processes and to encourage energy saving.

References

Health Service Executive: https://greenhealthcare.ie/
Choosing Wisely Canada: https://choosingwiselycanada.org/
Choosing Wisely Australia: https://www.choosingwisely.org.au/
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We express our sincere gratitude to our local and overseas colleagues for their generous collaboration.