GUIDELINES ON QUALITY IMPROVEMENT

1. INTRODUCTION

1.1 Clinical Quality Improvement can be defined as an interdisciplinary process designed to raise the standards of the delivery of preventive, diagnostic, therapeutic and rehabilitative measures, in order to maintain, restore and improve health outcomes of individuals and populations.

1.2 The objective of Quality Improvement programs is to ensure that high standards of clinical practice are maintained by individuals, units, and hospitals or institutions through regular assessments using quality indicators. The results of such assessments should be reported to appropriate departmental meetings for evaluation and action as necessary.

1.3 All Intensive Care Units should participate in Quality Improvement activities. Smaller units may link their programs with appropriate larger departments.

1.4 It is essential that senior ICU staff promote a culture of quality improvement within the ICU, whatever its size and role.

1.5 All Intensive Care Units should appoint a Quality Improvement Coordinator, who will be responsible for the implementation and supervision of the Quality Improvement program.

1.6 Staff who collect and process the data should have dedicated time allocated for Quality Improvement activities.

1.7 Wherever possible, the Intensive Care Quality program should be interfaced with, or part of an institution-wide Quality Program.

1.8 Quality Improvement programs must evaluate clinical care as being consistent with the available evidence and accepted professional standards, including relevant Documents issued by the College of Intensive Care Medicine.

2. MEASURING QUALITY IN INTENSIVE CARE MEDICINE

The standard of care is assessed using quality indicators or measures. These quality indicators assess three different components of clinical care.

2.1 Structure measures whether the ICU functions according to its operational guidelines and conforms to the policies of the College of Intensive Care Medicine.

2.2 Process measures the way care is delivered (or not delivered) to patients and families.

2.3 Outcome measures the results achieved.

Comprehensive ICU Quality Improvement programs will usually address measures in each of these
categories. Examples of quality indicators that are useful in intensive care medicine are shown in Appendix 1.

3. **THE QUALITY IMPROVEMENT PROCESS**
The steps in a Quality Improvement project can be considered as *Planning, Implementation, Evaluation,* and *Ensuring Sustainability.* In a Quality Improvement program a number of projects are undertaken concurrently or sequentially.

3.1 *Planning* involves careful design and preparation of a project, including identification of the indicator to be improved, and development of a method to improve it. It also involves determination of the data to be collected, and the methods employed to collect and analyse data.

3.2 *Implementation* involves the introduction of strategies to change behaviour and create the change that will produce improvement.

3.3 *Evaluation* involves determination of whether the indicator is changing as a result of the behaviour change using ongoing observation, data collection and interpretation to determine whether it is successful and sustainable ("closing the loop").

3.4 *Ensuring Sustainability* involves modification of behaviour to sustain the improvement and incorporation of the improvements achieved into new official regulations, guidelines, or standards. There should be a focus on sustaining clinical leadership and collaboration, and developing support from the hospital administration.

An example of a Quality Improvement Project is shown in Appendix 2.

4. **QUALITY IMPROVEMENT PROGRAMS**
A comprehensive Intensive Care Quality Improvement program consists of a number of different activities.

Activities that assess *structure* might include audit of the number of suction outlets available to each bed or perhaps an audit of staff qualifications.

Activities that assess the *process* of patient care include clinical audit (morbidity and mortality meetings, delayed transfer out of ICU etc), compliance with protocols, guidelines and checklists, and critical incident reporting.

Activities that assess outcomes are calculating risk-adjusted mortality using a scoring system (such as the Acute Physiology and Chronic Health Evaluation II (APACHE II) and calculation of SMR), measurement of rates of adverse events such as central venous catheter associated blood stream infection rate or serious adverse drug event rate and surveys (e.g. patient or relative satisfaction).

Risk management is a closely related field. In the ICU, risks can be identified from critical incident reports, morbidity and mortality reviews and complaints from staff, patients or family members. Using similar methodology to the Quality Improvement process risks must be identified, assessed and analysed, managed and re-evaluated.
5. AUDIT OF QUALITY IMPROVEMENT PROGRAMS
All Units should review their Quality Improvement programs from time to time. Programs should be consistent with the size and capabilities of the Unit. Remedial steps must be taken whenever problems are identified and continued review should follow.

6. QUALITY IMPROVEMENT COORDINATOR
6.1 The unit should appoint a Quality Improvement Coordinator. Appropriate time, administrative, data collection and other support should be allocated to this Coordinator.

6.2 The Quality Improvement Coordinator should ensure that these College guidelines are implemented within the limits of the size of the unit.

Appendix 1 - Examples of Intensive Care Quality of Care Measures

1. Structure Measures
   The size of the ICU
   Whether the ICU is open or closed
   The type and amount of technology available
   The number and roles and responsibilities of ICU staff (as described in IC-1, IC-2 and IC-3)
   Clinical work load and case mix
   Levels of supervision

2. Process Measures
   Rate of DVT prophylaxis
   Rate of stress ulcer prophylaxis
   Early enteral feeding
   Delayed discharge from ICU
   Appropriate transfusion threshold
   Blood glucose control
   Hand washing
   Time to administration of antibiotics
   Low tidal volume ventilation in ALI/ ARDS
   End of Life Management

3. Outcome Measures
   Severity-adjusted mortality rate
   Health-related quality of life
   Unplanned readmissions to ICU
   Serious adverse drug event rate
   Ventilator-associated pneumonia rate
   CVC bloodstream infection rate
   Family satisfaction

Appendix 2

<table>
<thead>
<tr>
<th>Planning</th>
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<tbody>
<tr>
<td>a. Identification of indicator to be improved</td>
<td>High ventilator-associated pneumonia rate</td>
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These guidelines should be interpreted in conjunction with the following Policy Documents of the College of Intensive Care Medicine:

**IC-1 Minimum Standards for Intensive Care Units**

**IC-2 Intensive Care Specialist Practice in Hospitals Accredited for Training in Intensive Care Medicine**

**IC-3 Guidelines for Intensive Care Units seeking Accreditation of Training in Intensive Care Medicine**

Promulgated by FICANZCA: 1995  
Reviewed by JFICM: 2008  
Republished by CICM: 2010, 2013

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These guidelines have been prepared with regard to general circumstances, and it is the responsibility of the practitioner to have regard to the particular circumstances of each case, and the application of this document in each case.

Documents are reviewed from time to time, and it is the responsibility of the practitioner to ensure the current version has been obtained. College Documents have been prepared according to the information available at the time of their preparation, and the practitioner should therefore have regard to any information, research or material which may have been published or become available subsequently.

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<th>b. Development of method to improve it</th>
<th>Devise Checklist</th>
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<tr>
<td>2. Implementation of method to improve it.</td>
<td>Requirement to tick off the checklist on the morning ward round</td>
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<tr>
<td>3. Evaluation of the indicator</td>
<td>Re-measure ventilator-associated pneumonia rate to determine whether the intervention has improved the outcome.</td>
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<td>4. Ensure sustainability</td>
<td>Print checklist on the ICU Chart</td>
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