

# SUPPLEMENTARY DOCUMENT (APPENDIX)

## Implementation and timeline

Table A1. PICU Liberation (PICUstars) implementation plan and timeline

Steps	Implementation process	Timeline
<b>Engage (Phase 1)</b>	<ul style="list-style-type: none"> <li>• Establish the inter-professional team (RN, MD, Pharmacy, allied health).</li> <li>• Include patient and family representatives, and research team members. Clarify roles and processes.</li> <li>• Define problems, set goals and timelines.</li> <li>• bundle adaptation to local PICU Australian context.</li> <li>• Comprehensive assessment of impediments to bundle and Focus groups feedback on feasibility of proposed bundle developed by implementation group.</li> <li>• Assess local practice and resources.</li> <li>• Systematically assess enablers and barriers to implementation of the bundle using evidence-informed strategies and measures from the KT literature.</li> <li>• Develop implementation protocol.</li> <li>• Tailor PICU Liberation Bundle elements to the needs of the PICU.</li> <li>• Develop a process for reliable Bundle delivery to all patients.</li> <li>• Match Liberation interventions and processes to mitigate challenges identified in assessment phase.</li> <li>• Determine evaluation strategy.</li> </ul> <p>A2F bundle adaption to the Australian PICU context.</p>	6 months
<b>Educate (Phase 2)</b>	<ul style="list-style-type: none"> <li>• Train operational leads on all intervention activities.</li> <li>• Train front line clinicians and stakeholders.</li> <li>• Provide self-learning modules and resources including:               <ul style="list-style-type: none"> <li>○ A - Institutional analgesia and sedation guidelines education workshops, in-services, FLACC and WAT scoring educational videos</li> <li>○ B – safety screening tool and checklist for SABB and extubation readiness workshops and online education tools</li> <li>○ C – Institutional analgesia and sedation guidelines education workshops, in-services, RASS scoring educational video</li> <li>○ D – delirium checklist and guideline education tools including non-pharmacological delirium management strategies workshops and in-services, CAP-D scoring educational video</li> <li>○ E – early mobilisation and rehabilitation program education and training including activity level classification, mobility activities, assessment of physical function by cCPAx online examples</li> <li>○ F – consumer information hybrid booklet, education and training around tools used to ensure family inclusion</li> </ul> </li> </ul>	6 months

	<ul style="list-style-type: none"> <li>○ G – education training around nutritional checklists/nutritional assessment tool used, importance of correct weight obtained</li> <li>○ H – education/training around tools to help personalise the patient for the clinicians (e.g. “getting to know you”) and strategies to individualise care appropriately</li> <li>● Measurement of baseline rate of PICU related complications (activity levels, over-sedation, withdrawal, delirium, PICU acquired weakness, ventilated patient days, VAP, CLABSI, immobility, CAUTI, fall, medication error, PICU readmission, accidental line removal.</li> </ul> <p>Pre-implementation Assessment.</p>	
<b>Execute (Phase 3)</b>	<ul style="list-style-type: none"> <li>● Integrate PICU Liberation into practice.</li> <li>● Unit wide roll-out, one to three bundle elements at every one time.</li> <li>● Regular assessment of above elements, these might be revised depending on feedback and evaluations. “Provide care as required“ to improve each element of the bundle.</li> <li>● Post-marketing and education.</li> </ul> <p>Pilot-Implementation, ongoing adaptation.</p>	24 months
<b>Evaluate (Phase 4)</b>	<ul style="list-style-type: none"> <li>● Evaluate Impact of PICU Liberation on practice.</li> <li>● Regular evaluation -refine implementation and target education in response to feedback and control chart data implementation process and efficacy outcomes measurement.</li> <li>● Re-measure bundle fidelity over time to determine maintenance of new practices.</li> <li>● Assess impact of PICU Liberation on PICU related complication incidence and patient outcomes.</li> </ul> <p>Assessment of feasibility, implementation success and impact.</p>	12 months (overlap with execution phase as evaluation begins as bundle elements are rolled out)