Critical Care
Driver Diagram and Change Package

The Institute for Healthcare Improvement

A driver diagram is used to conceptualise an issue and to determine its system components which will then create a pathway to achieve the goal. Primary Drivers are system components which will contribute to moving the primary outcome. Secondary drivers are elements of the associated primary driver. They contain change concepts that can be used to create projects that will affect the primary driver.

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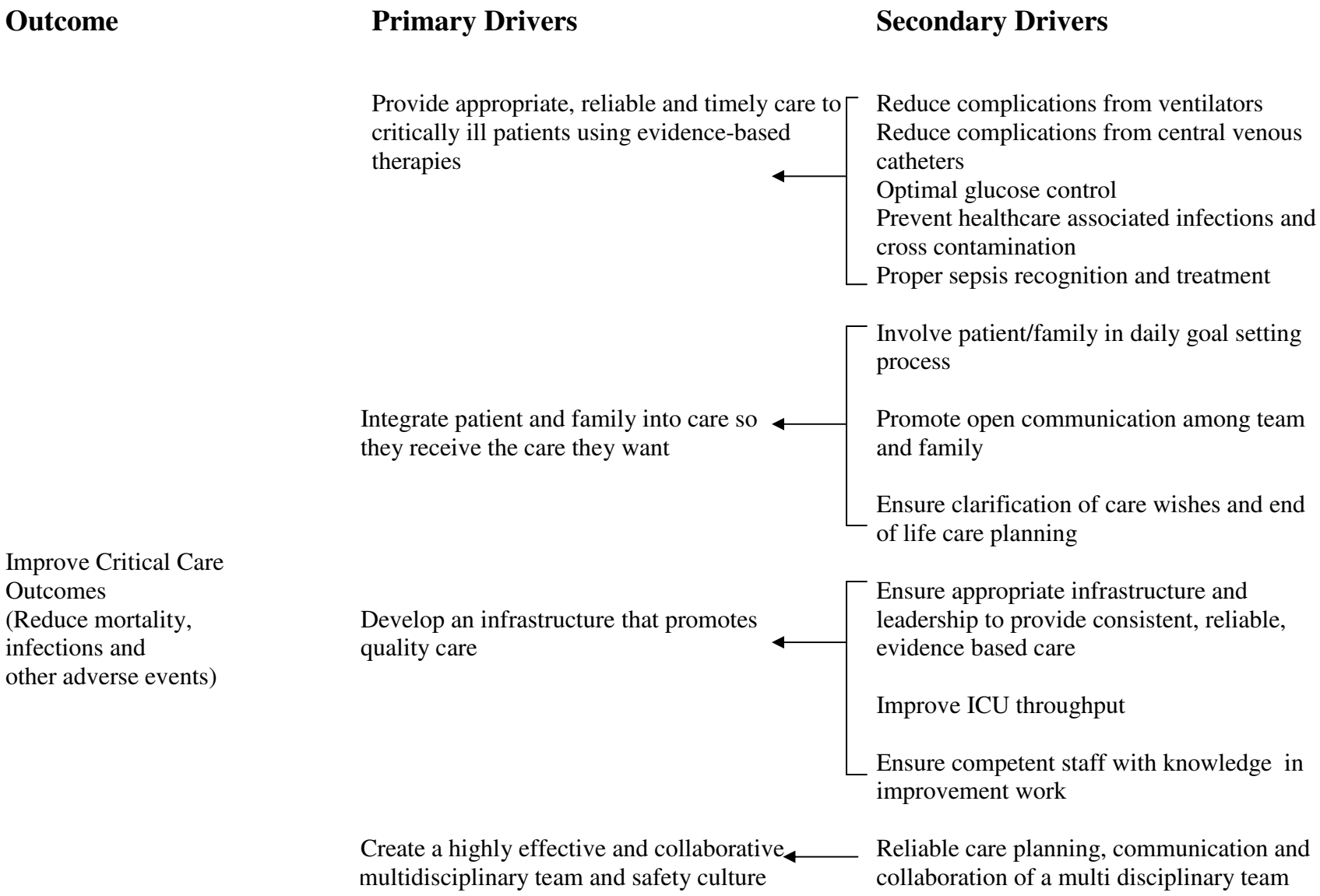

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Secondary Drivers	Change Concepts and Change Ideas for PDSA Testing
	***Bolded items are required elements of the SPSP**
***Reduce complications from ventilators**	• Consider noninvasive ventilation and avoiding intubation in appropriate cases • ***Use VAP Prevention Bundle (SICSAG) – see SICSAG document for further details** o Sedation to be reviewed and, if appropriate, stopped each day o All patients will be assessed for weaning and extubation each day o Avoid the supine position, aiming to have the patient at least 30^{o} head up o Use chlorhexidine as part of daily mouth care o Use subglottic secretion drainage in patients likely to be ventilated for more than 48 hours. • DVT prophylaxis protocol • Develop sedation protocol • Develop weaning protocol • Develop ALI/ARDS protocol • Develop oral care protocols and aspiration precautions • Develop mobility protocol
***Reduce complications from central venous catheters (CVC)**	• ***Use Central line insertion bundle (SICSAG) – see SICSAG document for further details** o Insertion checklist and documentation o The operator should be competent and trained to undertake the procedure and should be aware of the documentation available and of the knowledge and skills required. o The procedure should be fully documented e.g. the use of a sticker in the case notes o Hand hygiene and maximal barrier precautions o Wash hands or use an alcohol based waterless hand cleaner when

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	caring for central lines: ▪ Before and after palpating the catheter insertion site ▪ Before and after inserting, replacing, adjusting or dressing the site ▪ Palpation of the insertion site after application of antiseptic **only** if full asepsis is maintained o The operator inserting a central venous catheter should adhere to strict aseptic technique and wear sterile gloves, gown, theatre hat and surgical mask. o Skin antisepsis o Prepare skin with 2% Chlorhexidine in 70% alcohol using swabs and a friction scrub for at least 30 seconds. Do not wipe or blot dry and allow to dry completely before skin puncture. Exclusion: 2% chlorhexidine in 70% alcohol not available in hospital. It is recognised that this preparation is not available in many hospitals in Scotland. This is a temporary exclusion until the preparation becomes available. o After skin preparation the patient should be covered as much as possible with sterile drapes allowing only a small opening at the site of insertion o Catheter site selection o In adult patients there is some evidence that the Subclavian site has a lower risk of catheter related blood stream infections. However, practice and experience is usually greater with the Internal Jugular site. o So pragmatically the Subclavian or Internal Jugular route is the preferred site for infection control purposes. o The Femoral site should be avoided whenever possible. o A fresh site rather than a guide wire change should be used whenever possible • ***Use Central venous catheter maintenance bundle (HPS)** o Daily checking and recording of the need for a CVC

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Achieve optimal glucose control	○ Ensure CVC dressing is intact and was changed within last 7 days ○ Ensure CVC hub decontamination is performed ○ Hand hygiene prior to line maintenance and access ○ Chlorhexidine gluconate for cleaning site during dressing changes • Use line carts and dressing change kits to standardise processes • Partner with Accident and Emergency and Operating Theatres for standardisation • ***Achieve optimal glucose control** ○ Develop glucose control protocol ○ Maintain each patient's median glucose values between 3.5 – 8.5 mmol/L ○ Create and use only one standardised protocol for IV insulin administration ○ Assign titration and adjustment of insulin drips to ICU nurses in accordance with protocol ○ Always use continuous administration of glucose or enteral feeding while the insulin drip is active ○ Monitor fingerstick or serum glucose values as often as hourly while attempting to achieve adequate control ○ Develop a specific treatment plan for hypoglycaemia
Prevent healthcare associated infections and cross contamination	• ***Peripheral Vascular Catheter (PVC) Bundle (HPS)** ○ Check to ensure the PVCs *in situ* are ***still required*** ○ Remove PVCs where there is ***extravasation or inflammation*** ○ Check PVC ***dressings are intact*** ○ Consider removal of PVCs *in situ* ***longer than 72 hours*** ○ Perform hand hygiene ***before and after*** all PVC procedures • Identify patients with active surveillance cultures (ASC) ○ Identify patients to be cultured ○ Create reliable process to obtain and process cultures ○ Create reliable and timely processes for notification of culture results ○ Create a protocol for management of colonised patients

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	○ Monitor and provide feedback on ASC testing and patient management procedures ○ Flag colonised patients • Use contact precautions and dedicated equipment for colonised / infected patients ○ Ensure staff knowledge re contact precautions (current staff, new employees and rotating staff) ○ Place infected and colonised patients on contact precautions, as per CDC/HICPAC or other guidelines ○ Place patients in single rooms if possible ○ If necessary, cohort patients ○ If single rooms or cohorting is not possible, create a "security zone" around the bedspace (e.g., red tape on the floor) ○ If patient must be transported, alert receiving area/ward/service ○ Monitor and provide feedback • Use appropriate room cleaning and disinfection ○ Educate staff on cleaning and disinfection procedures and assess competence ○ Wear appropriate attire (gown, gloves) when cleaning ○ Make it easy to distinguish disinfected equipment from contaminated equipment ○ Disinfect reusable equipment ○ Put environmental services personnel on the improvement team ○ Prioritise room cleaning and disinfection by focusing on frequently touched surfaces e.g. bedrails, doorknobs, bathroom fixtures, etc. ○ Create a checklist for room cleaning ○ Monitor and provide feedback • Use dedicated equipment for colonised/infected patients ○ Educate staff on appropriate management of equipment ○ Ensure availability of required supplies ○ Monitor and provide feedback on availability and compliance with use • ***Establish reliable hand hygiene practices** ○ Ensure staff knowledge about infection, transmission principles, hand

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	hygiene, and hand washing technique o Make hand washing facilities, soap, alcohol and gloves available at the point of care o Monitor and provide feedback of infection data and hand hygiene compliance to clinicians o Create a culture that supports reliable hand hygiene • Optimise antimicrobial prescribing o Use protocols and auto-stop points for antibiotics o Establish formulary restriction o Establish clinical practice guidelines with standardardised order sets o Standard order sets contain pre-approved indications (best if part of computerised physician order entry) o Pharmacy substitution/switch; protocol-driven IV/PO switch o Provide unit specific/provider utilisation feedback o Therapeutic de-escalation o Computer-assisted antibiotic management o Antibiotic cycling o Monitor and feedback on exception reporting • Use decolonisation to decrease burden of organisms
Involve patient/family in daily goal setting process Promote open communication among team and family	• Include patient/family on multi-disciplinary rounds • Include patient and family in daily goal setting • Establish processes to promote open communication among caregivers and family o Institute open visitation for families o Request families support care by asking questions, checking HOB o Use grease boards to enhance communication between team and families o Use voicemail systems for family communication o Educate family about risk of self-extubation when ventilated

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Clarify care wishes and end of life care planning	• Establish reliable processes to clarify care wishes and provide end of life care planning
	  o Schedule routine family meetings to discuss care wishes
	  o Establish and publicise end of life care team
	  o Establish triggers for automatic consultation to end of life care team

Reliable infrastructure, care planning, communication and collaboration of a multi disciplinary team	***Establish Daily Goals**
	• Establish appropriate, explicit daily goals for patients
	• Use daily goal sheet to document and communicate
	• Assess patients' progress in meeting daily goals
	***Institute Multi-Disciplinary Rounds**
	  o Include doctors, nurses, end of life care, pharmacy, physiotherapy, nutrition, case managers, social work, chaplaincy, family members and other key care team members in rounds
	  o Use discipline specific rounding and prep sheets to prompt clinicians on key items to address during rounds
	• Institute unit based safety briefings
	  o Focus on patients with increased risk for self-extubation and injury, for example, sedation interruption, head trauma, weaning, alcohol withdrawal
	• Use simulation of low frequency, high-risk events and reenactments to maintain competency and enhance system capability
	• Standardise clinical communications and handoffs
	  o Use SBAR format: Situation, Background, Assessment, Recommendation
	  o Use standard handoff templates
	• Conduct formal team training programme