

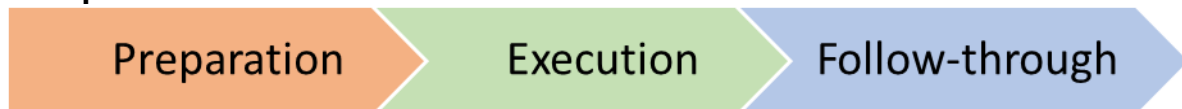
Compassionate extubation at home

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INTRODUCTION

Majority of deaths in children's intensive care units (CICUs) occur after withdrawal or withholding of life-sustaining interventions (1). Compassionate extubation at home (CEAH) is a feasible and valuable resource that PICUs can offer to suitable patients and their families (2). The familiarity and comfort of home can help families achieve a higher level of satisfaction and comfort with their child's EOL care (3). Medical staff involved in CEAH has also reported it to be valuable despite its complex orchestration (4). CEAH requires meticulous planning and collaboration with inpatient and outpatient subspecialty pediatric palliative care (PPC) teams.

Components of CEAH



Preparation

1. Physician and family conference

- ☐ Stakeholders: Physicians, PPC team, medical social worker
- ☐ Establish irreversibility of patient's condition and rule out all possible therapeutic options
- ☐ End of life goal exploration
- ☐ Provide ongoing psychosocial support for family
- ☐ To consider starting legacy work inpatient e.g., hand and foot prints

2. Feasibility for CEAH

- ☐ Suitability for transport
 - Is the hemodynamics labile?
 - Ventilator settings and oxygen requirement achievable on transport ventilator?
 - Number of infusions
- ☐ Logistic feasibility
 - Manpower
 - CHETS service

3. Engaging community StarPALS team

- ☐ Contact Dr Grace Ng / Dr Kang Zhilin to discuss about case and suitability for CEAH
- ☐ StarPALS team will require a lead time of **at least 24 hours**
- ☐ Send referral form **early** to StarPALS via <https://singaporehospice.org.sg/common-referral-form/>
- ☐ Discussion points should include
 - Case summary and reason for withdrawal of care
 - Current ventilatory settings and O₂ requirement
 - To confirm with StarPALS regarding their availability of

- i. O₂ concentrator (5L and 10L available) or O₂ tank (likely needed to be provided by KKH if short lead time)
 - o Logistics to discuss
 - i. Aim for CEAH to happen **within an hour** of arrival to patient's home and for KKH transport ventilator to return with CHETS team OR
 - ii. CHETS nurse and ambulance driver to return to KKH after handover. Accompanying ICU physician to bring transport ventilator and other equipment back after CEAH.
 - o Current haemodynamics and inotropic support
 - o Fluids and feeding: To stop feeding prior to transfer and reduce IV fluids to only patency required for lines
 - o Lines and tubes: To remove tubes and lines in hospital if not necessary for transfer. Any special instructions for removal after demise.
 - o Analgesia and sedation: Drug dose, concentration, rate, patency required
 - o Medications: To stop medications that are not required prior to transfer
 - o Latest labs relevant for end-of-life symptom management (Full blood count, liver function test, renal function test, coagulation profile)
 - o Anticipated end of life symptoms and prognosis
 - o Relevant social history and communication with family including who will be present at home, what do they understand of the situation
 - o KKH team to provide cause of death upon demise
 - o Other arrangements: StarPALS has a volunteer photographer to take family photos if parents are keen.
 - o Home arrangement:
 - i. If patient lives in a flat and lift taking is required: Need to rehearse sitting the patient up on the stretcher before discharge to ensure that patient's head and equipment can be secured (see fig.1 for reference) and patient is relatively stable.
 - ii. Other equipment to consider: hospital bed, suction machine
 - o Any infectious precaution required?
- ☐ Physician and family conference with StarPALS (either face to face meeting or video call)
- ☐ Certifying cause of death (CCOD) to be provided to StarPALS

4. Logistics planning

- ☐ Confirm date and time for CEAH. Aim for discharge in the morning, avoid Friday evenings (StarPALS will not accept transfers on weekends)
- ☐ Manpower allocation (transport via CHETS team): 1 doctor, 1 nurse, 1 respiratory therapist (preferably) to accompany for CEAH
- ☐ Comfort level of accompanying personnel to be assessed
- ☐ CHETS doctor to take consent from parents **(to counsel parents on the inherent risk of destabilization)**
- ☐ Book ambulance for confirmed date and time
- ☐ Things to be brought along and handed over to starPALS at patient's house (should ideally be prepared the day before)
 - o Medications needed for CEAH (to be advised by starPALS)
 - o Consumables needed for CEAH (to be advised by starPALS)
 - o Equipment needed to remove lines/drains after patient's demise
 - o Patient's copy of discharge summary to family

5. Ordering of discharge medications

- Notify Children Inpatient Pharmacy (ext 1773/1774) with the electronic Controlled drug (CD) prescription and non-medical consumables (e.g., special milk feeds) **at least 24 hours in advance**
 - Order CD prescription using e-paperless CD ordering in system
 - State drug name, dose and frequency and quantity (e.g., Fentanyl injection, IV Bolus 100mcg BD, 3 vials).
- Update Children Inpatient Pharmacy of any changes in the prescription on the day of discharge.
- Any unused medication or consumable should not be returned but will be discarded by the StarPALS team as per Hospital PnP (including CD drugs legal disposal).

Execution

1. On day of CEAH
 - ICU consultant to assess for suitability of transport based on clinical status and update StarPALS
 - CHETS Team huddle:
 - to clarify roles and talk through transport process
 - Ensure all equipment, medications and consumables are ready
2. Transport to patient's house
3. At patient's house
 - KKH team to handover to StarPALS
 - CEAH to occur within an hour on arrival to patient's house if possible
4. CHETS team to return to KKH

Follow-through

1. Joint debrief with StarPALS (as needed)
2. Family bereavement support

Relevant StarPALS contacts

Dr Grace Ng (Consultant)

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Dr Kang Zhilin (Associate consultant)

Contact number (office hours): 97305541

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References

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Fig 1. Methods to secure patient's head and equipment



(i) Use head immobilizer to secure patient's head



(ii) Secure oxygen tank by the side of the stretcher



(iii) Secure transport ventilator by the side of the stretcher

Checklist for compassionate extubation at home (CEAH)

Steps		Done?
Preparation (24 hours before CEAH)		
1.	CICU doctor to contact StarPALS team to discuss case and details. <ul style="list-style-type: none"> • Dr Grace Ng: 9730 4381 • Dr Kang Zhilin: 9730 5541 	
2.	Send referral form to StarPALS via https://singaporehospice.org.sg/common-referral-form/	
3.	Arrange for physician and family conference with StarPALS.	
4.	Order discharge medications (StarPALS to advise on list of controlled drugs to be ordered).	
5.	Prepare consumables needed for CEAH (StarPALS nurse to advise on list of consumables to be prepared).	
6.	Confirm date and time of CEAH.	
7.	Book ambulance for confirmed date and time of CEAH.	
8.	Start legacy activities and continue psychosocial support for family.	
9.	Discontinue unnecessary medications and remove unnecessary lines/tubes.	
10.	Take consent for CHETS.	
Execution (on the day of CEAH)		
11.	CICU team to assess suitability of transport.	
12.	Rehearse sitting patient in upright position on stretcher with patient's head and equipment secured (if lift taking is required during transport).	
13.	Bring along discharge medications and controlled drugs.	
14.	Bring along consumables needed for CEAH.	
15.	Bring along equipment needed to remove lines/drains after patient's demise.	
16.	Patient's copy of discharge summary given to the family.	