

**Appendix (As supplied by the authors)**

Appendix 1: Supplement

Table of Contents

***Electronic-Tool Contents.....2***

***The Royal Victoria Regional Health Centre Resuscitation Level Designation Form (equivalent to Physician order form for Life Sustaining Treatments). ....7***

***Physician Assistant Script .....8***

***Standardized Goals of Care Dictation Template used by Physician Assistant.....11***

***Patient Flow Diagram..... Error! Bookmark not defined.***

## Electronic-Tool Contents

Section	Attributes	Definition	Tool/Instrument Reference and Rationale for Inclusion (where appropriate)
Demographics	Medical record number	RVH MRN	
	Date of Birth	DD/MM/YY	
	Date of admission	DD/MM/YY	
	Sex	Male;Female	
	Residence	Community; LTCF; Retirement home; Other hospital; Group home; Mental health hospital; Prison; Boarding room/home; Homeless; other	
	Attending service	Internal Medicine; Hospitalist; Family physician; Hematology/Oncology; Resident (all types); Palliative care; Cardiology; Gastroenterology; Nephrology; Respiriology; Infectious Diseases; Rheumatology; Endocrinology; Gerontology; Critical care; Surgery (all types); Physician assistant; other	
	Ward	2SB-ICU; 3GA; 3GC; 3NB; 3NC; 3SA; 4GB; 4GC; 4NC; 4SB; 4SC; 4C-SSDU; ER; TCU	
	SDM Relationship	Spouse/partner; Parent; Child; Sibling; Friend; Lawyer; Guardian; Grandparent; other	
	Intervention date	DD/MM/YY	
	Activity Level	Clinical frailty scale: Scale scores 1 to 9; 1 = Very fit and exercise regularly to 9 = Terminally ill with life expectancy < 6 months	Validated scale that was easy to program and easy to understand and requires minimal time for the user to complete since it employs both detailed written explanations and visual icons to assist the user in identifying their

			score. <sup>1</sup> Increasing clinical frailty is associated with worse outcomes in patients with critical illness needing life-sustaining therapies so important to incorporate in end-of-life discussions. <sup>2</sup>
	Health Language	Rapid assessment of adult literacy in medicine (REALM): Patients are asked to read the following words aloud and scored on the number of correct pronunciations; <i>allergic, anemia, colitis, fatigue, jaundice, directed, constipation, osteoporosis</i> : Scores represent grade range reading levels; 0 = third grade and below; 1-3 = fourth to sixth grade; 4-6 = seventh to eighth grade; >6 = high school	Validated instrument that is easy to understand and program, requiring little effort and time to complete. <sup>3</sup> We used it as a screen for capacity in addition to clinical screen for capacity. Patients and/or SDMs had to have a score ≥6 to proceed with the e-tool.
	Living arrangements	In the month before admission, identify who you live with: Spouse/partner; child; sibling; parent; friend; grand-children; room-mate (not friend); other	Implications for survival after a critical illness since up to 50% of ICU survivors suffer from post-intensive care unit syndrome and this affects caregivers along with discharge destination <sup>4</sup>
	Occupation	In the last 12 months, describe your occupation: Voluntary retirement; retirement due to disability; retirement due to job loss; full-time employment; part-time employment; casual-time employment; unemployed (no	Implications for return to previous activities after survival from critical illness or CRA due to both post-intensive care unit syndrome and neurologic injury <sup>5</sup> , respectively, so

<sup>1</sup> K. Rockwood, 'A Global Clinical Measure of Fitness and Frailty in Elderly People', *Canadian Medical Association Journal*, 173.5 (2005), 489–95 <<https://doi.org/10.1503/cmaj.050051>>.

<sup>2</sup> John Muscedere and others, 'The Impact of Frailty on Intensive Care Unit Outcomes: A Systematic Review and Meta-Analysis.', *Intensive Care Medicine*, 43.8 (2017), 1105–22 <<https://doi.org/https://dx.doi.org/10.1007/s00134-017-4867-0>>.

<sup>3</sup> Ahsan M. Arozullah and others, 'Development and Validation of a Short-Form, Rapid Estimate of Adult Literacy in Medicine', *Medical Care*, 2007 <<https://doi.org/10.1097/MLR.0b013e3180616c1b>>.

<sup>4</sup> Joanne McPeake and Mark E. Mikkelsen, 'The Evolution of Post Intensive Care Syndrome', *Critical Care Medicine*, 46.9 (2018), 1551–52 <<https://doi.org/10.1097/CCM.0000000000003232>>.

<sup>5</sup> Anthony C. Breu, 'Clinician-Patient Discussions of Successful CPR—The Vegetable Clause', *JAMA Internal Medicine*, 178.10 (2018), 1299 <<https://doi.org/10.1001/jamainternmed.2018.4066>>.

		disability); unemployed (disability); volunteer; caregiver; other	important to incorporate in end-of-life discussions.
Quality of Life	World Health Organization WHOQOL-BREF	26-item questionnaire developed by WHO validated across diverse geographic/cultural populations: Opening questions include; i) How would you rate your quality of life?, and ii) How satisfied are you with your health? There are 4 domains (environmental, psychological health, social relationships, and physical health) that incorporate the remaining questions - in the pilot study, most patients did not find any value to completing all the questions in the 26-item questionnaire so only the first 2 questions assessing global quality of life were used consistently	Validated instrument generalizable across different populations, settings, languages and cultures. <sup>6</sup> Quality of life after surviving a critical illness or CRA may be severely compromised <sup>7</sup> so understanding <i>a priori</i> quality of life and value of that to patient is important to incorporate in end-of-life discussions.
Values/Goals	Opinions about use of life-sustaining or life-prolonging treatments	8-item questionnaire from ACCEPT (Audit of communication, Care Planning, and Documentation) study: Patients were asked to score each question from 1 to 10 (or unsure) according to the following scale; 1=not important to 10=very important: Many of the questions resulted in internally inconsistent responses so only question #4 and question #7 were consistently asked (see Table 1, footnote 5).	Validated tool for clarifying patient values and goals of care which are an essential component of patient-centred care. Misalignment of patients' values and goals with treatment recommendations based on experimental evidence and clinical expertise is a source of potential conflict that can lead to low-value, high-intensity and medically non-beneficial end-of-life care decisions. Discussions about goals of care frequently are directed to these misalignments and

<sup>6</sup> S.M. Skevington, M. Lotfy, and K.A. O'Connell, 'The World Health Organization's WHOQOL-BREF Quality of Life Assessment: Psychometric Properties and Results of the International Field Trial. A Report from the WHOQOL Group', *Quality of Life Research*, 13.2 (2004), 299–310 <<https://doi.org/10.1023/B:QURE.0000018486.91360.00>>.

<sup>7</sup> David W. Dowdy and others, 'Quality of Life in Adult Survivors of Critical Illness: A Systematic Review of the Literature', *Intensive Care Medicine*, 31.5 (2005), 611–20 <<https://doi.org/10.1007/s00134-005-2592-6>>.

			generally require ICU expertise for resolution.
Hospital Mortality Rate	Predictive model of expected hospital mortality	Population-based, Canadian Institute of Health Information predictive model used to estimate expected mortality for hospitalized patients admitted with any of the 72 diagnoses that are responsible for 80% of all hospital deaths: The expected hospital survival was represented as a pictogram that included 100 patient icons along with the following statement; “x out of 100 patients similar to yourself are expected to survive to hospital discharge” CIHI model parameters include: age; sex; length of stay; Charlson comorbidity index; admission from another hospital; admission type; admission location; diagnostic code.	Validated instrument based on Canadian healthcare outcomes that is generalizable across many populations and settings. <sup>8</sup> The tool has few data elements that are all routinely collected during the hospital admission, making it easy to administer and understand for both patients and healthcare providers. The instrument is useful to help patients/SDMs understand the severity of their current illness and ensure their own subjective impressions are consistent with a more objective measure of their expected outcomes. This is an essential component of any end-of-life discussion especially when patients’ values/goals are not aligned with treatment recommendations. Technical report available at: <a href="https://www.cihi.ca/sites/default/files/document/hsmr-tech-notes_en_0.pdf">https://www.cihi.ca/sites/default/files/document/hsmr-tech-notes_en_0.pdf</a>
Survival Post-Cardiorespiratory arrest	Predictive model of expected survival to hospital discharge after experiencing in-	Population-based, National health service (NHS)-derived predictive model based on UK National Cardiac Arrest database: The expected hospital survival for inpatient cardiorespiratory arrest due to both ventricular tachycardia and asystole were represented as	Validated tool with healthcare outcomes in a similar healthcare system as Canada. <sup>9</sup> The tool has few data elements that are all routinely collected during the hospital admission, making it easy

<sup>8</sup> Canadian Institute for Health Information, *Hospital Standardized Mortality Ratio: Technical Notes* (Ottawa, 2019).

<sup>9</sup> David A. Harrison and others, ‘Development and Validation of Risk Models to Predict Outcomes Following In-Hospital Cardiac Arrest Attended by a Hospital-Based Resuscitation Team’, *Resuscitation*, 85.8 (2014), 993–1000 <<https://doi.org/10.1016/j.resuscitation.2014.05.004>>.

	hospital cardiac arrest	<p>pictograms that included 100 patient icons along with the following statement; “x out of 100 patients similar to yourself are expected to survive to hospital discharge”. Both ventricular tachycardia and asystole survival were reviewed to establish a range of survival expectations for the patient.</p> <p>Model parameters include: age; length of stay; diagnosis; ward location; initial rhythm type at time of cardiac arrest</p>	<p>to administer and understand for both patients and healthcare providers. Ensuring patients have realistic expectations about resuscitation outcomes following in-hospital CRA is essential to ensure that their values/goals are aligned/consistent with expected outcomes and treatment recommendations.</p>
POLST review	Resuscitation Level details	Review of current resuscitation level designation	
	Resuscitation Level Changes	Document any changes made to Resuscitation Level during ACP consultation	

The Royal Victoria Regional Health Centre Resuscitation Level Designation Form (equivalent to Physician order form for Life Sustaining Treatments).

 <p><b>RESUSCITATION LEVEL DESIGNATION ORDER FORM</b></p>	PATIENT NAME: _____ DOB: _____ HRN: _____ (addressograph)
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Discussed with Patient or Substitute Decision Maker (SDM):  YES  NO

LIFE THREATENING SITUATION		VITAL SIGNS ABSENT	
(CHECK ONLY ONE)	DESCRIPTION	BEGIN CARDIOPULMONARY RESUSCITATION (CPR) AND ATTEMPT RESUSCITATION:	
<b>INVASIVE*</b> <input type="checkbox"/>	Full resuscitative care including intubation and mechanical ventilation, invasive monitoring and advanced pharmacological treatments (inotropes, vasopressors etc.) <i>May be managed in Intensive Care Unit (ICU) or other monitored unit.</i>	<b>YES*</b> <input type="checkbox"/>	<b>NO</b> <input type="checkbox"/>
<b>MINIMALLY INVASIVE</b> <input type="checkbox"/>	May include Non-invasive Positive Pressure Ventilation (NiPPV), (Bi-level Positive Airway Pressure [BiPAP], Continuous Positive Airway Pressure [CPAP]), cardiac pacemakers, and advanced pharmacological therapies (inotropes, vasopressors etc.) No intubation or defibrillation, including implanted cardiac defibrillators. <i>May be managed in ICU or other monitored unit.</i>	<b>NO Allow Natural Death</b>	
<b>SUPPORTIVE</b> <input type="checkbox"/>	Medical treatment including, but not limited to, antibiotics, IV fluid resuscitation, etc. No mechanical ventilation or NiPPV No advanced pharmacological treatments (inotropes, vasopressors etc.) <i>Managed outside ICU</i>	<b>NO Allow Natural Death</b>	
<b>COMFORT</b> <input type="checkbox"/>	Focus is on comprehensive, compassionate, comfort care for patient and family. <i>Managed in hospital outside ICU, Hospice or Home</i>	<b>NO Allow Natural Death</b>	

- Based on discussion with capable patient
- Based on discussion with SDM - Name: \_\_\_\_\_ Relation to Patient: \_\_\_\_\_
- Based on documented previous wishes when unable to discuss with patient and SDM not available
- Based on MRP determination of benefit of treatment (conflict resolution measures in process).

**Patient remains INVASIVE level of RESUSCITATION + CPR until conflicted resolution measures completed**

\*If discussion with patient not possible, previous documented wishes are unknown, and SDM not available, default resuscitation level is RESUSCITATION + CPR if vital signs absent.

Most Responsible Provider (MRP): \_\_\_\_\_ Date: \_\_\_\_\_

Transcribed by: \_\_\_\_\_ Date: \_\_\_\_\_

RVH-1110 10-Mar-2016



Page 1 of 1

## Physician Assistant Script

Hello, my name is \_\_\_\_\_, and I am a member of the intensive care unit team working with Dr. (CCOT) who is an ICU specialist.

We are here to see you because our hospital requires that we have a clear understanding of your preferences for life sustaining treatments in the event that your condition may deteriorate and are no longer able to communicate these wishes for yourself. Since all life-sustaining treatments are provided in the ICU, it would be most helpful for you if our ICU team has these conversations with you.

We know the benefits of life-sustaining treatments are limited in certain patients, especially in those over the age of 80. This is often poorly understood by patients and their families. We want to make sure you have all the information you need to make the right decision for you.

While we realize this is a difficult topic to discuss, it is essential to make sure that you receive only the medical care that will help you achieve your health goals.

We would like to spend 20-30 minutes speaking with you about your health, along with the goals and values you have for your care, and how these might help influence the treatment choices you might choose for yourself in the event of a life-threatening illness. We would like to schedule a date and time with you and your substitute decision maker to have this discussion. Would this be acceptable to you?

### **QOL exercise & Frailty Assessment**

I would like to get a better sense of what your life was like before being admitted to hospital, so I am going to ask you some questions that will help me understand this.

### **Values and Goals**

Now that I have a better idea of what your life was like before this illness, I'd like to get a sense of your goals and values for your health that may influence the decisions you make about

medical treatments. I will ask you to rate how important each of the following 8 statements are to you.

### **CIHI prognostic tool**

This next section is intended to help you put your current illness into perspective and see if it matches your own expectations.

According to this exercise, in a group of 100 patients similar to yourself, it would be expected that up to \_\_\_% might die in hospital. Does this surprise you? Have your healthcare providers discussed this with you previously?

### **CRA prognostic tool**

Even though we all hope for the best, most of us make plans for the worst so that we are prepared to deal with these events. We do this every day in our regular lives, such as when we buy life insurance. Unfortunately, some patients in hospital suffer a life-threatening illness, such as a cardiac arrest. In these emergency situations, it is always best to know in advance what treatments, if any, the patient would choose. This exercise will help you better understand what expectations you should have if you suffered a cardiac arrest and decided to have an attempt at resuscitation by your healthcare team. By doing this exercise, it would hopefully provide you with the information you need to make the best treatment decisions for yourself in this worst case scenario.

### **Wrap-up**

In summary, this discussion has helped us better understand the goals and values you have for your health care. We have provided you with realistic expectations about the likelihood of survival from your current illness and in the event of a cardiac arrest. We realize these are difficult topics to discuss, but our conversation today should help ensure we have provided you with the information you need to make informed decisions about your health care. We encourage you to share this information with your family. It is our hope that this conversation has been helpful and provided you with the opportunity to consider your treatment options, along with their benefits and limitations. At this point, we would like to help you complete the

hospital's Resuscitation Level Designation Form and ensure that it reflects your wishes for treatment.

# Standardized Goals of Care Dictation Template used by Physician Assistant

## ICU Goals of Care Consult

**Consult Date:** []

**Consult Criteria** []

**Current Resuscitation Status** []

**Discussed with Competent Patient** []

If not, discussed with Substitute Decision Maker []

**Clinical Frailty Scale** []

**WHO Quality of Life Questionnaire Scores:**

Overall QOL rating []

Environment []

Psychological Health []

Social Relationships []

Physical Health []

**Charlson Comorbidity Score** []

**Predicted CIHI Hospital Mortality Rate** [] %

**Predicted Outcomes for Cardiorespiratory Arrest**

Survival to hospital discharge between []% and []%

Survival to home discharge between []% and []%

**Values and Goals:** []

**Impression and Plan:** []

**Changes to Resuscitation Status:** []

**MRP Notified:** [] by [] on [] at []

**Reviewed** with Dr. [] who agrees with details, impression, care plan and resuscitation status

**Signed by:** []

**Date** []

**Time** []