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Title: Describing Usual Care Mobilization with Mechanically Ventilated Patients According to the Rehabilitation Treatment Specification System

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Author Questionnaire

- 1. Microscopy:** Does your protocol require the use of a dissecting or stereomicroscope for performing a complex dissection, microinjection technique, or something similar? **No**
- 2. Software:** Does the part of your protocol being filmed include step-by-step descriptions of software usage? **NO**
- 3. Filming location:** Will the filming need to take place in multiple locations? **Yes**
Located within the same building with elevators for equipment
- 4. Testimonials (optional):** Would you be open to filming two short testimonial statements **live during your JoVE shoot**? These will **not appear in your JoVE video** but may be used in JoVE's promotional materials. **Yes**

Current Protocol Length

Number of Steps: 27

Number of Shots: 44

Interviews

Videographer: Obtain headshots for all authors available at the filming location.

NOTE: Use headshots for Tom Rollinson and Luke Macdonald from manuscript #70304; please use these here and add the headshots from Lyn and I to 70304. We will ask Drs. O'Grady and Nickels to submit headshots for these 2 papers

Authors: Please note that **the questions will not appear on screen**. Please answer in **stand-alone full sentence with sufficient context**

INTRODUCTION:

~~REQUIRED: Summarize your research focus and the main questions it aims to answer.~~

- 1.1. **Michelle Kho:** Our research examines mobilizing mechanically ventilated ICU patients to enhance recovery from critical illness, emphasizing early mobilization as a routine component of standard intensive care practice.
 - 1.1.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~Describe the research gap or limitation in existing methods and how this protocol addresses them.~~

- 1.2. **Lyn Turkstra:** Existing methods lack clear, standardized descriptions of usual ICU mobilization care. This protocol addresses the gap by using **the Rehabilitation Treatment Specification System RTSS** to systematically define and standardize mobilization delivery.
 - 1.2.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

CONCLUSION:

~~What does this protocol allow researchers to study or measure?~~

- 1.3. **Lyn Turkstra:** This protocol guides usual care mobilization for ventilated patients, supports clinical translation of research, and improves documentation, enabling rigorous testing of novel interventions in future trials.

- 1.3.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~Describe the most important consideration or challenge when performing this protocol.~~

- 1.4. **Michelle Kho:** The main challenge is ensuring safe, individualized mobilization through sound clinical reasoning, requiring clear targets, appropriate equipment and assistance, and close patient monitoring during each session.

- 1.4.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~How can future studies build on this work? Describe the questions or research directions that can be investigated next.~~

- 1.5. **Michelle Kho:** Future studies ~~cs~~hould use the RTSS framework to standardize documentation of usual care and improve the design, conduct, and reporting of rehabilitation intervention trials.

- 1.5.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

Videographer: Obtain headshots for all authors available at the filming location.

Testimonial Questions (OPTIONAL):

Videographer: Please capture all testimonial shots in a wide-angle format with sufficient headspace, as the final videos will be rendered in a 1:1 aspect ratio. Testimonial statements will be presented live by the authors, sharing their spontaneous perspectives.

- Testimonial statements will **not appear in the video** but may be featured in the journal's promotional materials.
- **Provide the full name and position** (e.g., Director of [Institute Name], Senior Researcher [University Name], etc.) of the author delivering the testimonial.
- Please **answer the testimonial question live during the shoot**, speaking naturally and in your own words in **complete sentences**.

~~What is the key takeaway you hope viewers remember after watching your video article?~~

- 1.6. **Dr. Michelle Kho, Professor, School of Rehabilitation Science, McMaster University:** : (authors will present their testimonial statements live)
 - 1.6.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

~~How does the video format of your article help you to share your work with the broader scientific community?~~

- 1.7. **Dr. Lyn Turkstra, Reg-CASLPO, Professor, School of Rehabilitation Science, McMaster University:** (authors will present their testimonial statements live)
 - 1.7.1. INTERVIEW: Named talent says the statement above in an interview-style shot, looking slightly off-camera

Ethics Title Card

This protocol follows institutional guidelines for research involving human participants. Ethics approval was not required for this descriptive methods paper. Ethical approval for the Critical Care Cycling to Improve Lower Extremity Strength (CYCLE) randomized clinical trial (RCT) was obtained at each of the 17 participating sites. Written informed consent for the publication of photographs was obtained from the individuals

Protocol

Videographer: Please always record an audio slate while filming each shot mentioned in the shotlist.

Video editor: Use title card to show the given information

Before entering the room:

- Review the medical chart
- Identify contraindications (cardiac, respiratory, neurological instability)
- Determine the expected highest functional level for the session
- Consult the patient's nurse to confirm suitability for mobilization
- Ensure adequate analgesia has been provided
- Reduce or stop sedation as appropriate

~~2. ICU Patient Mobilization: Preparation~~

~~**Demonstrators:** Daana Ajami and Laura Camposilvan~~

~~2.1. To begin, enter the room with the patient attached to ICU equipment [1].~~

~~2.1.1. WIDE: Talent walks into the room after sanitizing hands and donning gloves.~~

~~2.2. Identify the patient room layout, including an adjustable ICU bed and surrounding equipment [1].~~

~~2.2.1. WIDE: Talent reviewing room layout, identifying patient attachments or devices, and individualizing room setup.~~

~~2.3. Then, identify equipment, including patient vital sign monitors, a mechanical ventilator, and intravenous therapy pumps [1].~~

~~2.3.1. Identify patient attachments or devices, including lines, drains, and indwelling catheters.~~

~~2.4. Visually scan the patient and surrounding equipment, observe patient monitors and attachments [1]. Then, visually scan and identify all equipment, lines, and attachments connected to the patient [2].~~

~~2.4.1. Talent observing and noting heart rate, blood pressure, and oxygen saturation readings.~~

- ~~2.4.2. Talent checking the equipment connected to the patient.~~
- ~~2.5. Determine which attachments can be removed or consolidated [1].~~
 - ~~2.5.1. Talent removing or consolidating patient attachments at the bedside.~~
- ~~2.6. Next, assign roles among team members and designate a team leader [1]. Assign airway monitoring responsibilities to appropriate staff [2].~~
 - ~~2.6.1. Talent assigning responsibilities to team members.~~
 - ~~2.6.2. Talent assigning airway monitoring responsibility to the appropriate staff member.~~
- ~~2.7. Ensure that airway equipment and appropriately trained personnel are available in the event of an unplanned extubation [1].~~
 - ~~2.7.1. Talent checking that airway equipment is present at the bedside.~~
- ~~2.8. Also, ensure that appropriate equipment, such as a walking frame, mobile pole for attachments, portable oxygen, and suitable patient clothing such as non-slip socks and adequate coverage, is readily available [1].~~
 - ~~2.8.1. Static picture/ scan of these items~~
- ~~2.9. Maintain appropriate staffing levels in accordance with institutional policies, treatment goals, clinician expertise, and staff availability [1]. Review the mobilization and backup plans with the team [2]. Communicate the plan to the patient and address any questions [3].~~
 - ~~2.9.1. Talent confirming that the required number of staff are present for mobilization.~~
 - ~~2.9.2. Talent discussing the mobilization plan with team members.~~
 - ~~2.9.3. Talent explaining the mobilization plan to the patient.~~

NOTE: The authors requested to move this after section 3.

3. ICU Rehabilitation Progression: In-bed Range of Motion and Strengthening (Activity 1)

Demonstrator: ~~Daana Ajami~~ Kristy Obrovac, St. Joseph's Healthcare Hamilton

2.1. To begin, enter the room with the patient attached to ICU equipment [1].

2.1.1. WIDE: Talent walks into the room after sanitizing hands and donning gloves.
Videographer's NOTE: Slate number swapped with shot 2.2.1 **NOTE:** 2.1.1 is

alone retained here and should be placed under heading 3.

- 3.1. ~~While applying RTSS to range of motion and strengthening activities, patient participation can range from fully passive to fully volitional. Tailor the therapy to the type of activity. Actively monitor the patient and provide instructions, cues, assistance, or equipment as needed.~~ Identify the patient room layout, including an adjustable ICU bed and surrounding equipment [1]. Visually scan the patient and surrounding equipment, observe patient monitors and attachments [2]. Identify all equipment, lines, and attachments connected to the patient [3] and communicate the plan to the patient and address any questions [4].

3.1.1. ~~LAB MEDIA: Figure 3~~

NOTE: Section 3 is moved before section 2 as per the author's request.

The sentence numbers are adjusted to accommodate the added shots.

Videographer's and author's notes are not matching exactly for these shots, please check if the footage, as per the author's description, is available, and use them

Added Shot: WIDE: Talent looking around the patient room, pointing to the adjustable intensive care unit bed and surrounding equipment. Videographer's NOTE: 3.1.2 – added wide shot of preparation and discussing with patient

Added Shot: Talent visually checking the patient, monitors, and attached equipment. Videographer's NOTE: 3.1.3 – added shot of checking devices

Added Shot: Talent checking the equipment, lines and attachments connected to the patient. Videographer's NOTE: 3.1.4 – added shot of checking screen

Added Shot: Talent speaking with the patient.

- 3.2. To perform the activity of Motion and Strengthening, select the target joints and determine whether the movements will be passive, active-assisted, or active [1]. Discuss the mobilization plan with the patient [2].

3.2.1. Talent pointing to the planned treatment joints for movement and determining its movement. Videographer's NOTE: 3.2.1 is combined with 3.2.2

3.2.2. Talent explaining the mobilization plan to the patient.

- 3.3. ~~Position the patient supine with the head slightly elevated [1].~~ Support the proximal and distal joints appropriately [2]. Move the joints slowly through anatomical planes

while avoiding movement in the presence of pain or resistance [3].

~~3.3.1. Talent positioning the patient supine with the head slightly elevated.~~
Videographer's NOTE: 3.3.1 - shot removed. NOTE: Please check for the shot. In the author's notes, it's not removed.

3.3.2. Talent supporting the proximal and distal joints. Videographer's NOTE: 3.3.2 is combined with 3.3.3

3.3.3. Talent moving the joints slowly through the anatomical planes.

3.4. Repeat the movements as tolerated using clinical judgment [1] and stop the activity if physiologic instability, pain, or fatigue occurs [2].

3.4.1. Talent repeating the joint movements as tolerated. Videographer's NOTE: 3.4.1 is combined with 3.4.2

3.4.2. Talent observing the simulated patient's face.

3.5. Continuously monitor tolerance and safety and follow consensus guideline criteria for initiating and terminating activity [1].

3.5.1. Talent continuously observes the patient for tolerance and safety during the activity.

3.6. Provide instructions, feedback, knowledge of results, and motivation [1]. Also, provide opportunities for practice as the patient progresses [2].

3.6.1. Talent giving instructions to guide the patient through the activity.
Videographer's NOTE: 3.6.1 is combined with 3.6.2

3.6.2. Patient practicing the joint movement independently.

3.7. Adjust progression based on the patient response [1].

3.7.1. Talent modifies the activity progression based on the patient's response.

3.8. Use resistance equipment such as free weights or resistance bands to progress difficulty [1].

3.8.1. Talent using resistance equipment with the patient to increase the difficulty of the activity.

2. ICU Patient Mobilization: Preparation for Sitting at the Edge of the Bed

Demonstrators: Daana Ajami, St. Joseph's Healthcare Hamilton and Laura Camposilvan, St. Joseph's Healthcare Hamilton **NOTE: Added affiliation. Section 2 is moved here as per author's request**

2.2. As previously demonstrated, identify and visually scan the patient room layout, ICU bed, equipment, and all patient lines and attachments [1]. ~~Identify the patient room layout, including an adjustable ICU bed and surrounding equipment [1].~~

2.2.1. ~~WIDE: Talent reviewing room layout, identifying patient attachments or devices, and individualizing room setup.~~ Talent visually scanning the patient room layout, including the ICU bed and surrounding equipment. **NOTE: For removed shot, VO is added in concise format in this step.**

~~2.3. Then, identify patient attachments [1] and equipment, including patient the vital signs monitors, the mechanical ventilator, and intravenous therapy pumps [2].~~

~~2.3.1. Identify Show patient attachments or devices, including lines, drains, and indwelling catheters.~~

~~2.4. Visually scan the patient and surrounding equipment, observe patient monitors and attachments [1]. Then, visually scan and identify all equipment, lines, and attachments connected to the patient [2].~~

~~2.4.1. Talent observing and noting heart rate, blood pressure, and oxygen saturation readings.~~

~~2.4.2. Talent checking the equipment connected to the patient.~~ **NOTE: For removed shots, VO is added in concise format in step 2.2.**

2.5. Determine which attachments can be removed or consolidated [1].

2.5.1. Talent removing or consolidating patient attachments at the bedside. **Videographer's NOTE: Take 1 wide shot, take 2 close up**

2.6. Next, assign roles among team members and designate a team leader [1]. Assign airway monitoring responsibilities ~~to appropriate staff [2].~~

2.6.1. Talent assigning responsibilities to team members. **Videographer's NOTE: 2.6.1 is combined with 2.6.2.**

2.6.2. Talent assigning airway monitoring responsibility to the appropriate staff member.

- 2.7. Ensure that airway equipment and appropriately trained personnel are available in the event of an unplanned extubation [1].

2.7.1. Talent checking that airway equipment is present at the bedside.

- 2.8. Also, ensure that appropriate equipment, such as a walking frame, mobile pole for attachments, ~~portable oxygen~~, and suitable patient clothing such as non-slip socks and adequate coverage, is readily available [1].

2.8.1. Static picture/ scan of these items **or talent highlighting the walking frame, socks, and extra patient gown.** Authors' NOTE: Add a shot of the talent highlighting the walking frame, socks, and extra patient gown within the same step.

Videographer's NOTE: Take 1 wide shot, take 2 close up

- 2.9. Maintain appropriate staffing levels in accordance with institutional policies, treatment goals, clinician expertise, and staff availability [1]. Review the mobilization and backup plans with the team [2]. Communicate the plan to the patient and address any questions [3].

2.9.1. Talent confirming that the required number of staff are present for mobilization.

Videographer's NOTE: 2.9.1 is combined with 2.9.2 and 2.9.3

2.9.2. Talent discussing the mobilization plan with team members.

2.9.3. Talent explaining the mobilization plan to the patient.

4. ICU Rehabilitation Progression: Sitting at the edge of the bed (Activity 2)

Demonstrators: Kristy Obrovac and Laura Camposilvan

- 4.1. While applying Repetitive Transcranial Spinal Stimulation to a patient sitting at the edge of the bed. Patient participation may range from fully passive to fully volitional. Therapeutic targets differ between passive and active activities. Clinician actions include continuous monitoring and providing cues, assistance, or equipment as needed [1].

4.1.1. LAB MEDIA: Figure 4

- 4.2. To assist the patient in moving to a seated position at the edge of the bed, ensure proper preparation of the team, patient, environment, and room setup [1]. Discuss the mobilization plan with team members [2] and explain it to the patient [3].

- 4.2.1. Shot of the prepared team, patient, and room for the sitting activity.
- 4.2.2. Talent discussing the mobilization plan with team members.
- 4.2.3. Talent explaining the mobilization plan to the patient.
- 4.3. Assist the patient in bending the contralateral knee and reaching toward the intended sitting side [1].
 - 4.3.1. Talent assisting the patient to bend the contralateral knee and reaching toward the intended sitting side. Videographer's NOTE: Take 1 wide shot, take 2 medium shot
- 4.4. Then, position staff on either side of the patient [1] and assist the patient into side-lying as required [2].
 - 4.4.1. Talent and assisting staff positioned on either side of the patient.
 - 4.4.2. Talent and assisting staff helping the patient into side-lying. Videographer's NOTE: 4.4.1 and 4.4.2 are shot together in 4.5.1
- 4.5. Use ICU bed mechanics to assist transitions. Elevate the head of the bed while moving the patient's lower limbs over the edge [1].
 - 4.5.1. Talent elevating the head of the bed and moving the patient's lower limbs over the edge of the bed.
- 4.6. Position the patient upright in sitting [1] and lower the bed until the patient's feet are supported on the floor [2].
 - 4.6.1. Talent positioning the patient upright in sitting.
 - 4.6.2. Talent lowering the bed until the patient's feet are supported on the floor.
- 4.7. Assess head, neck, and trunk control and determine the level of assistance required [1]. Provide instructions, feedback, knowledge of results, and motivation [2].
 - 4.7.1. Talent assessing the patient's head, neck, and trunk control in sitting. Videographer's NOTE: 4.7.1 is combined with 4.7.2. Take 1 and 2 wide shots, take 3 close up
 - 4.7.2. Talent giving instructions to guide the patient during the activity.
- 4.8. Provide opportunities to practice, increase duration and complexity as tolerated [1]. Progress to dynamic sitting activities such as reaching or leaning [2].

4.8.1. Shot of the talent while the patient is practising independent sitting.
Videographer's NOTE: 4.8.1 is combined with 4.8.2. Take 1 wide shot, take 2 medium

4.8.2. Talent assisting the patient with dynamic sitting activities such as reaching or leaning.

4.9. Assess readiness for progression to standing while monitoring safety continuously and intervene if required [1].

4.9.1. Talent assessing the patient's readiness to progress from sitting to standing and deciding not to progress to standing.

4.10. Then, return the patient to bed by reversing the procedure [1]. Review the patient's vital signs for stability [2], leave the room, and sanitize hands after removing the gloves [3].

4.10.1. Talent returning the patient to bed by reversing the sitting procedure.

4.10.2. Talent reviewing the patient's vital signs for stability.

4.10.3. Talent leaving the room, doffing gloves, and sanitizing hands

Video editor: Use a title card to show the given information

After the session:

- Reassess the patient's vital signs
- Communicate achievements to the team
- Document the achievements

Pronunciation guides:

1. Volitional

Pronunciation link: <https://www.merriam-webster.com/dictionary/volitional>

IPA: /vəˈlɪʃ.ən.əl/

Phonetic Spelling: vuh·lish·uh·nuhl

2. Rehabilitation

Pronunciation link: <https://www.merriam-webster.com/dictionary/rehabilitation>

IPA: /ˌriː.əˌbɪl.əˈteɪ.ʃən/

Phonetic Spelling: ree·uh·bil·uh·tay·shuhn

3. Physiologic
Pronunciation link: <https://www.merriam-webster.com/dictionary/physiologic>
IPA: /ˈfɪz.i.əˈlɑː.dʒɪk/
Phonetic Spelling: fiz·ee·uh·laa·jik
4. Anatomical
Pronunciation link: <https://www.merriam-webster.com/dictionary/anatomical>
IPA: /ˌæn.əˈtɑː.mɪ.kəl/
Phonetic Spelling: an·uh·taa·mih·kuhl
5. Proximal
Pronunciation link: <https://www.merriam-webster.com/dictionary/proximal>
IPA: /ˈprɑːk.sə.məl/
Phonetic Spelling: praak·suh·muhl
6. Distal
Pronunciation link: <https://www.merriam-webster.com/dictionary/distal>
IPA: /ˈdɪs.təl/
Phonetic Spelling: dis·tuhl
7. Mobilization
Pronunciation link: <https://www.merriam-webster.com/dictionary/mobilization>
IPA: /ˌmoʊ.bə.ləˈzeɪ.ʃən/
Phonetic Spelling: moh·buh·luh·zay·shuhn
8. Intravenous
Pronunciation link: <https://www.merriam-webster.com/dictionary/intravenous>
IPA: /ˌɪn.trəˈviː.nəs/
Phonetic Spelling: in·truh·vee·nuhs
9. Ventilator
Pronunciation link: <https://www.merriam-webster.com/dictionary/ventilator>
IPA: /ˈven.təˌleɪ.tər/
Phonetic Spelling: ven·tuh·lay·ter
10. Catheter
Pronunciation link: <https://www.merriam-webster.com/dictionary/catheter>
IPA: /ˈkæθ.ə.t̬ər/
Phonetic Spelling: kath·uh·ter
11. Indwelling
Pronunciation link: <https://www.merriam-webster.com/dictionary/indwelling>
IPA: /ˈɪnˌdwel.ɪŋ/
Phonetic Spelling: in·dwel·ing
12. Extubation
Pronunciation link: <https://www.merriam-webster.com/dictionary/extubation>

IPA: /ˌeks.tuːˈbeɪ.jən/

Phonetic Spelling: eks-too-bay-shuhn

13. Contralateral

Pronunciation link: <https://www.merriam-webster.com/dictionary/contralateral>

IPA: /ˌkɒːn.trəˈlæɪ.ə.əl/

Phonetic Spelling: kon-truh-lat-er-uhl

14. Supine

Pronunciation link: <https://www.merriam-webster.com/dictionary/supine>

IPA: /suːˈpaɪn/

Phonetic Spelling: soo-pyne

15. Repetitive

Pronunciation link: <https://www.merriam-webster.com/dictionary/repetitive>

IPA: /rɪˈpet̩.ə.tɪv/

Phonetic Spelling: ruh-pet-uh-tiv

16. Consensus

Pronunciation link: <https://www.merriam-webster.com/dictionary/consensus>

IPA: /kənˈsen.səs/

Phonetic Spelling: kuhn-sen-suhs

17. Dynamic

Pronunciation link: <https://www.merriam-webster.com/dictionary/dynamic>

IPA: /daɪˈnæm.ɪk/

Phonetic Spelling: dye-nam-ik

18. Transcranial

Pronunciation link: <https://www.merriam-webster.com/dictionary/transcranial>

IPA: /trænzˈkreɪ.ni.əl/

Phonetic Spelling: tranz-kray-nee-uhl

19. Stimulation

Pronunciation link: <https://www.merriam-webster.com/dictionary/stimulation>

IPA: /ˌstɪm.jəˈleɪ.jən/

Phonetic Spelling: stim-yuh-lay-shuhn

20. Tolerance

Pronunciation link: <https://www.merriam-webster.com/dictionary/tolerance>

IPA: /ˈtɒː.lə.əns/

Phonetic Spelling: taa-luh-ruhns