

**Telehomecare Pilot:  
Remote Monitoring of  
Discharged COVID-19 Patients  
Requiring Oxygen**

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**Division of Respiriology  
Telehomecare  
Pro-Resp**

# Telehomecare Pilot: Remote Monitoring of Discharged COVID-19 Patients Requiring Oxygen

## Section A

### Guiding Principles for Patient Selection and Onboarding for Remote Monitoring on Home Oxygen

#### 1. Purpose:

In order to meet the needs of moderate to higher risk oxygen dependent COVID-19 patients, the division of respirology proposes a pilot project with a goal to implement a sustainable home support program for this patient population. This document provides general principles for patient selection and articulates a patient care pathway for telehomecare monitoring to include self assessments and oxygen saturation measurements at home. Patients selected will have not been on home oxygen previously and will have no known chronic lung disease. This pilot will begin at the BCH site for COVID patients being discharged from respirology or orthopedics (inpatient medicine). The intent is to model 5 to 8 patients and evaluate effectiveness and efficiency. A sustainability plan will be completed after this pilot which will propose a “bring your own device” model for remote monitoring with the provision of an oximeter upon discharge home.

#### 2. Principles for patient selection:

- a) Patients being selected for this program, MUST be in the recovering phase of their illness.
- b) Patients must have adequate home supports.

#### 3. Important Clinical Considerations:

- a) Patients must be at least at day 7 past the onset of symptoms as some patients have a biphasic course with deterioration around day 5-7.
- b) Oxygen requirements must be decreasing from the maximum amount needed.
- c) The patient must be clinically improving.
- d) Bloodwork does not show deterioration such as increasing creatinine, troponin, CRP or worsening lymphopenia/thrombocytopenia. A recent stable chest x-ray is preferred if available.
- e) Oxygen requirements should not exceed 3 L/min to maintain saturation greater than, or equal to 92%.
- f) Discussion or consultation with Respirologist on call is recommended.

#### 4. Prescribing Home O2 Prior to discharge

- a) The MRP will write an order in the chart: **“Home Oxygen Assessment by RT for COVID-19 convalescence”**
- b) The MRP will write an oxygen prescription for the discharge home as follows:  
**“Oxygen \_\_\_\_ L/min by nasal prongs for respiratory symptoms/signs. Oxygen to be discontinued at RRT discretion once patient can perform baseline daily living activities while maintaining an O2 saturation >92% on RA.”. Fax Prescription** (with copy of Telehomecare referral) to Pro-Resp at 905 494 6704
- c) The Osler RT will contact ProResp for initiation of home oxygen. The RT will make it clear that the patient has COVID-19 and this will be a patient on the telehomecare program.
- d) Refer to next section for revised ADP requirements. Note oximetry is adequate.

#### 5. Transitioning to Telehomecare and Home Oxygen: Health Care Provider Roles

- a) The MRP will
  - Write an **order in the chart for “Telehomecare for COVID patients discharged on O2”**
  - Complete and fax a referral to Telehomecare **24 hours prior** to discharge (See appendix A: *COVID19 Follow up Telehomecare Referral*). Also, send a copy of this referral plus the discharge oxygen prescription by fax to ProResp (fax 905-494-6704)

b) **ProResp** will

- visit post-discharge for the initial home oxygen set up and assessment.
- provide daily telephone contact until Telehomecare starts remote monitoring and PRN thereafter.
- ProResp will be added to the circle of care and receive the patient's oxygen saturation results daily via encrypted e-mail. **Oxygen titration will be performed by Pro Resp as follows:**
  - i. Pro-Resp to wean O2 as tolerated to maintain an oxygen saturation greater than 92%
  - ii. Pro-Resp to call respirologist on-call if oxygen requirements increase above the discharge prescription for oxygen.

c) **Telehomecare staff** will employ remote monitoring while patient on oxygen. Monitoring will include a twice daily symptom questionnaire submitted electronically by the patient and pulse oximetry, while available.

- Telehomecare nurses will obtain consent, arrange for equipment delivery and initiate remote telehomecare monitoring. Nurses will work 9 to 5, 7 days a week with week-end coverage being done from home while reviewing patient uploads. Nurses will follow the escalation protocol while monitoring patients (See Section C and D )
- Telehomecare equipment is shipped (by Purolator) to the patient's home. Therefore, if the order is placed before 3 pm by courier – the patient will receive the equipment next business day (weekends excluded).
  - i. If the patient is discharged on a Friday – there would be no Telehomecare monitoring until Monday when it arrives by courier.
  - ii. Where a discharge needs to be done on Friday, ProResp will provide an oximeter for the Saturday/Sunday interim period.

d) **The Respirologist on-call** will be available to respond to inquiries from ProResp or the Telehomecare nurse.

## 6. ADP COVID-19 Modifications to Home Oxygen Funding

### ***Rest Hypoxemia***

During the pandemic ADP does not require oximetry results or the full Home Oxygen Program application (HOPA) completion. All ProResp needs at the time of discharge is an oxygen prescription (from physician or nurse practitioner) which ProResp attaches to the HOPA.

### ***COVID+ve Patients***

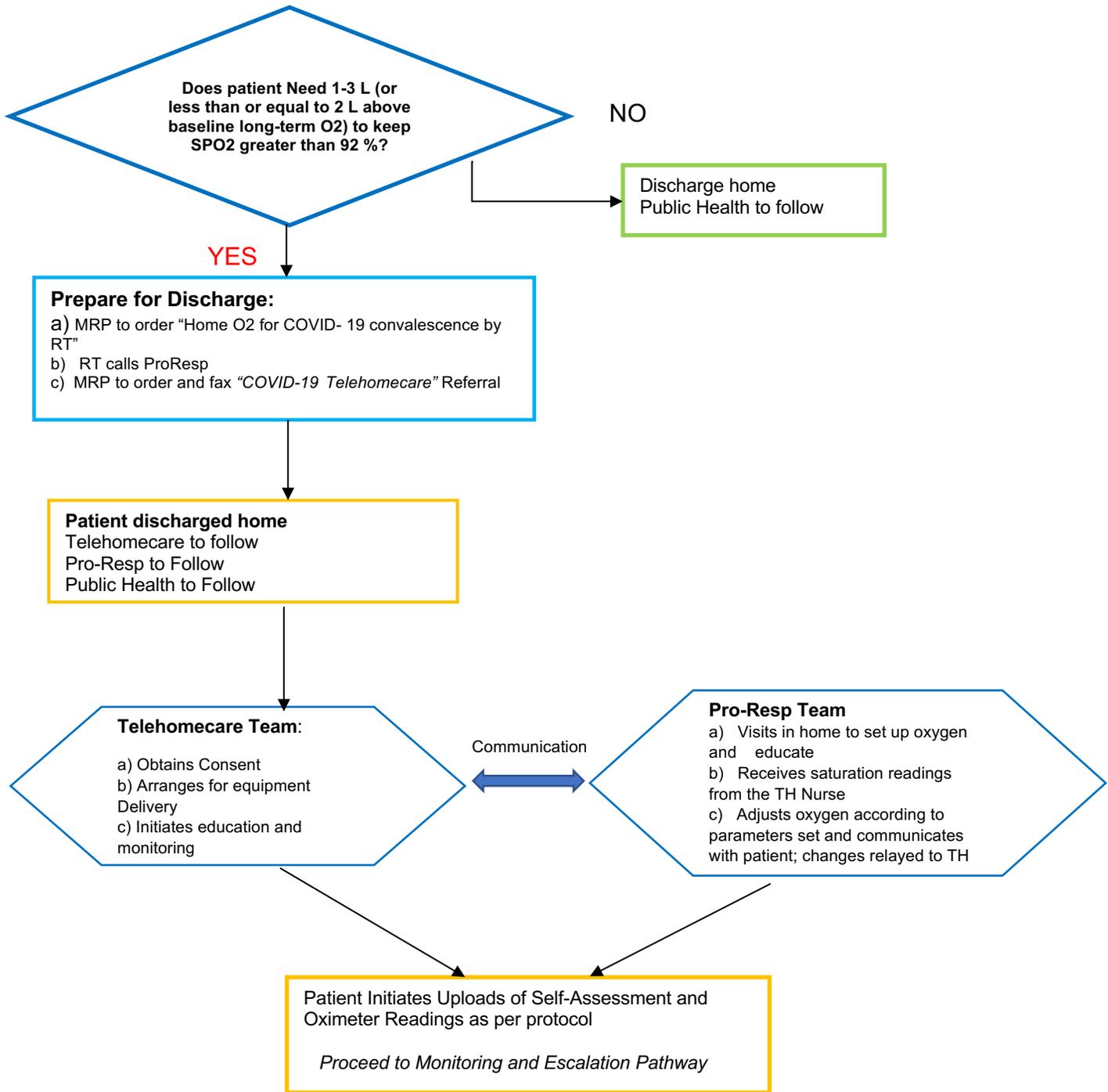
ADP has separate short-term funding this population. A doctor's or nurse practitioner's prescription is all that is required.

### ***Exertional Hypoxemia***

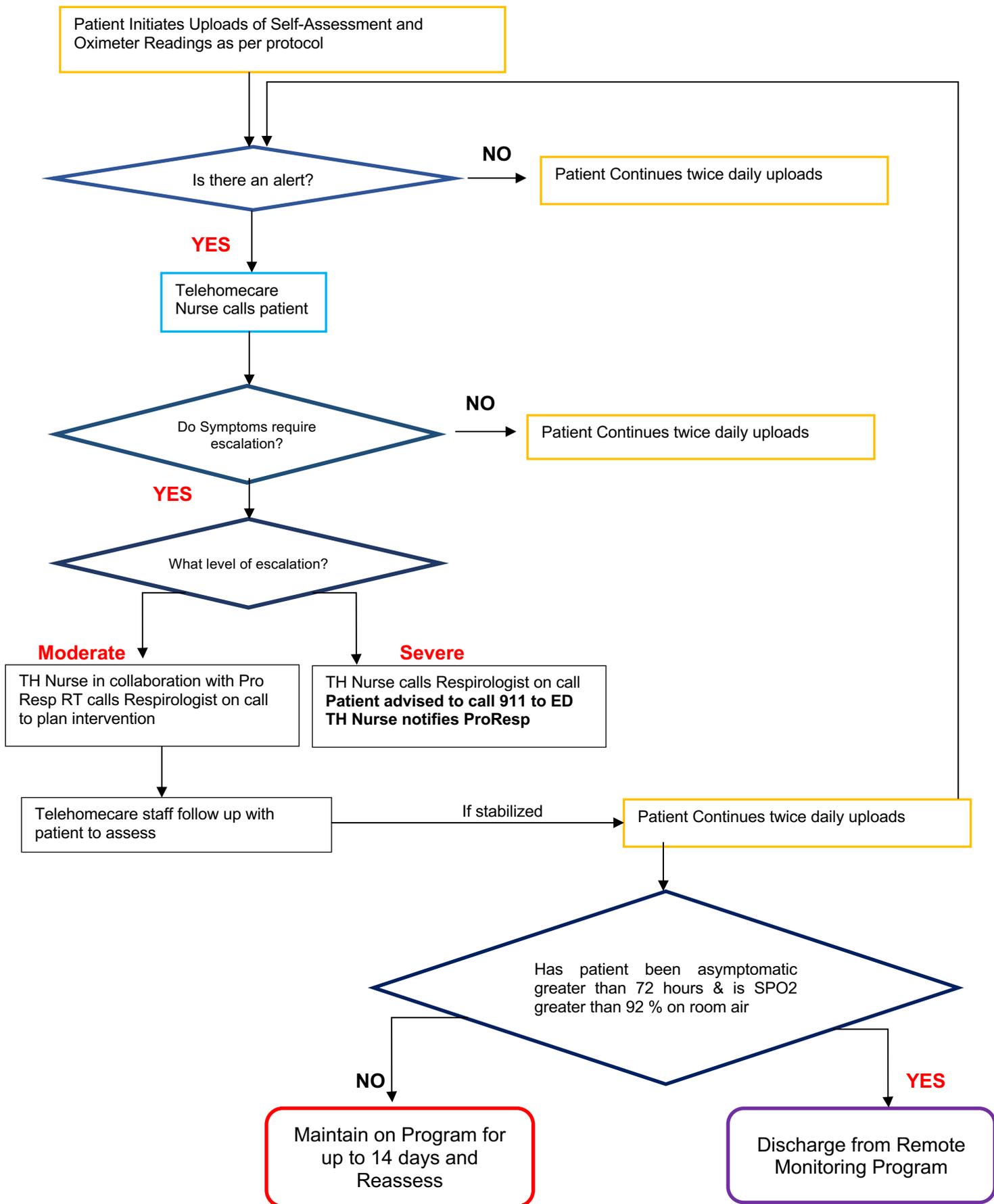
To facilitate the discharge from the hospital for in-patients with exertional hypoxemia only and to confirm eligibility for home oxygen therapy:

- the ADP will accept exercise testing performed in the hospital by a RHP

## Section B: Patient Discharge Pathway for Home Oxygen and Remote Telehomecare Monitoring



### Section C: Monitoring, Escalation and Discharge Pathway for Pilot Patients



## Section D: Escalation Criteria and Actions for Telehomecare Nurses

Symptom Severity	Self-Assessment and Oxygen Saturations	Nursing Action
Low	<ul style="list-style-type: none"> <li>• Perceived mild dyspnea (1 on 5 point scale) with Roth count greater than 10</li> <li>• No self-reported dyspnea, but flag for telehomecare staff review based on other criteria (cough, fever etc.) with Roth count greater than 10</li> <li>• SpO2 greater than or equal 92%: on supplemental oxygen that is same flow or lower than discharge (1-3 L/min or 1-2 L/min above long term oxygen requirements if on long-term oxygen therapy).</li> <li>• Oxygen requirements not higher than on discharge.</li> </ul>	Continue monitoring of Uploads
Moderate	<p>Pt describes themselves as having:</p> <ol style="list-style-type: none"> <li>1. Fever or night sweats</li> <li>2. Cough that is getting worse or increasing chest pain with coughing</li> <li>3. Coughing up new mucous that is yellow, green, red or smells bad</li> <li>4. Diarrhea</li> </ol> <ul style="list-style-type: none"> <li>• Perceived mild change in dyspnea (1 on 5 point scale) with Roth count greater than or equal 7</li> <li>• Perceived moderate change in dyspnea (2-3 on 5 point scale) with Roth count greater than 10</li> <li>• Perceived severe change in dyspnea (4-5 on 5 point scale) with Roth count greater than 15</li> <li>• No self-reported dyspnea but flag based on other criteria (cough, fever etc. (with Roth count 7-10)</li> <li>• SpO2 89-91%: on supplemental oxygen that is same flow as at discharge (1-3 L/min or 1-2 L/min above long term oxygen requirements if on long-term oxygen therapy). Oxygen requirements not higher than on discharge.</li> </ul>	Call Respiriologist On-call for advice
Severe	<p>Patient describes themselves as having:</p> <ol style="list-style-type: none"> <li>1) chest pain that does not go away</li> <li>2) heart beating irregularly or very fast</li> <li>3) dizzy, confused, or feeling like I am going to faint</li> </ol> <p>perceived change in dyspnea of any score (1-5 on 5 point scale) with Roth count less than or equal 7</p> <ul style="list-style-type: none"> <li>• perceived moderate change in dyspnea (2-3 on 5 point scale) with Roth count less than or equal 10</li> <li>• perceived severe change in dyspnea (4-5 on 5 point scale) with Roth count less than or equal 15</li> <li>• no self-reported dyspnea, but flag based on other criteria (cough, fever etc.) with Roth count less than or equal 7</li> <li>• telehomecare staff or family member worried about the patient despite reassuring scores and symptom assessment</li> <li>• SpO2 less than 89%: on supplemental oxygen that is same flow as at discharge (1-3 L/min or 1-2 L/min above long term oxygen requirements if on long-term oxygen therapy) OR oxygen requirements higher than on discharge.</li> </ul>	<p>Call Respiriologist on-call and prepare patient for transfer to the ED</p> <p><b>NOTE:</b> Decisions to send a patient to the ED can only be made by the respirologist on-call after reviewing patient symptoms/oxygen needs with the RT from Pro-Resp and/or the telehomecare nurse. Outside of remote monitoring hours, patients will be instructed to call 911 for any medical emergency</p>



# COVID19 Follow up Telehomecare Referral Form

Please fax referral form(s) to: (905) 494-6784

fax to ProResp ( 905-494-6704)

## PATIENT INFORMATION

LAST NAME	FIRST NAME	DATE OF BIRTH (DD-MM-YYYY)
HEALTH CARD NUMBER (OHIP)	VC	GENDER MALE      FEMALE
ADDRESS	CITY	
POSTAL CODE	PRIMARY PHONE NUMBER	
FIRST LANGUAGE	SECOND LANGUAGE	

## ELIGIBILITY FOR TELEHOMECARE SERVICES

- Patient has an established diagnosis of COVID19 and is being discharged with oxygen (with or without co-morbid conditions)
     
  Health care provider feels the patient will be capable of using simple in-home equipment
- Patient lives in a residential setting with an active land line (internet or analog phone line).
     
  Patient or family caregiver is able to provide informed consent to participate.

## MAIN DIAGNOSIS FOR MONITORING

- COVID19

## CO-MORBIDITIES

- Diabetes     COPD     Heart Failure     Depression     Hypertension  
 Anxiety     Arthritis     Osteoporosis     Cancer     Other \_\_\_\_\_

## REFERRER'S INFORMATION

NAME	ORGANIZATION	NAME/ADDRESS STAMP
POSITION	OTHER DESCRIPTION	
ADDRESS		
PHONE NUMBER	FAX PHONE NUMBER	

## PRIMARY CARE PROVIDER'S INFORMATION

- Same as above

NAME
ADDRESS

A complete and current medication list would be helpful. Please attach any additional information (consultant notes, lab or imaging reports, patient-specific health care challenges) if available.

REFERRER'S SIGNATURE

DATE (DD-MM-YYYY)

PRIMARY CARE PROVIDER'S SIGNATURE

DATE (DD-MM-YYYY)

## DISCHARGE INFORMATION

Discharge Date: \_\_\_\_\_

Discharge Site: BCH EGH

Discharge Unit: \_\_\_\_\_

Current O2: \_\_\_\_\_ L/nasal prong

Current O2 Sat: \_\_\_\_\_

## MEDICATIONS

- Current medication list attached (or can be recorded below)
- Contact pharmacy for medication list

LIST MEDICATIONS AND/OR ADDITIONAL INSTRUCTIONS OR NOTES

**NOTE:** The information contained in this form is confidential. It contains personal health information that is subject to the provisions of the 'Personal Health Information Protection Act, 2004'. This form and its contents should not be distributed, copied or disclosed to any unauthorized persons. If you have accessed this form in error, please contact the owner or sender immediately.

## Appendix B

### Sample Patient Self-Assessment Questionnaire

Frequency: One Time Only, First set of Questions

1. In this program, we will be checking in with you to monitor your symptoms. We will check-in with you every day to: - Monitor your signs and symptoms, - Obtain your temperature readings (if you have a thermometer). Over the next screens, we will be asking you a few questions to assess any other risks you may have. This should take less than 2 minutes. Your answers will be monitored by your care team, who will contact you as needed.

### Self-Quarantine Check-In Pathway (Daily Primary Assessment Questions to track relevant changes)

Frequency: Twice a Day, 7 Days/Week

Check In	Actual Time	Late Time	Available by	Cannot enter after
Morning	09:00	11:00	08:00	14:59
Afternoon	17:00	19:00	15:00	21:00

For how long (duration)? No set duration

Medium Alert = *(M)*  
 High Alert = *(H)*  
 Notification = *(notif)*

Alerts are any patient responses that result in a medium (yellow) or high (red) alert in Vivify solution. The Vivify Care Team Portal displays patients in hierarchical order based on submitted responses and supports trending over time).

1. Are you feeling feverish today (i.e. chills, aching, muscles, warm forehead, etc.)?
  - a. Yes *(H)*
    - b. Are you able to take your temperature?
      - a) Yes
        1. Prompt for Temperature Reading (manual entry)  
*[Medium Alert: >= 100.4 F (38.0 C); High Alert >= 103 F (39.4)]*
        - b) No
2. Do you feel that you are more short of breath today compared to yesterday?
  - a. Yes *(H)*
    1. Rate your shortness of breath on a scale of 1 to 5, where 1 is the least short of breath and 5 is extremely short of breath.
      - a) 1
      - b) 2
      - c) 3 *(M)*
      - d) 4 *(M)*
      - e) 5 *(M)*
  - b. No
3. Do you feel you have a new or worse cough?
  - a. Yes *(H)*
  - b. No

4. Do you have any of these additional symptoms?
  - a. Sore throat (M)
  - b. Chills (M)
  - c. Muscle aches (M)
  - d. Vomiting (M)
  - e. Abdominal pain (M)
  - f. Diarrhea (M)
  - g. None of the above

5. Steps you can take to prevent spread of infection:
  - **Self-isolate** (unless directed to seek medical care)
  - **Call ahead** before visiting your health care provider
  - **Wash your hands** often with soap and water for at least 20 seconds
  - **Avoid touching** your eyes, nose or mouth, especially with unwashed hands
  - **Cover** your coughs and sneezes
  - **Monitor** your symptoms
  - **Avoid** contact with pets and other animals

If you are at home:

- **Separate** yourself from other people and animals in your home
- **Clean** all "high-touch" surfaces everyday
- **Avoid** sharing household items
- **Avoid** having visitors in your home
- **Have supplies delivered** to your home instead of running errands. Supplies should be dropped off outside to ensure a 2-metre distance.

If you must leave self-isolation:

- **Wear a mask** if you must leave self-isolation. If a mask is not available, cover your nose and mouth with tissues
- **Maintain** at least a 2-metre (6 feet) of distance from others



Source: Health Canada 3/12/20

6. Please check the Public Health Ontario or Health Canada website for the most up to date details and guidance.
 

<https://canada.ca/coronavirus> is your online resource for credible health information and is the official website of Health Canada.

<https://www.publichealthontario.ca/> is your online resource for credible health information and is the official website of Public Health Ontario.

\*Disclaimer  
A link does not indicate any form of endorsement or approval from Health Canada or Public Health Ontario.

If you have experienced a change in your symptoms, a member of your care team will contact you to discuss the changes.



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## Appendix C

### Sample Patient Handout

#### **William Osler Health System Telehomecare COVID-19 Remote Monitoring Program**

Your healthcare team has referred you to the William Osler Health System (Osler) Telehomecare program to monitor your health and wellness while you are recovering at home after discharge. Remotely monitoring your condition at home can be used to:

- Assess your symptoms and track any changes
- Monitor your recovery progress and connect you with your health care team if there are concerns
- Make you feel more secure as you transition from hospital to home

A team of Osler Telehomecare nurses, will be monitoring your condition twice daily, 7 days a week for the next week or two. We will work with you to understand how your symptoms may be changing so that you will be able to feel more comfortable and confident in your recovery and so we can help you detect any potential health problems earlier, before your condition gets worse.

#### **How does it work?**

The Telehomecare nurse will contact you, either in hospital or when you get home to explain the program and obtain your consent to be monitored. The Telehomecare program will provide you with easy-to-use equipment that will be delivered to you by Purolator. The equipment is small and plugs into an electrical outlet. You will also require internet/WIFI access. Full instructions will be provided. ***This is a free program and there will be no cost to you.***

Once you're enrolled in the program, you will use the equipment to measure your oxygen saturation level, as well as answer several questions about how you are feeling. You will do this twice per day, every day of the week at **8:30am and 3:30pm** while you are on the Telehomecare Program. Your oxygen saturation level and responses to the questions will be sent to the Telehomecare team and will be reviewed during the hours of 9am and 5pm. We may follow up with you over the phone to ask you more questions about your health, or we may follow up if you are not responding to the questions.

#### **What about my privacy?**

Your privacy is important to us. Your doctor and your Telehomecare nurses/staff will see your personal health information. The Telehomecare program is managed by the Ontario Telemedicine Network (OTN). OTN believes that your personal healthcare information is important and protects it according to the requirements of the Personal Health Information Protection Act, 2004. For more information about privacy practices, visit [www.otn.ca/about-us/privacy](http://www.otn.ca/about-us/privacy).

#### **What if my condition worsens?**

If your symptoms worsen and if you are not feeling well according to the way you answer symptom questions on the tablet, the Telehomecare nurse will contact the doctor to give you further instructions, from 9am to 5pm each day.

**It is important to remember that the Telehomecare COVID-19 Remote Monitoring Program is not an emergency response program. Your symptoms will only be monitored for certain periods of the day (9am to 5pm). For a medical emergency you must call 911 or access emergency assistance.**

#### **For More Information**

For more information about this program, please contact the William Osler Health System Telehomecare Program at: **1-855-683-7112 or (905) 494-2120 ext. 56670**