Document Title	**Home Discharge Patient on Mechanical Ventilator and Role of Multidisciplinary Teams**
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Document Author	Khalsa AL Siyabi
Designation	Head of Respiratory Care Service – MOH (Headquarter)
Document reviewer	Multi-displinary team
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Validated by		**Approved by**	
Name	Dr. Muna Al-Lawati	**Name**	Dr. Badriya Al Rashidi
Designation	Director of Quality Document Development & Control Department	**Designation**	Director General
Signature		**Signature**	
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- Khalsa Mohammed Al Siyabi, Head of Respiratory Care Services – Headquarter
- RT Said al fathi, Respiratory Care Services – Sohar hospital
- RT latifa al Esmaeli, Respiratory Care Services – Al Nahdah hospital
- RT Majda Al Barwani, Respiratory Care Services – Headquarter
- RT Saif Al Balushi – Respiratory Care Services – Royal Hospital
- Dr Saif Awlad Hani , Royal Hospital
- Dr Abdulrahman, Sohar Hospital
- SSN Samyia Mohammed Al Mayahi ,Discharge Planner Rustaq Hospital
- Karima Mohammed Al Rahabi, Discharge Planner, Royal Hospital
- Assad Al Qasmi- DGHS&P
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Acronyms:

GHDP	Guidelines of Home Discharge Patient On Mechanical Ventilator and Role Of Multidisciplinary Teams.
RT	Respiratory therapist
PT	Physiotherapists
SLPs	Speech-language pathologists /Speech therapists
LTVD	long-term ventilator-dependent
PCO2	Partial pressure of carbon dioxide
EEP	Positive End Expiratory Pressure
MV	Mechanical Ventilation
BiPAP	Bilevel Positive Airway Pressure
CPAP	Continuous Positive Airway Pressure
HMV	Home Mechanical Ventilator
RCS	Respiratory Care Service

Definitions

- **Doctor Consultant:** is a senior doctor who practices in one of the medical specialties.
- **Discharge Planner:** They're typically in charge of coordinating the discharge of a patient. This information helps to determine and develop a patient's discharge plan.
- **Respiratory therapist (RT):** is a specialized healthcare practitioner trained in critical care and cardio-pulmonary medicine in order to work therapeutically with people suffering of acute critical conditions, cardiac and pulmonary disease.
- **Physiotherapists (PT):** are medical professionals who specialize in treating injuries and conditions that impact movement.
- **Nutritionist:** is a person who advises others on matters of food and nutrition and their impacts on health.
- **Social workers:** help people solve problems, set goals, and get things done.
- **Speech-language pathologists (SLPs)/speech therapists:** are educated in the study of human communication, its development, and its disorders. SLPs assess speech, language, cognitive-communication, and oral/feeding/swallowing skills. This lets them identify a problem and the best way to treat it.
- **Nursing In charge:** In charge of all nursing activities of the specific department.
- **Staff Nurse:** treat patients, record their medical history, provide emotional support, and provide follow-up care. Nurses also help doctors perform diagnostic tests.
- **Mechanical ventilation:** is artificial respiration using a mechanical ventilator to support the delivery of oxygen to the lungs when breathing has ceased, or inadequate
- **Non Invasive ventilation BIPAP / CPAP:** it is a machine that help a chronic respiratory diseases patient to breath but through mask. The patient will take this machine home to continues his treatment
- **Tracheostomy:** is an opening surgically created through the neck into the trachea (windpipe) to allow direct access to the breathing tube and is commonly done in an operating room under general anesthesia.

CHAPTER ONE

1. **Introduction:**

Home care involves providing services and equipment to individuals and families in their place of residence. This is essential for patients with acute illness, long-term health conditions, permanent disability, or terminal illness. Given the rising number of long-term patients in Oman, home care helps ease the burden on hospital facilities, improving patient outcomes.

This guideline provides an overview of the discharge planning strategy, outlining the necessary steps for a safe and effective transition to home care.

2. **Purpose:**

The purpose of this guideline is to:

- Establish a comprehensive and safe plan for discharging chronic patients from healthcare facilities to ensure the continuation of effective and safe care at alternative sites such as the home.
- Enhance patient quality of life.
- Avoid hospital re-admission due to bed shortages.
- Improve utilization of hospital beds.
- Provide comfort for both patients and their families.
- Prevent recurrence of infections and cross-infection.
- Reduce healthcare costs (e.g., ICU charges, drugs, hospital stays).
- Avoid re-admission due to unclear family training.
- Ensure continuous home care support with documented tracking in the Al Shifa system.

3. **Scope:**

This guideline applies to all healthcare institutions under the Ministry of Health at the central, governorate, and hospital levels.

4. **Structure:**

This guideline consists of:

1. **Chapter 1**: Introduction, Purpose, Scope, and Structure.
2. **Chapter 2**: Detailed Guidelines for Discharge Planning.
3. **Chapter 3**: Stakeholder Responsibilities.
4. **Chapter 4**: Annexes (Document History, Version Control, References, Appendices).

CHAPTER TWO

5. Procedure

5.1 Development and Implementation of the Discharge Plan:

- A comprehensive plan must be developed for the safe discharge of chronic patients from healthcare facilities to continue safe and effective care at an alternate site.
- The discharge plan should be initiated and developed as early as possible before the patient's transfer.
- The discharge team must be identified and coordinated, with clearly defined roles for each member.
- The first appointment after discharge should be scheduled before the discharge, and follow-up should occur at least once every three months. Each visit should be documented with details such as the reason for the visit (e.g., routine check-up, tracheostomy tube change, service follow-up).
- In case of emergency, the Civil Defense Authority and ambulance team will support the transfer of the patient from home to the hospital by calling 9999.

5.2 Desired Outcomes:

- No re-admission to an alternate care site due to discharge plan failure.
- Caregivers' successful performance of all prescribed treatments and modalities.
- Caregivers' ability to assess and troubleshoot the patient’s condition as issues arise.
- Treatment meeting the patient's needs and goals.
- Equipment meeting the patient’s needs.
- The care site providing the necessary services.
- The patient and family are satisfied with the care and discharge process.

5.3 Steps in the Discharge Planning Process:

- **Pre-Admission Phase:**
  - **Patient Admission:** The patient is formally admitted to the healthcare facility, beginning the discharge planning process.
  - **Transition to Chronic Care:** The patient transitions to chronic care after multiple trials of weaning and thorough investigations, coordinated by the Home Care Team.

- **Initial Meeting with the Home Care Team:** A meeting is held with the multidisciplinary home care team to discuss the underlying cause of the disease and establish a care plan tailored to the patient's needs.
- **Family Consultation:** A separate meeting is held with the patient's family to review and discuss the discharge plan, ensuring they are informed and prepared for the patient's transition to home care.

- **During Admission:**
  - **Set Discharge Date:** A discharge date is set to ensure proper scheduling for patient discharge and necessary preparations.
  - **Team Member Roles & Family Training:** Each team member assumes their role and begins training the family on essential tasks such as equipment use, administering treatments, and emergency procedures.
  - **Family Financial Support (if applicable):** If the family can financially contribute, assistance will be provided to help purchase necessary home care equipment. Training will then begin once equipment is confirmed.
  - **Request for Financial Support (if required):** If financial assistance for respiratory equipment is needed, a request will be submitted via the **Albarwa Home Care Request Form** to Respiratory Care Services (RCS).
  - **Request to Respiratory Care Services (RCS):** The request will be forwarded to the company to confirm the availability of required equipment. Communication with RCS will be made through email or WhatsApp.
  - **Equipment Delivery & Consent Form:** Once the family receives the equipment, they must sign a consent form acknowledging the receipt and proper usage instructions.
  - **Training and Discharge Date Confirmation:** Family training will be completed, and the discharge date will be confirmed.
  - **Patient Discharge with Equipment:** Upon discharge, the patient will receive all necessary equipment and the contact details for emergency services (999) and relevant team contacts.

- **After Discharge (Post-Discharge from Hospital to Home):**
  - **Importance of Follow-up:** Regular follow-up is essential to ensure continuity of care and address any issues that may arise after discharge.
  - **Home Visits:** Home visits by the medical team are highly recommended for security and comfort. However, due to staff limitations, phone consultations will also be conducted as needed.
  - **Follow-up in the First Two Weeks:** A team member should contact the family within the first two weeks after discharge to assess the condition of the equipment, address concerns, and confirm that the care plan is being followed effectively.
  - **Handling Returned Equipment:** Any equipment returned to the hospital should be sent immediately for servicing to ensure its continued functionality.
  - **Equipment Servicing:** Equipment must be serviced by the hospital's biomedical department or the supplier to ensure it is functioning correctly and ready for future use.
  - **Readiness for Future Use:** All equipment should be thoroughly inspected, serviced, and prepared for future use with other patients as necessary.

5.4 Site Evaluation for Continuing Care:

- **Primary Factors for Site Selection:** The primary factors for selecting an alternate care site include the patient's needs, available resources, and the goals of care. The site must offer appropriate care in a cost-effective manner, considering personnel, environment, and financial resources.
- **Evaluation of the Site's Resources:**
  - **Personnel:** The facility must have competent personnel to handle the patient's medical, ventilator, and respiratory care needs. If the site is a home, caregivers must be trained and available 24/7.
  - **Physical Environment:** The site must meet safety standards, provide adequate space for medical equipment, and be free of hazards.
  - **Financial Resources:** Adequate financial resources for the site, equipment, and necessary services must be secured before discharge.

5.5 Resources Needed for Discharge Planning:

- **Time and Personnel:** Adequate time and personnel are necessary to gather information and train the patient and family.
- **Physical and Financial Support:** Necessary financial resources must be secured for medical equipment, caregiving, and facility adjustments.
- **Multidisciplinary Team:** The discharge team should include the physician, nurse, respiratory care practitioner, social worker, and other relevant healthcare professionals.

Summary:

- **Pre-Discharge Meeting:**
  - Meet with the family a month before discharge to review care details, answer questions, and prevent problems.
- **Family Involvement:**
  - Ensure family members are involved and aware of the risks and treatment plan. If the family is hesitant to take the patient home, educate them on the risks of hospital-based infections.
- **Legal Considerations:**
  - According to Ministerial Decision No. 34/1998, hospitals have the right to transfer patients based on bed capacity and other needs.

CHAPTER THREE

6. Responsibilities

6.1 Doctor

Determine Patient Eligibility for Long-Term Ventilation:

- Identify patients who require long-term ventilator support in collaboration with the healthcare team and caregivers.
- Review the patient's medical condition and assess eligibility for home ventilation based on medical criteria:
  - Neuromuscular disorders, chest wall restriction, and hypercapnia (PCO_2 > 45 mm Hg).
  - Stable management of associated pulmonary diseases.
  - Consider patients with normal PCO_2 (35-45 mm Hg) under specific conditions (e.g., cor - pulmonale, nocturnal hypoventilation).
  - Ensure patient readiness for discharge without a nasogastric tube (replace with PEG system).

Coordination and Communication:

- Coordinate among healthcare professionals to create a personalized care plan.
- Confirm all facility-related support and family readiness for discharge.

Home Visits:

- Pulmonologists visit once per month and remain available by phone/email 24/7.
- Hospitalist physicians visit weekly or as needed.
- General practitioners rotate on a weekly basis or provide on-call services.

Family Communication:

- Explain the patient's medical condition, respiratory needs, and ventilator equipment.
- Provide clear instructions for the discharge plan, including medications, equipment, and emergencies (e.g., electrical shutdowns).

6.2 Social Workers

Financial and Social History:

- Assess the patient’s financial and social situation.
- Collaborate with the respiratory therapist to identify suitable equipment and provide cost breakdowns.

- Assist the family in finding charity support for home care equipment, if required.

Support and Guidance:

- Provide families with information about equipment costs, charity donations, and home care management.
- Ensure that two family members are designated as focal points for care coordination.

Follow-Up:

- Conduct follow-up every three months to ensure satisfaction with care and equipment usage.

6.3 Discharge Planner

Discharge Arrangements:

- Coordinate the patient's transfer to another healthcare facility or home.
- Ensure all teams involved in discharge have completed their tasks (e.g., medical, financial, social).

Communication and Coordination:

- Communicate with the ambulance or paramedic team for transport logistics.
- Ensure the community nurse and nearest health center are informed and prepared for follow-up care.

Follow-Up and Maintenance:

- Confirm follow-up appointments, service schedules for medical equipment, and other post-discharge details.

6.4 Unit Nurse

Patient Education and Support:

- Provide simple instructions regarding the patient's medical condition and treatment plan.
- Offer emotional support to family members during the discharge process.

Care Teaching:

- Teach self-monitoring, medication administration, and therapies (e.g., IV lines, administering blood).
- Assist with patient follow-up and rehabilitation care.

6.5 Respiratory Therapist

Equipment Training and Management:

- Educate family members on how to operate and maintain ventilators, oxygen therapy, suction machines, etc.
- Provide clear instructions on equipment cleaning, troubleshooting, and identifying alarms.

Emergency Preparedness:

- Train family members on CPR, airway management, and resuscitation procedures.
- Evaluate the family's readiness to manage equipment through checklists.

Documentation and Follow-Up:

- Maintain records of patient visits and equipment service requirements.

Recommendation:

- Ensure that the ventilator and respiratory equipment match the patient's needs.

6.6 Physiotherapist

Patient Mobility:

- Teach family members techniques to improve patient mobility and prevent pressure sores.
- Guide the family on safe handling to avoid caregiver back pain.

Rehabilitation:

- Follow up on rehabilitation exercises and the patient's physical progress.

6.7 Speech Therapist

Communication and Swallowing Support:

- Provide guidance on therapies for patients with difficulty speaking or swallowing.
- Assist family members in understanding the benefits of speech therapy for conditions such as stroke or surgery near the face/neck.

6.8 Nutritionist

Diet and Nutrition Education:

- Advise on home care nutrition that supports recovery and meets the patient's dietary needs.

6.9 Recommendations for Respiratory Care Service (RCS)

Selecting Ventilators:

- The Respiratory Therapist selects appropriate ventilators based on the patient's condition (e.g., age, ventilator settings, oxygen requirements).

Requesting Equipment:

- The physician and respiratory therapist collaborate on the prescription for the necessary equipment.
- The social worker investigates financial assistance options, if needed.

Equipment Documentation and Delivery:

- The RCS provides the necessary equipment and ensures its delivery to the hospital or patient's home.
- Donated equipment is tracked and serviced as required by the Biomedical Department.

CHAPTER FOUR

7. Document History and Version Control

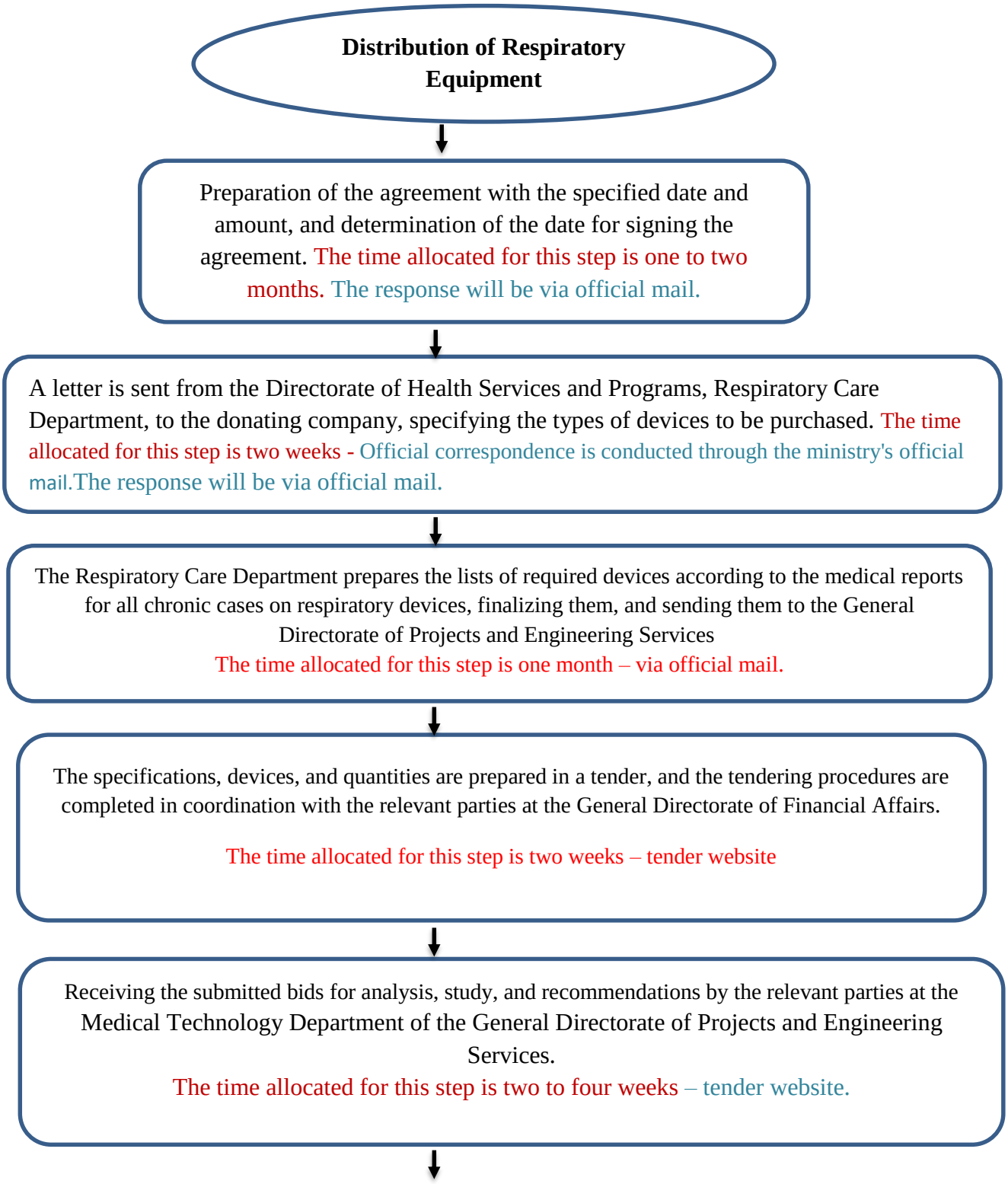
Version	Description	Review Date
1	**Initial release**	April 2028
2		
3		

8. References:

- Omani Experience in Health Home Services Started in Royal Hospital since 2007**.**
- Home ventilated patient started in 2007 by Respiratory Therapist Team. On 2014 Started by Respiratory Therapy Department in MOH in all Oman Health sectors.

9. Annexes:

9.1 Appendix 1: Steps of Distribution of Respiratory Equipment:



Sending the final recommendations to the relevant parties at the General Directorate of Financial Affairs Procurement and Tender Department, to prepare the purchase orders

The time allocated for this step is one month – via official mail

↓

The purchase orders are delivered to the suppliers of medical devices, and a copy of all purchase order slater through the Contracts Department at the General Directorate of Projects and Engineering Services.

The time allocated for this step is one month – via the tender website

↓

Coordination is carried out between the Medical Technologies Department and the Respiratory CareDepartment regarding the follow-up of the supply of respiratory medical devices listed in the various purchase orders.

The time allocated for this step is one month – in person to select devices based on medical specifications.

↓

Respiratory Care Department supervises the distribution of respiratory medical devices according to the requests and medical recommendations for various chronic respiratory diseases across different healthcare institutions, in coordination with the Respiratory Care Departments at the referral hospitals

The time allocated for this step is one month the respiratory care form is received via official mail.

↓

After the distribution and delivery of the respiratory medical devices to the hospitals, the receipt toolsare approved, inspection reports are prepared, medical supplies are received, and documents are reviewed. Subsequently, the financial claims for the received devices are approved.

The time allocated for this step is two weeks the correspondence is conducted via official mail.

↓

The financial claims are sent to the donating company officially, in coordination between the General Directorate of Projects and Engineering Services and the General Directorate of Financial Affairs.

The time allocated for this step is two weeks - the correspondence is conducted via official Email.

Appendix 2: Device Application Respiratory Equipment Form from the hospital to RCS:

Sultanate of Oman
Ministry of Health
Directorate General of Specialized Medical Care

Medical Prescription (Respiratory Care Equipment for Home-use)

وصفه طبيه (اجهزة الرعايه التنفسيه الخاصه للاستعمال المنزلي)

To: **The Head of the Respiratory Care Services, Directorate General of Specialized Medical Care**

Hospital: _____ **Date:** _____

Patient Phone: _____

Patient Phone / GSM #: _____

Patient home address: _____

Civil ID Number (must): _____

Patient Sticker
(Sticker only
Hand writing is not acceptable)

Body Weight: **Age :**

هام جدا: جميع اجهزة التنفس الخاصه للاستعمال المنزلي هي ملك لوزارة الصحه؛ وبناء عليه يجب اعادتها فور الانتهاء من استعمالها

Respiratory Diagnosis, select **[x]** from the following:

[ ] COPD **[ ]** OSA **[ ]** CRF II **[ ]** Obesity Hypo-ventilation

[ ] Other, indicate:

Patient's Current Situation Select [x]:

Select one: **[ ]** Patient is not intubated **[ ]** Intubated with ET-Tube **[ ]** Intubated w/ Tracheostomy-Tube
Select one: **[ ]** Patient is using hospital equipment **[ ]** Using donated equipment **[ ]** Using condemned in-use equipment
Select one: **[ ]** Patient is available at the hospital **[ ]** Patient is available at home **[ ]** Other, indicate

Non-Invasive Ventilation Equipment, Select [x] one

[ ] Auto CPAP alone **Setting RR ( ) – IPAP ( ) – CPAP or EPAP ( )**
[ ] BIPAP S / ST alone **[ ] BIPAP** w/ O2 Concentrator 1-5 L/M **[ ] BIPAP** w/ O2 Concentrator 5-10 L/M

Portable Ventilator/Brand (...)

Select one: **[ ] Portable ventilator** with **adult** circuit. **[ ] Portable ventilator** with **child/infant** circuit.

Ventilator Accessory **Ventilator Setting RR ( ) – PIP ( ) – PEEP ( )- PS ( )- O2 ( )**

Select one: **[ ] Oxygen** Concentrator **1-5 L/M** **[ ] Oxygen** Concentrator **5-10 L/M**
Select one: **[ ] Manual** Suction Pump **[ ] Electric** Suction Pump
Select one: **[ ] Adult** Manual Resuscitator **[ ] Child** Manual Resuscitator **[ ] Neonate** Manual Resuscitator

Department Head/ Consultant	**Respiratory Therapist**
Name (print): _____	Name (print): _____
Signature: _____	Signature: _____
Date: _____	Date: _____
Stamp: _____	Stamp: _____

cc:
- ☐ Respiratory Care Services
- ☐ Discharge Planner
- ☐ Social Worker

Commitment Form for Returning the Device to the Discharge Hospital After Receiving the Devices, Signed by the Patient:

وزارة الصحة
Ministry of Health

وزاره الصحه

المديريه العامه للرعايه الطبيه التخصصيه

قسم الرعايه التنفسيه

استمارة تعهد

التاريخ:

NO :

الموافق:

المستشفى :

- Ventilator
- O2 Concentrator
- NIV (BIPAP- Auto CPAP)
- Manual Resuscitator
- Humidifier for Pediatrics Population
- Pulse Oximetry

أنا الموقع أدناه استلمت جهاز

لاستخدامه للمريض: ..... رقم الملف الطبي (..... ...) . نوع القرابة ( )

لذا أتعهد بحفظه وإعادته إلى قسم الرعاية التنفسية في حالة تحسن صحة المريض ولا يحق لي التصرف فيه أو إعطائه لشخص اخر وإلا سأتحمل المسئوليه.

اسم المستلم :

رقم الهاتف :

التوقيع :

سلم بواسطة الأخصائي التنفسي:

التوقيع :

رئيس قسم الرعاية التنفسية :

نسخة إلى :

- صاحب العلاقة
- يحفظ في ملف قسم الرعاية التنفسية

Respiratory Assessment form before discharging patient Home with Respiratory Equipment:

Directorate General of Specialized Medical Care
Department of Supportive Services
Respiratory Care Services

Home Care Assessment Form before Patient Discharge

Instructions: Please check and fill the appropriate column to make sure all instructions were clearly demonstrated and details were discussed to the relative and/or family member.

No	Assessment	Date	Time	RT name
1	**Teach Basic Anatomy & Physiology**			
2	**Teach Basic CPR to family members (two focal point) that includes:** • Reinsertion of tracheostomy tube • Manual Resuscitator using Bag and Mask • Importance of Manual Resuscitator with Oxygen Therapy			
3	**Equipment and Procedure** a. **Airway Management Devices (**Endotracheal tube/Tracheostomy tube**):** • Check intracuff pressure • Cleaning technique of tracheostomy inner tube • Cleaning and redressing technique of stoma site • Emergency response to Accidental tracheostomy decannulation **b. Suctioning** • Endotracheal tube Suctioning/ Tracheostomy tube suctioning • Suction Pressure adjustment • Proper size of the suction catheter • Cleaning of the suction bottle			
4	**Humidity:** • Explain the importance of using humidifier • Which type of humidification to use (Active/HME) • What type of water to use • Importance of Cleaning the humidifier			
5	**Explain the function of the ff. consumable** • Bacterial Filter • HME/Active humidification for children • Circuit Change (when to change) • Recalibration for leak test after changing the circuit			
6	**The environment** • The place should be clean & well-ventilated area • Should not be congested • Electrical Socket must be more than (1) one to prevent error from happening • O2 concentrator should not be near to window to prevent accumulation of dust			
7	**Ventilator Set-Up & Care Equipment :** • Basic Set-up/Parameters to set • Basic Troubleshooting			
	- Low Oxygen Alarm ex. Empty tank - Low Pressure Alarm ex. Circuit Leak - High Pressure Alarm due to secretions, coughing etc. • Alarms Setting: - Important attention to all alarm - Differentiate between normal alarm & emergency alarm • Cleaning the equipment - How to change the internal filters			
8	**Other Machines:** • How to turn On/ Off the machine • How to put the machine on Standby mode • What is the function of each machine • Importance of Services and maintenance of the machine • When is the machine due for service • How to clean the machine			
10	**Battery Backup:** • Ventilator must have a backup battery life of 4 to 8 hrs. that is most important during transport • Portable O2 Concentrator • Car Charger as alternative • Availability of External Battery backup if electricity was suddenly disconnected			
11	**Completed Equipment Lists to be used for Home Care** - **Ventilator Type (Transport/ Non-Invasive)** - **Suction Machine** - **Oxygen Concentrator** - **Oxygen Tank if needed** - **Manual Resuscitator** - **Nebulizer** - **Monitoring Devices**			
12	**Comment:**			

Signature RTs (Discharging the patient) Signature of the patient/Relative/Caregiver

Respiratory Care Services (MOH) 1/1/2022