Demonstration of videos of medical equipment for oxygen delivery and monitoring
Webinar agenda

13:30 to 15:30 CET, panels and Q&A

Introductions and background

Panel 1. Selection and set up of medical devices

Panel 2. Clinical use and decontamination

Panel 3. Maintenance and decommissioning

OpenWHO training

Other WHO initiatives related to Oxygen

WHO

International panelists
OpenWHO training series trailer
COVID-19 Clinical CARE pathway

CONFIRM
SARS-CoV-2 infection

ASSESS
symptoms, risk factors and severity

RESPOND
with appropriate care and treatment

EVALUATE
clinical response and recovery

COVID-19 Clinical Care Pathway (who.int)
The WHO COVID-19 Clinical management: living guidance contains the Organization’s most up-to-date recommendations for the clinical management of people with COVID-19. Providing guidance that is comprehensive and holistic for the optimal care of COVID-19 patients throughout their entire illness is important.

The (second) latest version of this living guidance is available in both pdf format (via the ‘Download’ button) and via an online platform, and is updated regularly as new evidence emerges.

The (third) latest version of this living guidance is available in both pdf format (via the ‘Download’ button) and via an online platform, and is updated regularly as new evidence emerges.

This updated (third) version contains two new recommendations regarding hospitalized children with Multisystem Inflammatory Syndrome (MIS-C), which includes a:

- conditional recommendation to use corticosteroids in addition to supportive care (rather than either IVIG plus supportive care, or supportive care alone), for hospitalized children aged 0-18 years who meet a standard case definition for MIS-C;
- conditional recommendation to use corticosteroids in addition to standard of care for hospitalized children aged 0-18 years who meet both a standard case definition for MIS-C and diagnostic criteria for Kawasaki disease.

Guidelines regarding the use of drugs to treat COVID-19 are included in a separate WHO document, Therapeutics and COVID-19: living guideline, that can via an online platform and in pdf format (or click ‘PDF’ in top right corner of online platform).

Guidelines regarding the use of drugs to prevent COVID-19 are included in a separate document, WHO Living guideline: Drugs to prevent COVID-19, that can be accessed via an online platform and in pdf format (or click ‘PDF’ in top right corner of online platform).

Planning the next revision of the Living Guidance for Clinical Management of COVID-19:

- Heparin anticoagulation - three different doses
- Non-invasive ventilation
- Prognostic models
Therapeutics and COVID-19

This eighth version of the WHO living guideline now contains 14 recommendations, including three new recommendations regarding Janus kinase (JAK) inhibitors and sotrovimab. No further updates to the previous existing recommendations were made in this latest version.

The WHO Therapeutics and COVID-19: living guideline currently includes a:

**NEW** Corrigendum - 2022.1 LG Therapeutics and COVID-19

- strong recommendation for the use of baricitinib as an alternative to interleukin-6 (IL-6) receptor blockers, in combination with corticosteroids, in patients with severe or critical COVID-19 (published 14 January 2022);
- conditional recommendation against the use of ruxolitinib and tofacitinib for patients with severe or critical COVID-19 (published 14 January 2022);
- conditional recommendation for the use of sotrovimab in patients with non-severe COVID-19, conditional for those at highest risk of hospitalization (published 14 January 2022);
- strong recommendation against convalescent plasma in patients with non-severe COVID-19 (published 7 December 2021);
- recommendation not to use convalescent plasma in patients with severe or critical COVID-19 except in the context of a clinical trial (published 7 December 2021);
- conditional recommendation to use a combination of neutralizing monoclonal antibodies (casirivimab and imdevimab) in non-severe COVID-19 patients at the highest risk of severe disease (published 24 September 2021);
- conditional recommendation to use a combination of neutralizing monoclonal antibodies (casirivimab and imdevimab) in severe and critically ill COVID-19 patients with seronegative status (published 24 September 2021);
- strong recommendation to use IL-6 receptor blockers (tocilizumab or sarilumab) in patients with severe or critical COVID-19 (published 6 July 2021);
- recommendation not to use ivermectin in patients with COVID-19 except in the context of a clinical trial (published 31 March 2021);
- strong recommendation against hydroxychloroquine in patients with COVID-19 of any severity (published 17 December 2020);
- strong recommendation against lopinavir/ritonavir in patients with COVID-19 of any severity (published 17 December 2020);
- conditional recommendation against remdesivir in hospitalized patients with COVID-19 (published 20 November 2020);
- strong recommendation to use systemic corticosteroids in patients with severe and critical COVID-19 (published 2 September 2020);
Oxygen and advanced respiratory support

All areas where severe patients may be cared for should be equipped with pulse oximeters, functioning oxygen systems and disposable, single-use, oxygen-delivering interfaces (nasal cannula, Venturi mask and mask with reservoir bag).

Remark:
This includes areas in any part of health facilities, including emergency units, critical care units, primary care/outpatient clinics, as well as pre-hospital settings and ad hoc community facilities that may receive patients with severe COVID-19. See WHO Oxygen sources and distribution for COVID-19 treatment centres (126).

We recommend immediate administration of supplemental oxygen therapy to any patient with emergency signs during resuscitation to target SpO₂ ≥ 94% and to any patient without emergency signs and hypoxaemia (i.e. stable hypoxaemic patient) to target SpO₂ > 90% or ≥ 92–95% in pregnant women.
Oxygen and advanced respiratory support

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Closely monitor patients for signs of clinical deterioration, such as rapidly progressive respiratory failure and shock and respond immediately with supportive care interventions.

We recommend prompt recognition of progressive acute hypoxaemic respiratory failure when a patient with respiratory distress is failing to respond to standard oxygen therapy and adequate preparation to provide advanced oxygen/ventilatory support.
Oxygen and advanced respiratory support

We recommend that endotracheal intubation be performed by a trained and experienced provider using airborne precautions.

Remark: Patients with ARDS, especially young children or those who are obese or pregnant, may desaturate quickly during intubation. Pre-oxygenation with 100% FiO₂ for 5 minutes, and use of a face mask with reservoir bag is preferred. When possible, avoid bag-valve mask ventilation to reduce exposure to aerosols. Rapid-sequence intubation is appropriate after an airway assessment that identifies no signs of difficult intubation (135)(136)(137).

We recommend implementation of mechanical ventilation using lower tidal volumes (4–8 mL/kg predicted body weight [PBW]) and lower inspiratory pressures (plateau pressure < 30 cmH₂O).

Remark for adults:
The implementation of mechanical ventilation using lower tidal volumes and lower inspiratory pressures is a strong recommendation from a clinical guideline for patients with ARDS (109), and is also suggested for patients with sepsis-induced respiratory failure who do not meet ARDS criteria (109). The initial target tidal volume is 6 mL/kg PBW; tidal volume up to 8 mL/kg PBW is allowed if undesirable side-effects occur (e.g. dyssynchrony, pH < 7.15). Permissive hypercapnia is permitted. Ventilator protocols are available (138). The use of deep sedation may be required to control respiratory drive and achieve tidal volume targets.

Remarks for children:
In children, a lower level of plateau pressure (< 28 cmH₂O) is targeted, and a lower target of pH is permitted (7.15–7.30). Tidal volumes should be adapted to disease severity: 3–6 mL/kg PBW in the case of poor respiratory system compliance, and 5–8 mL/kg PBW with better preserved compliance (139).
Oxygen and advanced respiratory support

In adult patients with severe ARDS (PaO₂/FiO₂ < 150) prone ventilation for 12–16 hours per day is recommended.

Remarks:
1. Application of prone ventilation is recommended for adult patients, preferably for 16 hours per day, and may be considered for paediatric patients with severe ARDS but requires sufficient human resources and expertise to be performed safely; protocols (including videos) are available (140)(141).
2. There is little evidence on prone positioning in pregnant women with ARDS; this could be considered in early pregnancy. Pregnant women in the third trimester may benefit from being placed in the lateral decubitus position.

Use a conservative fluid management strategy for ARDS patients without tissue hypoperfusion and fluid responsiveness.

Remarks for adults and children:
This has also been recommended in another international guideline (109). The main effect is to shorten the duration of ventilation. A sample protocol for implementation of this recommendation is available (142).
Oxygen and medical equipment. Development of WHO norms and standards

Adriana Velazquez Berumen
Team Lead Medical devices and in vitro diagnostics
Access to Medicines and Health Products Division,
COVID-19 has demonstrated the need to have Biomedical engineers to ensure technology is appropriate to well-being of patients

Oxygen is an essential medicine, for COVID-19, pneumonia, surgery, trauma…

Personal protective equipment, in vitro diagnostics and medical equipment
Oxygen requires medical devices to deliver and monitor.

What are other types of Medical Devices?
Other priorities where oxygen plays essential role: Pneumonia

Number 1 killer for less than 5 years old.

- WHO UNICEF Oxygen support systems (2019)
Patient Safety should be prioritized, so training is indispensable!

Engineers, nurses and doctors all responsible to ensure safety.

Speak up for patient safety!
No one should be harmed in health care

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 out of 10</td>
<td>134 million</td>
</tr>
</tbody>
</table>

Up to 4 out of 10 patients are harmed in primary and ambulatory care settings.

134 million adverse events occur each year in hospitals in LMICs, contributing to 2.6 million deaths annually due to unsafe care.

Ensuring safe care is a major challenge in all countries, rich and poor.

And we need innovation in the health care industry to find new technologies to avoid harm.
Oxygen, essential medicine for hypoxia (COVID-19): quality, affordability and availability in LMIC has been an urgent need for decades, but in the past only very limited investment.

**Oxygen and medical equipment NEEDS and WHO guidance**

Medical oxygen source of good quality.

Distribution/monitoring/regulation, cylinders or pipeline

Pressure/volume, Maintenance, supply

Patient receiving appropriate, quality and safe care.

Medical equipment, pulse oximeters, cannulas, ventilators, masks, flowmeters…

**Sources of oxygen: with different quality “Pharmacopeia” and costs.**

- Liquid oxygen: pipeline or cylinder >99%, >500K plus operating costs
- PSA and VSA plants: pipeline or cylinders > 93%, >200K plus operating costs
- Oxygen concentrators >83%, 10K

**2015 - 2020**

2015 2019 2020 2020

2015 RMNCH 2020 WHE 2021 MHP-WHE (for openWHO) safety and home use

2015 country guidance, GF funding, lack of engineering expertise pharmacopeia and GMP in MHP consultations

NGOs support, industry challenges

Priority medical devices list for the COVID-19 response and associated technical specifications (Nov 2020)

Includes 100+ types

By clinical interventions

Devices for protection, diagnose, treatment and palliation

Technical specifications
Other WHO publications, related to oxygen, innovations, clinical interventions and role of biomedical engineers
“Oxygen” new health topics webpage to include all WHO work related to Oxygen.

https://www.who.int/health-topics/oxygen#tab=tab_1
Human Resources (Biomedical Engineers)

Countries with at least one BME professional association by WHO region

Source: Data was reported in surveys launched by WHO from 2009–2015.
Countries need biomedical/clinical engineers to join the multidisciplinary team to care for the well-being of patients and ensure technology is appropriate.
Working together to solve local, regional and global health problems
COVID-19 GLOBAL OXYGEN

**NEEDS**
- Medical oxygen source, good quality
- Distribution/monitoring/regulation
- Pressure/volume

**SOLUTIONS**
- Patient receiving appropriate care safe
- Good quality
- Qualified Engineer management
- Appropriate good quality Technology
- Medical doctor safe use
What is our role as biomedical engineers? To design, evaluate, regulate, manage medical devices that will support local, regional and global health.

And always collaborate with other health care workers in a teamwork, as today!

different settings, where we can make a difference
Thank you
Why and how were these videos developed?

Pryanka Relan MD MPH CTropMed
Technical Officer
Clinical Management, WHO Health Emergencies Programme, World Health Organization
Geneva, Switzerland
### COVID Supply Chain System: Coordinated demand, supply, allocation and distribution mechanism

<table>
<thead>
<tr>
<th>Country Planning &amp; Financing</th>
<th>Essential Supplies Online Catalogue</th>
<th>Demand Management</th>
<th>Control Tower</th>
<th>Purchasing and Virtual Stockpiles</th>
<th>Suppliers and Manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Technical &amp; planning guidance</td>
<td>- PPE</td>
<td>- Demand &amp; supply forecasting</td>
<td>- Allocation &amp; request</td>
<td>- Global sourcing</td>
<td>- Price &amp; volume negotiation, LTA</td>
</tr>
<tr>
<td>- National authorities</td>
<td>- Diagnostics</td>
<td>- Consolidation &amp; validation of country requests</td>
<td>- Warehousing &amp; Distribution</td>
<td>- Quality assurance &amp; testing</td>
<td>- Finance &amp; Innovation to increase production</td>
</tr>
<tr>
<td>- Implementing partners &amp; Donors</td>
<td>- Therapeutics</td>
<td>- Allocation principles by SC Task Force</td>
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</table>

**Country Implementation**
- Recapit & local distribution
- Training & capacity building
- Operations support

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**Equatorial Guinea** welcomes the @UN ‘Solidarity Flight’ carrying #COVID19 medical supplies to support health workers. The @WHO cargo transported by @WFP includes critical protective equipment, including 10,560 masks & 19,000 pairs of gloves & 2 ventilators.

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WHO African Region (at) @WHOAFRO

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20:28 · 4/18/20 · Twitter Web App
Previous and progressing WHO trainings were not enough...
Project conception: February 2020
All steps of medical device training needed

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
<th>Step 4</th>
<th>Step 5a</th>
<th>Step 5b</th>
<th>Step 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen cylinder</td>
<td>Selecting the device and accessories (procurement, specifications and receiving)</td>
<td>Getting the equipment patient ready (set up, installation and testing)</td>
<td>Use of equipment (patient care)</td>
<td>Decontamination (consumables)</td>
<td>1 video for consumables</td>
<td>Demonstration video</td>
<td>1 slide set (with narrative to cover all equipment and devices)</td>
</tr>
<tr>
<td>Oxygen concentrator</td>
<td>Demonstration video</td>
<td>Demonstration video with accessories</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Repair table</td>
<td>Flow chart</td>
<td>Demonstration video</td>
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<tr>
<td>Oxygen delivery devices</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Repair table</td>
<td>Flow chart</td>
<td>Demonstration video</td>
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<td>HFNC</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Repair table</td>
<td>Flow chart</td>
<td>Demonstration video and Checklist</td>
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<tr>
<td>CPAP &amp; BIPAP</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video &amp; Repair table</td>
<td>Demonstration video and Check list</td>
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<tr>
<td>Ventilator</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Checklist</td>
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<tr>
<td>Pulse oximeter</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video &amp; Repair table</td>
<td>Demonstration video and Check list</td>
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<tr>
<td>Patient monitoring devices</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Demonstration video</td>
<td>Flow chart</td>
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</tbody>
</table>
Title | Getting the device ready: XXX
---|---
Expert Panel Input | 
Target Audience | Providers, such as physicians, nurses, respiratory therapists, clinical officers, etc., who are initiating or titrating oxygen therapy for adult or paediatric patients.
Format | ~5 min video demonstration with a narrative voice over
Objective | Demonstrate the process of setting up a pulse oximeter
Equipment to be presented | - Pulse oximeter - fingertip
- Pulse oximeter - handheld
- Pulse oximeter - tabletop
Learning objectives | At the end of this video, the participant will be able to:
- Identify the equipment necessary to monitor pulse oximetry
- Demonstrate the process of setting up a pulse oximeter
- Perform a function test on the pulse oximeter

Storyboard with scripts:

<table>
<thead>
<tr>
<th>Narrative</th>
<th>Scene</th>
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</table>
Demonstration video training course on full life cycle of key respiratory equipment

<table>
<thead>
<tr>
<th>Equipment life cycle</th>
<th>Pulse oximetry</th>
<th>Patient monitors</th>
<th>Oxygen cylinders</th>
<th>Oxygen concentrators</th>
<th>High-flow oxygen</th>
<th>CPAP and BiPAP</th>
<th>Mechanical ventilators</th>
</tr>
</thead>
</table>

- **Step 1** Selection of the device and accessories (procurement, specifications and receiving)
- **Step 2** Getting the equipment patient ready (set up, installing and testing)
- **Step 3** Use of the equipment (patient care)
- **Step 4** Decontamination of consumables and equipment (cleaning, disinfection and sterilization)
- **Step 5** Maintenance of the equipment (repair and planned maintenance)
- **Step 6** Decommissioning of the equipment
Finally – over 30 videos filmed by 100+ experts in 20+ countries in all WHO regions and all income levels
Panel 1 Selection and set up of medical equipment

13:50 to 14:15 CET, panels and Q&A

Video clip Selection

Video clip Setting up

Background and Learning Objectives
Tobey CLARK, (WHO collaborating center, U of Vermont, USA)

Health Technology management
Shauna MULLALY (Canada)

Intensive care medical doctor
Cesar VIEIRA (Portugal)

Consultant to WHO, African region office
Marta MULERWA (Uganda)
Step 1 Selecting the right medical equipment

A critical stage for achieving the value of medical equipment in healthcare

At the end of this video, the participant will be able to:

1. Provide a brief outline of the training course
2. Identify what equipment to select for their facility or system
3. Understand good medical equipment selection practice to follow when acquiring equipment;
4. Identify respiratory equipment-specific best practices for equipment selection;
5. Know where to look for further guidance on the subject
Step 1: How to select medical equipment

Part 1: ALL MEDICAL

Selecting equipment...
Step 2 - Getting the medical equipment ready

Well planned and executed initial implementation leads to success

At the end of this video, the participant will be able to:

1. Perform incoming inspection of the respiratory equipment which includes verifying inventory, performing safety and performance testing and documenting key information for the asset;

2. Assessing and preparing a clinical space for the respiratory equipment.
Step 2: How to set up a mechanical ventilator

Step 2 - Getting the medical equipment ready:

MECHANICAL VENTILATOR

COVID-19 Respiratory equipment training course
## Panel 2 Clinical use and decontamination

14:15 to 14:40 CET, panels and Q&A

<table>
<thead>
<tr>
<th>Video clip Clinical use</th>
<th>LINK</th>
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<tbody>
<tr>
<td>Video clip decontamination</td>
<td>LINK</td>
</tr>
<tr>
<td>Background and Learning Objectives</td>
<td>Pryanka RELAN, (WHO)</td>
</tr>
<tr>
<td>Anesthesiologist, WHO collaborating center</td>
<td>Michael Lipnick (USA) video</td>
</tr>
<tr>
<td>Respiratory therapist</td>
<td>Hui-Ling LIN (China)</td>
</tr>
<tr>
<td>Biomedical engineer and medical doctor</td>
<td>Cai LONG (Canada)</td>
</tr>
</tbody>
</table>
Step 3: How to clinically use a mechanical ventilator

DUAL LIMB CIRCUITS

Heated Wire
(Active heat & humidification)

Bacterial Viral Filter

Heater Humidifier

Expiratory Limb

Heated Wire Controller

Inspiratory Limb

Heated Wire

Heat Moisture Exchanger (HME)

Expiratory Limb

Wye
Step 4: How to decontaminate a CPAP/BiPAP

Different disinfectant formulations should never be used on the same device during the same disinfection step as this may produce toxic fumes.
Panel 3 Maintenance and Decommissioning

14:40 to 15:05 CET, panels and Q&A

Video clip Maintenance LINK

Video clip Decommissioning LINK

Background and Learning Objectives Bill GENTLES (Canada)

Biomedical engineer WHO Southeast Asia Barun KUMAR (Nepal)

Biomedical engineer Ministry of Health Joshua TIM (Botswana)

Biomedical engineer IFMBE (NGO) Luis FERNANDEZ (Mexico)
Step 5: How to perform preventative maintenance on an oxygen concentrator
Step 6: How to perform corrective maintenance on a mechanical ventilator

Part 5:

MECHANICAL VENTILATOR

Verify the alarms on the mechanical ventilator
Step 7: How to decommission medical equipment
REAL-TIME TRAINING ON OpenWHO.org
OPEN TO ALL, ANYTIME, FROM ANYWHERE

Courses on COVID-19
Courses on health topics
What is OpenWHO.org?

WHO’s interactive, web-based, knowledge-transfer platform offering online courses to improve the response to health emergencies

- Free of charge
- Self paced
- Accessible
- Multilingual

Launched in 2017 to facilitate the transfer of life-saving knowledge on a massive scale in anticipation of the next pandemic

Has served frontline responders in outbreaks from Ebola to plague, with rapid growth during COVID-19
OpenWHO key figures

- **6.4 million** total course enrolments
- **140** total course topics
- **43** COVID-19 courses
- **3.5 million** certificates
- **64** languages
- **11.4 million** words translated
- **110 000** digital badges
**New: WHO COVID-19 equipment training course**

In the context of the COVID-19 pandemic, health workers have had more demands placed on them than ever before, especially in caring for patients with respiratory disease. This course was developed to teach health workers how to manage key respiratory medical equipment safely.
COVID-19 clinical management courses on OpenWHO

WHO Clinical Care Severe Acute Respiratory Infection Training

Clinical management of patients with COVID-19:
- General considerations
  - Albanian - Dutch
  - English - Indonesian
  - Kazakh - Macedonian

Clinical management of patients with COVID-19:
- Rehabilitation of patients with COVID-19
  - Albanian - Chinese
  - English - French
  - Macedonian - Russian

Clinical management of patients with COVID-19: Initial approach to the acutely ill patient
  - English - Somali - Spanish

Clinical management of patients with COVID-19: Investigations and care for mild, moderate and severe disease
  - English - Hindi - Kazakh - Maithili - Nepali - Vietnamese
## COVID-19 clinical management enrolment snapshot

<table>
<thead>
<tr>
<th>COURSE</th>
<th>Enrolments</th>
<th>Number of languages</th>
<th>First published</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO Clinical Care Severe Acute Respiratory Infection Training</td>
<td>175 687</td>
<td>12</td>
<td>February 2020</td>
</tr>
<tr>
<td>Clinical management of patients with COVID-19: General considerations</td>
<td>35 198</td>
<td>6</td>
<td>October 2020</td>
</tr>
<tr>
<td>Clinical management of patients with COVID-19: Rehabilitation of patients with COVID-19</td>
<td>34 313</td>
<td>6</td>
<td>January 2021</td>
</tr>
<tr>
<td>Clinical management of patients with COVID-19: Initial approach to the acutely ill patient</td>
<td>19 506</td>
<td>3</td>
<td>May 2021</td>
</tr>
<tr>
<td>Clinical management of patients with COVID-19: Investigations and care for mild, moderate and severe disease</td>
<td>21 340</td>
<td>6</td>
<td>June 2021</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>286 044</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Clinical management learners’ backgrounds

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Health care professional</td>
<td>35.5%</td>
</tr>
<tr>
<td>2 Student</td>
<td>32.3%</td>
</tr>
<tr>
<td>3 Other</td>
<td>12.4%</td>
</tr>
<tr>
<td>4 Volunteer</td>
<td>6.0%</td>
</tr>
<tr>
<td>5 Health ministry</td>
<td>4.8%</td>
</tr>
<tr>
<td>6 NGO</td>
<td>2.3%</td>
</tr>
<tr>
<td>7 Health expert</td>
<td>2.0%</td>
</tr>
<tr>
<td>8 Other ministry</td>
<td>1.7%</td>
</tr>
<tr>
<td>9 WHO staff</td>
<td>1.4%</td>
</tr>
<tr>
<td>10 Health institute</td>
<td>0.9%</td>
</tr>
<tr>
<td>11 International organization</td>
<td>0.5%</td>
</tr>
<tr>
<td>12 UN country team</td>
<td>0.3%</td>
</tr>
<tr>
<td>13 GOARN</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

358,300 enrolments

Age group

Gender

Male 49.1%
Female 50.7%
Other 0.1%
OpenWHO: Advancing equity through online learning

- The COVID-19 pandemic expanded OpenWHO learning to previously underrepresented groups, including women, learners age 70+ and learners younger than 20.

- Online learning participation has shifted toward low-and middle-income countries, which make up nearly ¾ of learners compared to ½ before the pandemic, driven by surging demand in middle-income countries.

- When population is taken into consideration, small island states bring the highest proportion of learners. 16 out of the 20 top countries, territories and areas based on per capita enrolments are island states.

- OpenWHO translates COVID-19 courses into as many languages as possible. Access to materials in preferred languages has been proven to enhance learning uptake and retention.

- OpenWHO prioritizes multi-use formats so materials can be adapted to local contexts and offline demands, creating a multiplier effect that reaches additional audiences.
OpenWHO: 2 years of pandemic learning response

- 26 Jan 2020: 1st COVID-19 course launched
- 30 Jan 2020: Declaration of Public Health Emergency of International Concern
- 10 March 2020: 10 COVID-19 topics on the platform
- 10 May 2020: 10 COVID-19 topics on the platform
- 10 March 2020: 10 languages published for COVID-19 learning
- 27 March 2020: 1 million course enrolments and 20 languages
- 12 June 2020: 3 million course enrolments and 30 languages
- 18 Dec 2020: 1st COVID-19 vaccination course launched
- 5 Dec 2021: 6 million course enrolments
- 5 Dec 2021: 60 languages and 40 COVID-19 topics on the platform
- 1 Jan 2022: 1 million enrolments in 1st COVID-19 course
- 3 March 2021: 30 COVID-19 topics on the platform
- 10 March 2021: 5 million course enrolments and 50 languages
- 14 Dec 2021: 60 languages and 40 COVID-19 topics on the platform

6 000 000 enrolments
Learning and Capacity Development
WHO Health Emergencies Programme
outbreak.training@who.int
https://OpenWHO.org
Next steps
Medical devices for oxygen delivery

Continue providing input in ACT-A, Oxygen task force, support to countries, technical specifications,...
To ensure improved access of safe, quality medical devices, names and nomenclature are needed:

- **Manufacturers**:

- **Health Technology Assessment**
  - Priority medical devices lists and Essential in vitro diagnostics

- **Regulation process of medical devices**
  - Lists of approved MD for marketing in country.

- **Technical specifications, procurement**
- **Installation, inventories, training, maintenance, operations**
- **Post market surveillance and adverse event report**
- **Decommissioning, Replacement**

Common elements in dossier
MeDevIS: WHO Priority Medical Devices Information System
https://medevis.who-healthtechnologies.org/

The MEDEVIS platform is currently under active development. It only includes medical devices listed in the WHO publications, limited to specific diseases, health conditions and health care settings. This is a Beta version.

Browse by the following categories and note that MEDEVIS will be continuously expanded to other medical devices for added health conditions and diseases.

WHO list of priority medical devices
- Cancer
- Cardiovascular diseases and diabetes
- COVID-19
- Reproducing, maternal, newborn and child health

Healthcare unit
Service delivery platform
Type of medical device

New version of MeDevIS will include: training material, images, more tech specs, updated classification for health care units... by end of March.
Next steps for training material

- Initial dissemination and lessons learned
- OpenWHO courses, Future Translations
- Future training videos for other types of priority medical devices.
Thank you to all those engineers, doctors, technicians, administrators, that made this project possible!

Developed by more than 90 health care workers from around the globe
OpenWHO training series trailer
Thank you!
Gracias
Merci
Obrigada
Xie xie

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