

WHO Clinical operations for COVID-19: Therapeutics and oxygen

Member state briefing, 17 June 2021

Janet V Diaz, MD

Lead, Clinical management COVID-19 response

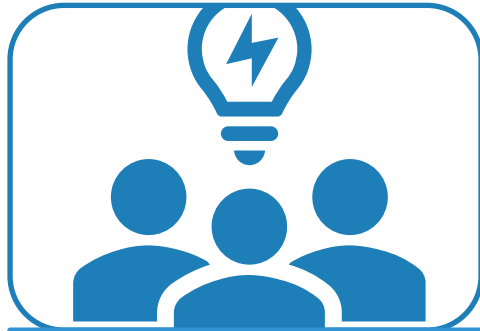
WHO, Health Emergencies Programme

Clinical management during pandemics

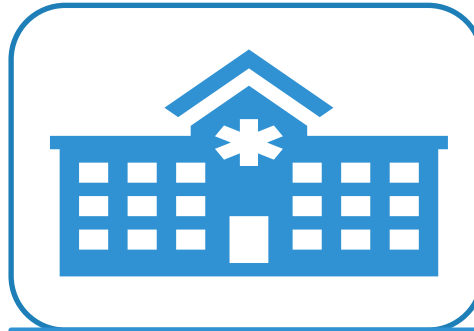
Prevention remains key to stopping transmission

Once on rapid increase in curve, health systems can become quickly overwhelmed

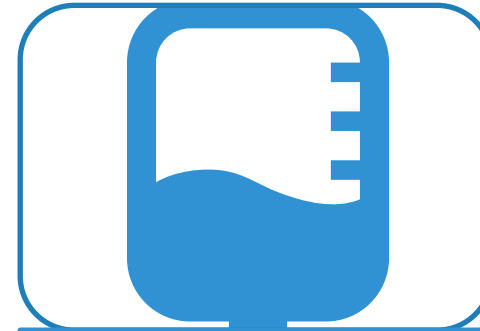
Comprehensive, multi-disciplinary, holistic: from triage to recovery



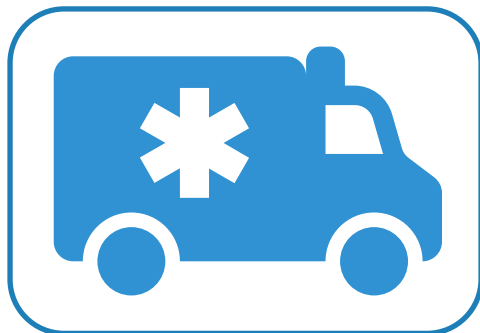
Staff: multi-disciplinary, trained, safe, outpatient, inpatient



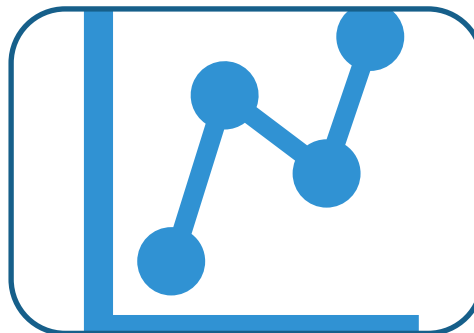
Structures: patient flow, ventilation, IPC controls



Supplies: medicines, biomedical equipment



Systems: home care, community care, referral paths



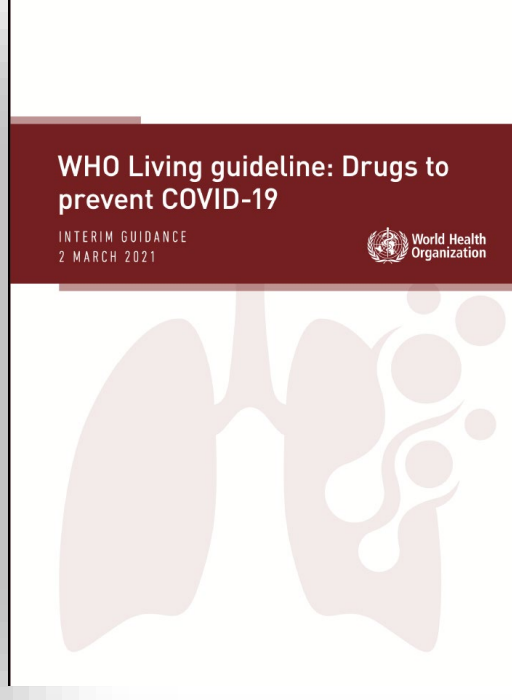
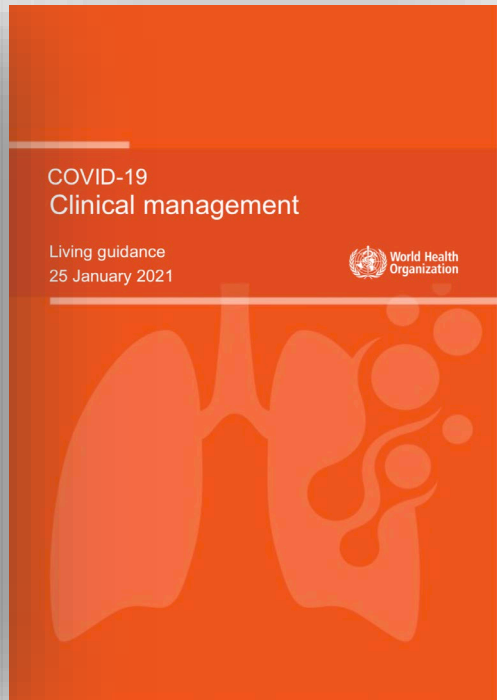
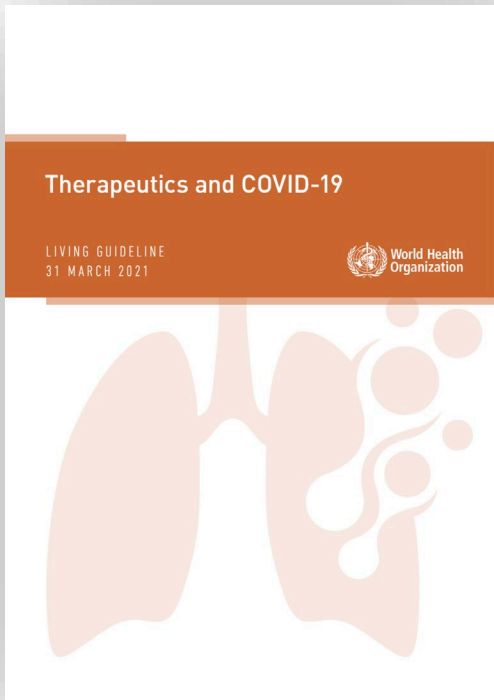
Study: clinical characterization, clinical trials,



Standards: guidelines, tools,

WHO Living guidelines for COVID-19: Also available on MAGICapp, BMJ

<https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.1>



Visual summary of recommendation

Population
This recommendation applies only to people with these characteristics:
Patients with confirmed covid-19

Disease severity

Non-severe	Severe	Critical
Absence of signs of severe or critical disease	SpO ₂ < 90% on room air Respiratory rate > 30 in adults Raised respiratory rate in children Signs of severe respiratory distress	Requires life sustaining treatment Acute respiratory distress syndrome Sepsis Septic shock

Interventions

Ivermectin	Recommendation against (except in clinical trials)	
Hydroxychloroquine	Recommendation against (strong)	
Lopinavir-ritonavir	Recommendation against (strong)	
Remdesivir	Recommendation against (weak)	
Corticosteroids	Recommendation against (weak)	Recommendation in favour (strong)

Ivermectin

Hydroxychloroquine

Lopinavir-ritonavir

Remdesivir

Corticosteroids

World Health Organization (WHO)
www.who.int

Guidelines > Evidence summaries

Therapeutics and COVID-19: living guideline
v4.0 - 3/31/21 12 Recommendations 19 Critical questions/ PICOs

Drugs to prevent COVID-19: A WHO living guideline
v1.1 - 3/2/21 3 Recommendations 1 Critical question/ PICOs

World Health Organization (WHO)
Clinical management of COVID-19 patients: living guidance, 25 January 2021
v1.0 - 3/16/21 88 Recommendations 4 Critical questions/ PICOs


World Health Organization (WHO)
WHO Guidelines for malaria - 16 February 2021
v1.3 - 2/15/21 47 Recommendations 49 Critical questions/ PICOs

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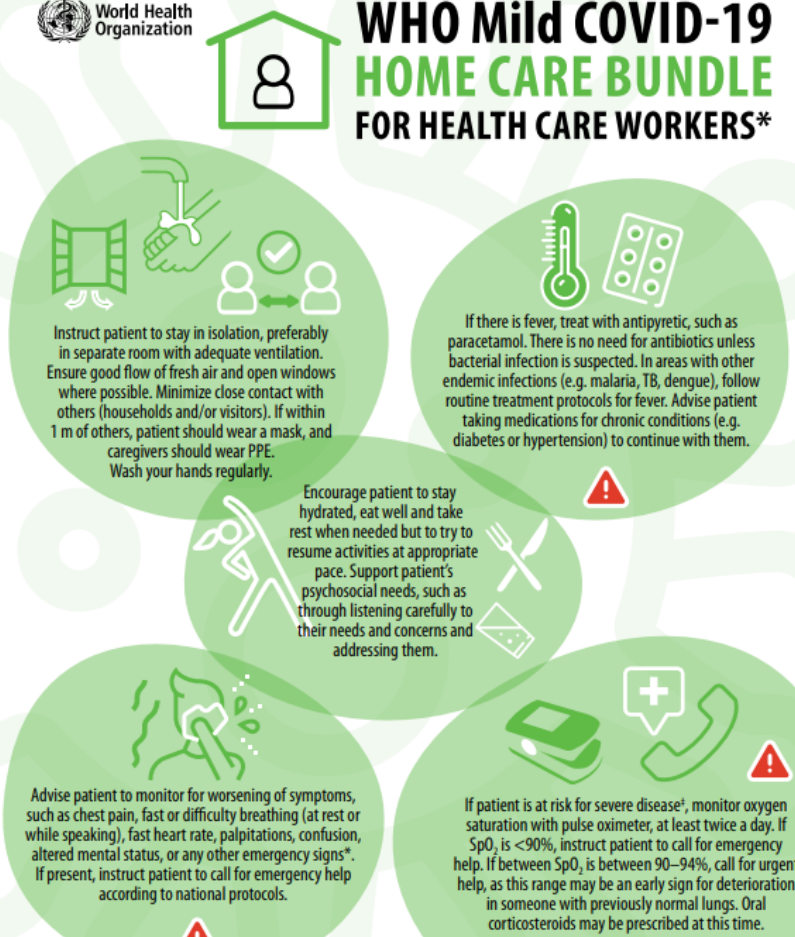
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WHO care bundles for home care and health facility: evidence-based interventions done together to improve outcomes

 World Health Organization

WHO Mild COVID-19 HOME CARE BUNDLE FOR HEALTH CARE WORKERS*



Instruct patient to stay in isolation, preferably in separate room with adequate ventilation. Ensure good flow of fresh air and open windows where possible. Minimize close contact with others (households and/or visitors). If within 1 m of others, patient should wear a mask, and caregivers should wear PPE. Wash your hands regularly.

If there is fever, treat with antipyretic, such as paracetamol. There is no need for antibiotics unless bacterial infection is suspected. In areas with other endemic infections (e.g. malaria, TB, dengue), follow routine treatment protocols for fever. Advise patient taking medications for chronic conditions (e.g. diabetes or hypertension) to continue with them.

Encourage patient to stay hydrated, eat well and take rest when needed but to try to resume activities at appropriate pace. Support patient's psychosocial needs, such as through listening carefully to their needs and concerns and addressing them.

Advise patient to monitor for worsening of symptoms, such as chest pain, fast or difficulty breathing (at rest or while speaking), fast heart rate, palpitations, confusion, altered mental status, or any other emergency signs*. If present, instruct patient to call for emergency help according to national protocols.

If patient is at risk for severe disease[†], monitor oxygen saturation with pulse oximeter, at least twice a day. If SpO₂ is <90%, instruct patient to call for emergency help. If between SpO₂ is between 90–94%, call for urgent help, as this range may be an early sign for deterioration in someone with previously normal lungs. Oral corticosteroids may be prescribed at this time.

***Risk factors for severe disease includes: older age (> 60 years), hypertension, diabetes, cardiac disease, chronic lung disease, cerebrovascular disease, dementia, mental disorders, chronic kidney disease, immunosuppression (including HIV), obesity, cancer. In pregnancy, increasing maternal age, high BMI and chronic conditions are also risk factors.**

EMERGENCY SIGN: Obstructed or absent breathing, severe respiratory distress, cyanosis, shock, coma and/or convulsions.

WHO COVID-19 CLINICAL CARE BUNDLE For patients presenting at a health care facility

 To be performed, as soon as possible, on presentation of a patient at a health care facility



Apply appropriate IPC: wear mask, gloves, gown and eye protection



Check vital signs, including measure of respiratory rate and pulse oximetry



Provide oxygen support, if SpO₂ < 90% on room air or emergency signs*



Administer dexamethasone, if patient has severe disease**



Administer medicine to prevent thrombosis, in adolescents and adults, when not contraindicated, on day of admission



WHO Living guidelines for COVID-19: Next update August 2021

<https://www.who.int/publications/i/item/WHO-2019-nCoV-clinical-2021-1>



New recommendations on the way anticipate publication in August 2021:

1. MISC recommendations: GDG meeting 24 June 2021.
2. Non-invasive ventilation (NIV) and high flow nasal oxygen (HFNO) for severe and critical COVID-19.
 - GDG meeting late July 2021.
 - Current recommendation to use NIV or HFNO for some case of critical COVID-19 (i.e. mild ARDS) with caution.
3. New systematic review data on:
 1. Co-infections: i.e. **mucormycosis—main message: better diagnosis and management of DM—avoid hyperglycemia and rationale use of corticosteroids (low dose, short course, severe/critical COVID-19)**
 2. Pregnancy and COVID
 3. Children and COVID
 4. HIV and COVID

WHO Living guidelines for COVID-19: Next update 30 June 2021

<https://www.who.int/publications/i/item/WHO-2019-nCoV-therapeutics-2021.1>

New recommendation to be published 30 June 2021

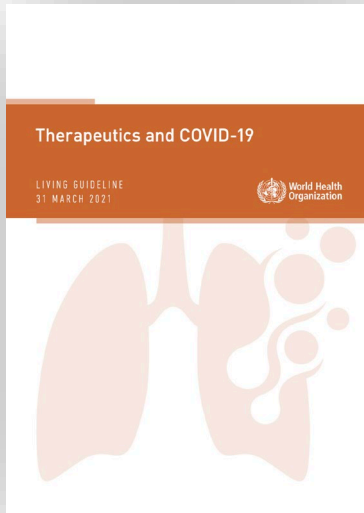
(Draft) Strong recommendation for IL 6 receptor blockers (Tocilizumab, sarilumab) for severe and critical COVID-19. Corticosteroids have previously been strongly recommended in patients with severe and critical COVID-19, and we recommend patients meeting these severity criteria should now receive both corticosteroids and IL-6 receptor blockers..

In pipeline for GDG June and July:

- REGN-COV2, colchicine, baricitinib, anticoagulants (full dose), cPlasma

Monitoring studies on the following closely:

- Molnupiravir, GSK-VIR 7832 (sotronib), bamlanivimab



WHO Oxygen access initiative

2 Medical Oxygen Fire Risk Mitigation Measures

Prepare Actions ✓

DO REGULAR EQUIPMENT CHECKS

- Check regularly the fire extinguisher and all the detection and alarm systems.



TRAIN AND CERTIFY ON FIRE DETECTION, ALARM SYSTEMS AND EXTINGUISHER SKILLS

- Staff should know how to activate the alarm and where the safety equipment is located. Do staff training on extinguisher types and use.



KNOW THE FACILITY EMERGENCY BRIGADE PROCEDURES AND EVACUATION PLAN

- Know the patient triage classification for evacuation process.
- Learn and practice evacuation drills considering the different medical gases densities.



KEEP OXYGEN SUPPLY AND USE AREAS CLEAN AND VENTILATED

- Ensure that clinical use spaces and all surrounding areas of the oxygen sources (e.g., PSA, bulk tank) are kept clean and well ventilated.



Response Actions ✓

SOUND ALARM AND CALL FIRE BRIGADE

- Have easy access to emergency contact numbers and fire alarms.

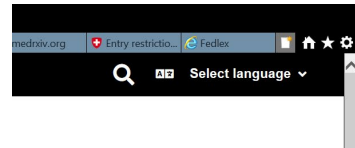


ACTIVATE EVACUATION PLAN

- Prioritize evacuation with those who are most exposed to danger.



VERIFY AND TURN OFF ELECTRICAL SYSTEMS LINKED TO OXYGEN SOURCES



The first action

2 Oxygen Cylinder Safety

Intended for health workers and all personnel managing medical oxygen

Do ✓

Do not ✗

DO LEARN PROPER MEDICAL CYLINDER SAFETY HANDLING

- Read and follow the cylinder labelling instructions.



DO TRANSPORT CYLINDERS CORRECTLY

- Use personal protective equipment and mechanical assistance when handling cylinders (e.g. trolleys).
- Ensure cylinder (regardless of size) is firmly secured by a strong chain or strap, capable of preventing the cylinder from falling or being knocked over.
- Ensure valve guards or caps are fitted when cylinders are not in use or when being transported for delivery.



DO NOT ALTER, TRANSPORT OR HANDLE CYLINDERS INCORRECTLY

- Do not change the labelling or repaint a cylinder.
- Do not transport gas cylinders in the passenger compartment of a vehicle.
- Do not handle more than one cylinder at a time, or roll cylinders along the ground, except on carts designed for handling gas cylinder.



DO NOT USE UN-CERTIFIED MEDICAL OXYGEN CYLINDERS

- Do not refill cylinders that are not meant for medical oxygen (e.g. cylinders used for other industrial gases) and that have not passed a quality test by a specialist.



/oxygen-

Only a strong and collaborative action to ensure oxygen quickly. That is why WHO, in partnership with other organizations, is making efforts to find context appropriate, safe

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World Health Organization

HEALTH EMERGENCIES programme



World Health Organization REGIONAL OFFICE FOR EUROPE



World Health Organization



World Health Organization

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World Health Organization REGIONAL OFFICE FOR EUROPE

EMERGENCIES programme



COVID-19 Respiratory support research: O2CoV2 observational study: JUST LAUNCHED EOI

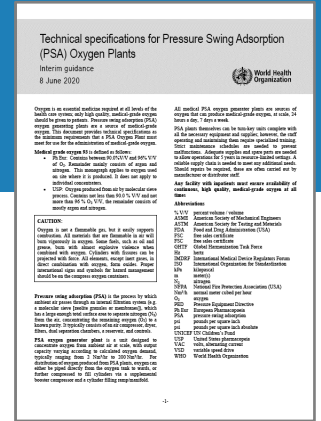
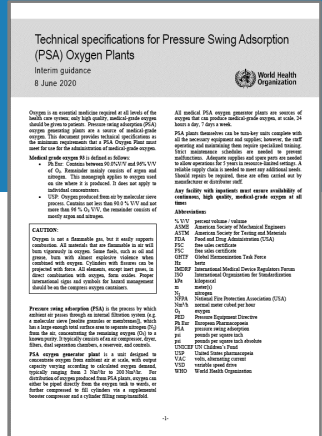
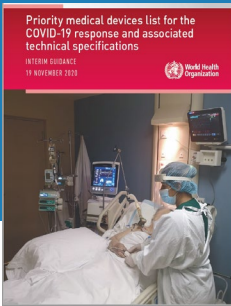
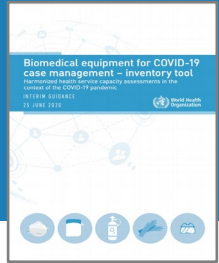
- **Full title:** *Oxygen requirements and approaches to respiratory support in patients with COVID-19 in low- and middle-income countries*
- Targeting 4 countries per WHO region; 2 paired sites per country
- **Prospective cohort study to understand patient level use of oxygen and respiratory support devices**
- **Expressions of Interest form available online and via QR code, open until 9 July 2021**
Please share with relevant networks

<https://www.who.int/initiatives/oxygen-access-scale-up>

covidrespstudy@who.int




Oxygen access scale-up



THE NEED-GAP IS UNDERSTOOD AS THE FORECASTED NEED MINUS THE BASELINE SUPPLY CAPACITY

What are the outstanding need-gaps?

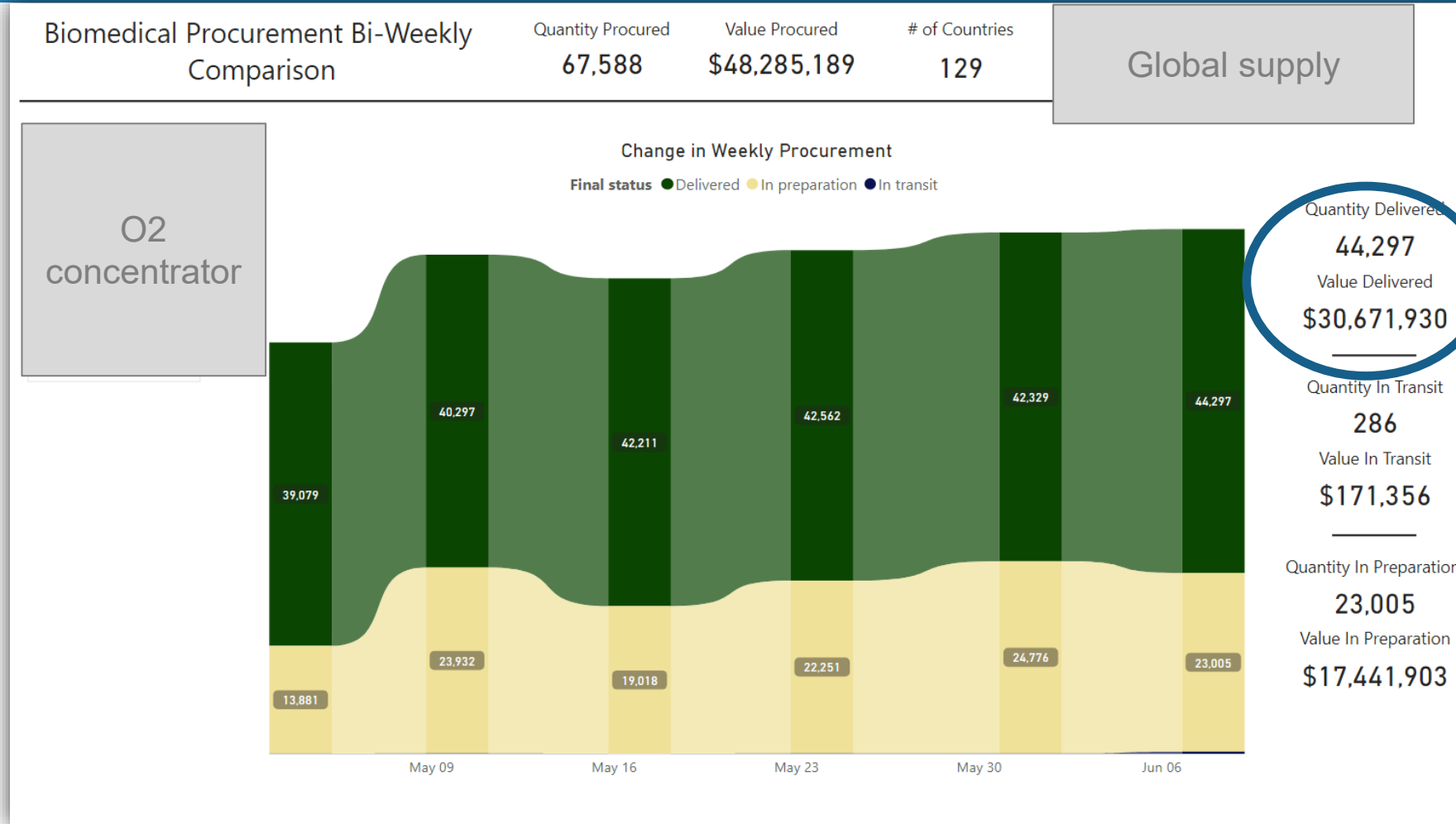
- Oxygen sources
- Distribution systems
- Delivery equipment
- Consumables
- Spare parts
- Training
- Maintenance, service agreements
- Power generation
- Funding



1. Coordination and expertise: **Biomedical experts + OSL + clinical teams** working together: forecast needs, needs-gap assessment (ESFT), develop contextualized solution and then procurement, installation, and commissioning. Work with partners on ground (mapping available).
2. Readiness is key: what is the surge plan?
 - Liquid bulk: map suppliers in country and region, estimate
 - PSA procurement: standardized RFP for procurements available
 - PSA repair: WHO launched EOI for entities that do repairs and maintenance—4 submissions now being evaluated
 - Cylinders: local suppliers with local QA (tech support can be provided)

Global Supply Chain Dashboard

Weekly Comparison from Supply Chain Dash – O2 Conc. focus



WHO Biomed Procurement - Cumulative

Regional Cumulative Breakdown

Item	AFRO	EMRO	EURO	PAHO	SEARO	WPRO	Grand Total
BiPAP	220	423	152	24	73	38	930
Bubble humidifier	150		50				200
Flow splitter	154	60				2	216
HFNC	214	279	290		566	70	1,419
HMEF	50		2,000				2,050
Nasal oxygen cannula - adult	91,061	39,300	90,890	6,480	5,220	31,680	264,631
Nasal oxygen cannula - paediatric	65,685	33,600	7,340	6,480	5,220	31,680	150,005
Oxygen conc. - 10L	294	337	1,178			184	1,993
Oxygen conc. - 8L	3,670	3,374	3,369	639	4,810	2,329	18,191
Oxygen mask - adult	16,471	18,300	103,708		70,000	8,120	216,599
Oxygen mask - paediatric	8,170	520	6,100		9,500	8,060	32,350
Oxygen plant	2		1				3
Patient monitor	1,354	2,155	1,467	36	106	306	5,424
Pulse oximeter	7,635	2,858	5,572	118	5,770	1,854	23,807
Spare parts, O2 conc.	2,380	1,501	221	324	4,061	1,109	9,596
Thermo infrared	8,864	2,199	1,760		710	700	14,233
Ventilation bag	22	115	350			100	587
Ventilator	45	14	2				61
Ventilator - type 1	234	5	128		13	198	578
Ventilator - type 2	137	27	10		8		182
Venturi mask - adult	24,761	10,941	97,835	1,620	24,305	13,745	173,207
Venturi mask - paediatric	18,235	9,283	6,785	1,620	13,905	13,645	63,473

O2 concentrators:

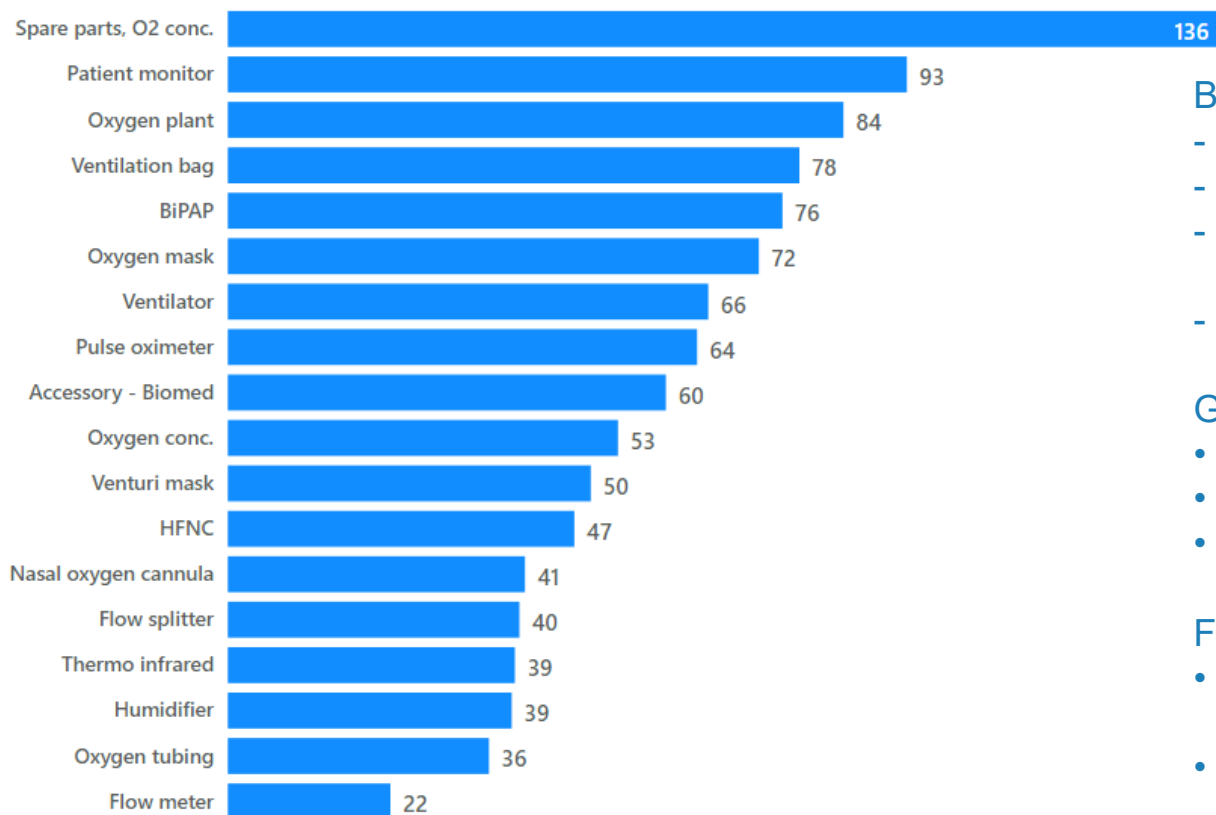
- **20,184 units delivered**
- **8,000 units in preparation**

WHO represent 46%

Total Cost
\$67,726,469

Biomedical Essential Supplies update

Average lead-time from purchase order placed to item delivered (IN DAYS)



Biomedical items/asset market scarcity:

- O2 concentrator: lead time X 4 (3 months)
- High demand on accessories and consumables
- Other assets (ventilator, Bibap) remain accessible (3 to 4 weeks lead time)
- Transport/logistics remain a serious concern (average \$X2 up to X4)

Global supply:

- Other systems are in place, but demand on WHO
- Portal still up and running
- Catalogue is being updated to best match the therapeutic approach

Forecast and supply data

- ESFT new version online V4.1. Imperial college data. More than 400 persons
- Global supply data dashboard

Thank you