Atención optima de gestantes con infección por COVID-19 en estadios severo y crítico

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World Health Organization

HEALTH EMERGENCIES programme

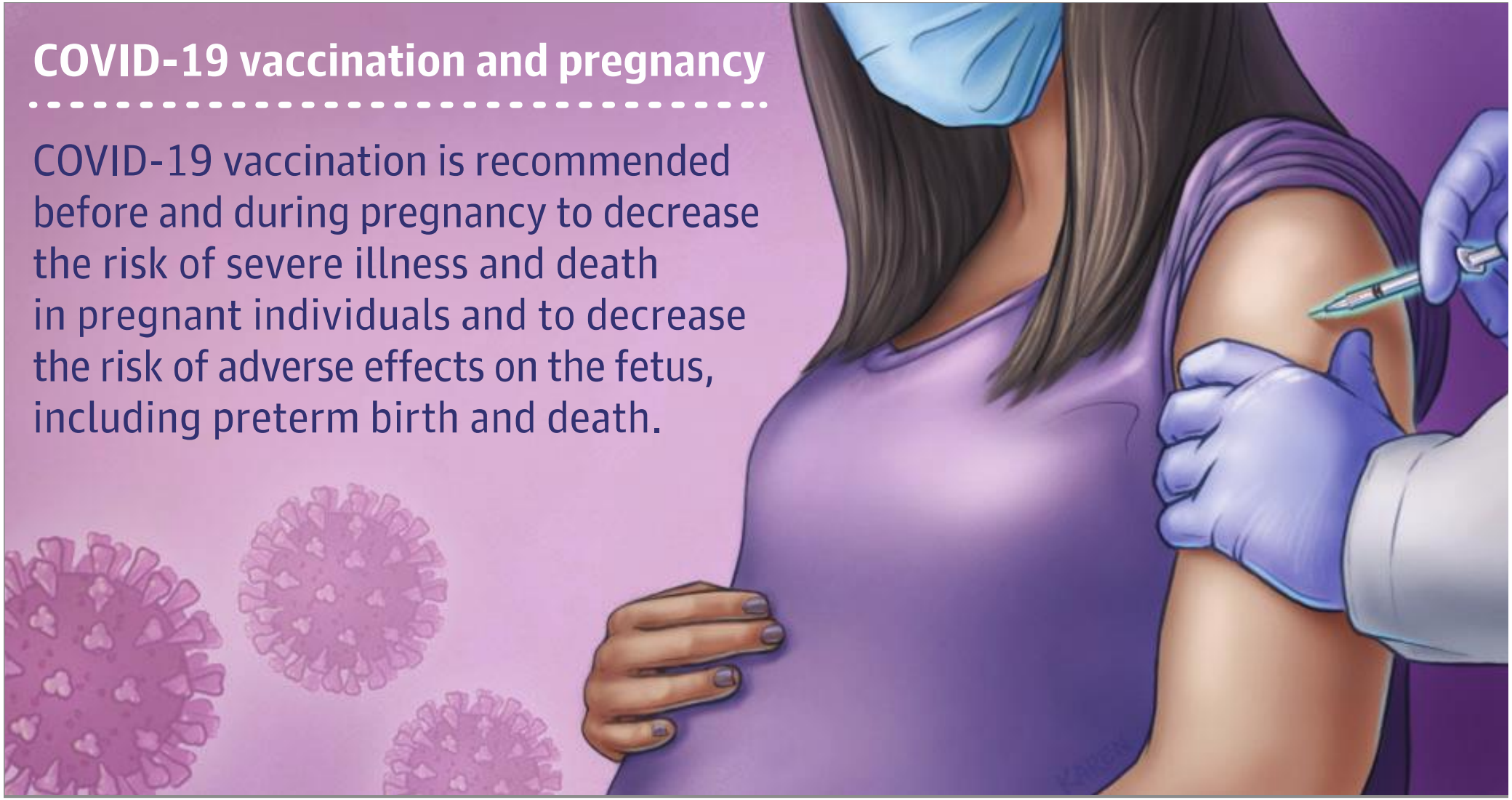
Objetivos

Medidas de soporte

Posición prono

Terapia de oxigeno

Tromboprofilaxis



Published Online: December 10, 2021. doi:10.1001/jama.2021.22679

Therapeutics and COVID-19

Living guideline

7 December 2021

World Health Organization

Population

This recommendation applies only to people with these characteristics:

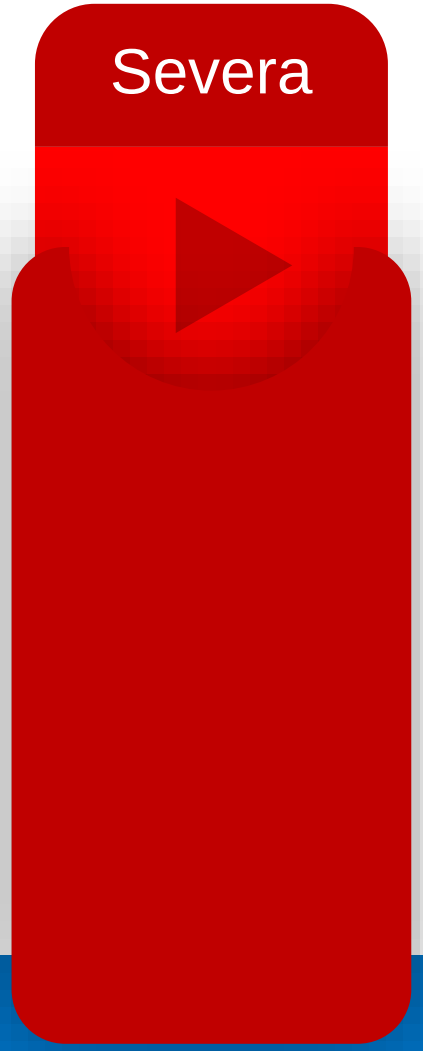
Patients with confirmed covid-19

Disease severity

Non-severe	Severe	Critical
Absence of signs of severe or critical disease	Oxygen saturation <90% on room air	Requires life sustaining treatment
	Signs of pneumonia	Acute respiratory distress syndrome
	Signs of severe respiratory distress	Sepsis
		Septic shock

WHO/2019-nCoV/therapeutics/2021.4

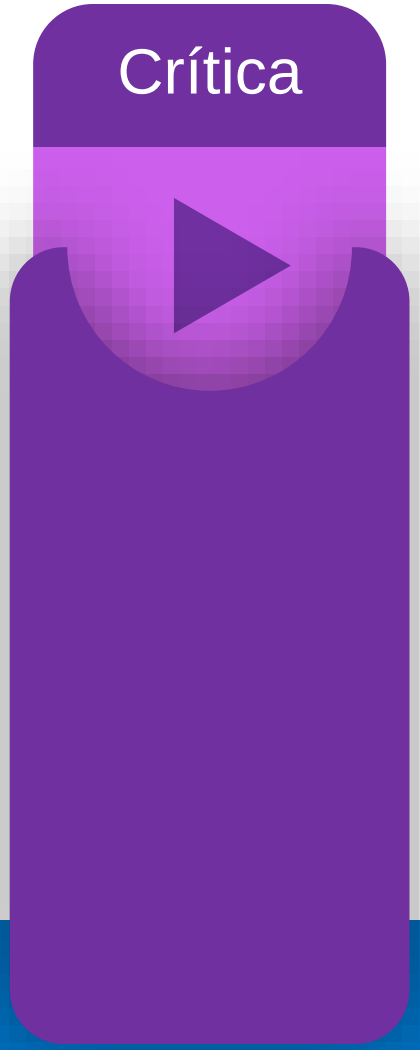
Gravedad de la infección covid-19 en embarazo



- Pacientes que tienen SpO2 <94% en el aire ambiente al nivel del mar, una relación entre la presión parcial arterial de oxígeno y la fracción de oxígeno inspirado (PaO2 / FiO2) <300 mm Hg, frecuencia respiratoria> 30 respiraciones / min o un pulmón con infiltrados mayor del 50%.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

Gravedad de la infección covid-19 en embarazo



- Pacientes que tienen insuficiencia respiratoria, choque séptico y / o disfunción multiorgánica.

https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html

Infección por COVID 19 en embarazo

Infección asintomática 13.5% en areas con altas tasas de COVID-19

Gestantes asintomáticas 30% vs 10% en mujeres en edad reproductiva no embarazadas

Riesgo

Ingreso unidad de cuidados intensivos

(aRR = 1.5, [IC] del 95% = 1.2–1.8)

Ventilación mecánica

(aRR = 1.7, IC del 95% = 1.2–2.4)

Ellington S et al. MMWR Morb Mortal Wkly Rep. 2020;69(25):769-775. Published 2020 Jun 26. doi:10.15585/mmwr.mm6925a1

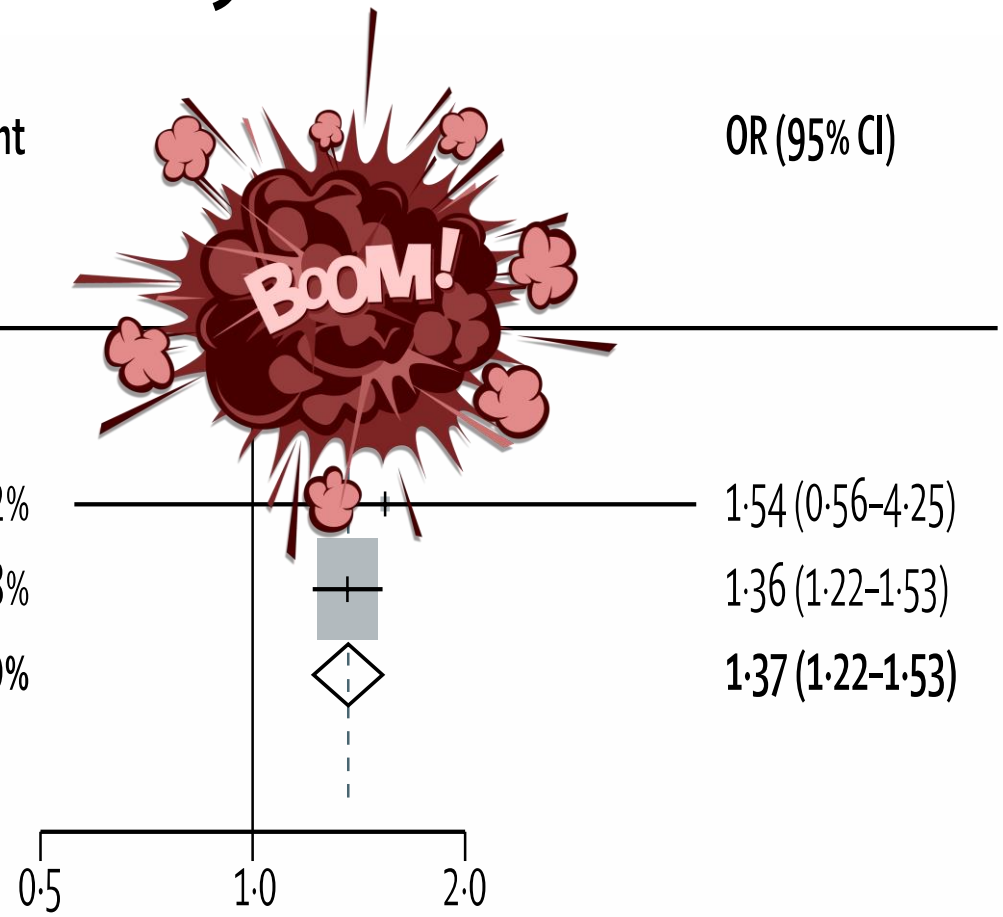
Clinical course of severe and critical coronavirus disease 2019 in hospitalized pregnancies: a United States cohort study

1. 7 días después del inicio de los síntomas
2. Duración de la hospitalización fue de 6 días (64 ptes)
3. Edad gestacional al inicio de los síntomas: 29 ± 6 semanas
4. Parto durante el curso de la infección en el 50%

Pierce-Williams RAM et al. American Journal of Obstetrics & Gynecology MFM (2020)
doi: https://doi.org/10.1016/j.ajogmf.2020.100134.

Effects of the COVID-19 pandemic on maternal and perinatal outcomes: a systematic review and meta-analysis

	Pandemic		Pre-pandemic		Weight	OR (95% CI)
	Events	Pregnancies	Events	Pregnancies		
LMIC subgroup*						
Kumari et al, 2020[25]	7	1237018	8	6209	1·2%	1·54 (0·56–4·25)
Lumbreras-Marquez et al, 2020[27]	523	3527	690	2218650	98·8%	1·36 (1·22–1·53)
Overall total	**530**	**1233491**	**698**	**2224859**	**100·0%**	**1·37 (1·22–1·53)**
Heterogeneity: τ^2=0; χ^2=0·06, df=1 (p=0·81); I^2=0%						
Residual heterogeneity: τ^2=NA; χ^2=0·06, df=1 (p=0·81); I^2=0%						



Chmielewska B et l. Lancet Glob Health. 2021 Mar 31:S2214-109X(21)00079-6.
doi: 10.1016/S2214-109X(21)00079-6.

Maternal and Neonatal Morbidity and Mortality Among Pregnant Women With and Without COVID-19 Infection

The INTERCOVID Multinational Cohort Study

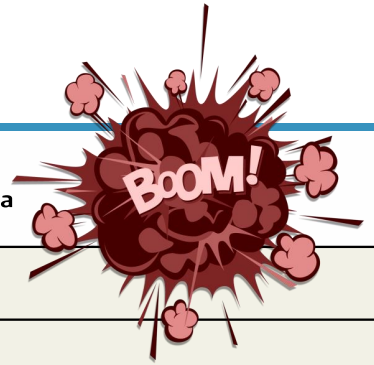


Table 2. Adjusted Associations for Maternal and Perinatal Outcomes Among Women With and Without COVID-19 Diagnosis According to Symptom Status[a]

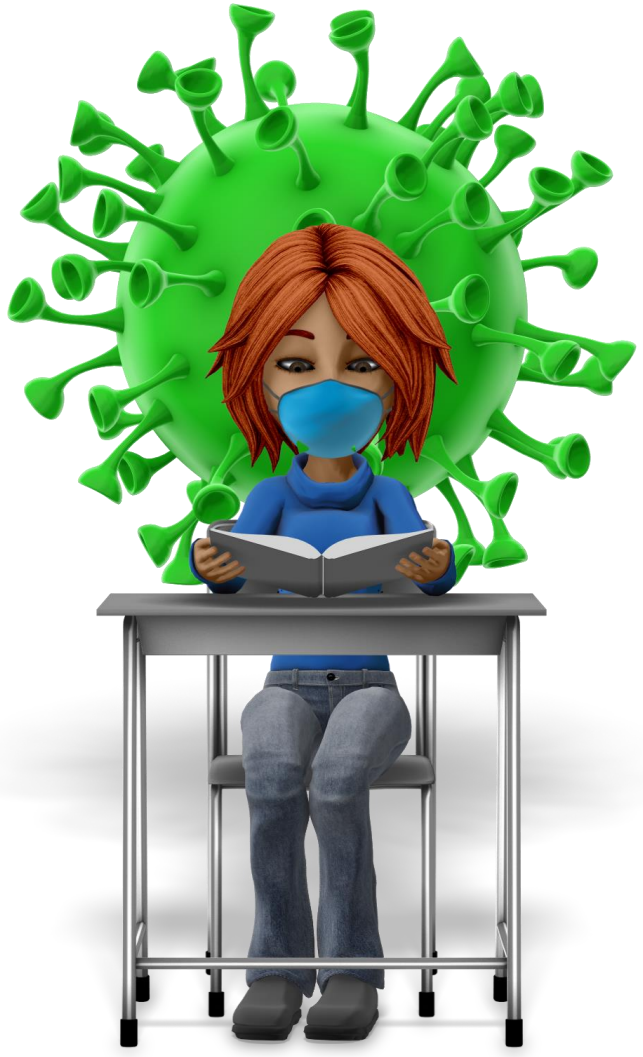
		RR (95% CI)				
Symptom	No. (%)	MMMI[b]	SNMI[c]	SPMMI[d]	Preterm birth[e]	Preeclampsia/ eclampsia/HELLP
No diagnosis of COVID-19	1424 (66.9)	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]	1 [Reference]
COVID-19						
Asymptomatic	288 (13.5)	1.24 (1.00-1.54)	1.42 (0.65-3.08)	1.08 (0.69-1.69)	0.99 (0.72-1.36)	1.63 (1.01-2.63)
Any symptom	418 (19.6)	1.76 (1.49-2.08)	3.45 (2.14-5.56)	3.09 (2.36-4.04)	2.10 (1.67-2.62)	2.00 (1.34-2.99)
Symptomatic						
With diarrhea/vomiting	48 (2.3)	1.36 (0.85-2.19)	4.66 (1.93-11.30)	2.79 (1.57-4.95)	2.76 (1.77-4.30)	0.48 (0.07-3.81)
With fever	199 (9.3)	1.89 (1.54-2.32)	4.34 (2.53-7.43)	3.81 (2.81-5.17)	2.39 (1.82-3.13)	1.82 (1.08-3.06)
With shortness of breath	89 (4.2)	2.46 (1.96-3.08)	3.88 (1.78-8.49)	3.86 (2.62-5.67)	2.88 (2.12-3.89)	2.72 (1.59-4.64)
With fever and shortness of breath	45 (2.1)	2.56 (1.92-3.40)	4.97 (2.11-11.69)	5.09 (3.30-7.86)	3.40 (2.38-4.86)	2.22 (1.06-4.64)

World Health Organization

Villar J et al. JAMA Pediatr. 2021 Apr 22.
doi: 10.1001/jamapediatrics.2021.1050

Medidas de soporte

Anticipated outcome	Interventions
Reduce days of invasive mechanical ventilation	• Use weaning protocols that include daily assessment for readiness to breathe spontaneously • Minimize continuous or intermittent sedation, targeting specific titration endpoints (light sedation unless contraindicated) or with daily interruption of continuous sedative infusions • Early mobilization • Implementation of the above as a bundle of care (may also reduce delirium); such as the **A**wakening and **B** **C**oordination, **D**elirium assessment/management, and **E**arly mobility (ABCDE)
Reduce incidence of ventilator-associated pneumonia	• Oral intubation is preferable to nasal intubation in adolescents and adults • Keep patient in semi-recumbent position (head of bed elevation 30–45°) • Use a closed suctioning system; periodically drain and discard condensate in tubing • Use a new ventilator circuit for each patient; once patient is ventilated, change circuit if it is soiled or damaged, but not routinely • Change heat moisture exchanger when it malfunctions, when soiled, or every 5–7 days
Reduce incidence of catheter-related bloodstream infection	• Use a checklist with completion verified by a real-time observer as a reminder of each step needed for sterile insertion and as a daily reminder to remove catheter if no longer needed
Reduce incidence of pressure ulcers	• Turn patient every 2 hours
Reduce incidence of stress ulcers and GI bleeding	• Give early enteral nutrition (within 24–48 hours of admission) • Administer histamine-2 receptor blockers or proton-pump inhibitors in patients with risk factors for GI bleeding. Risk factors for GI bleeding include mechanical ventilation for ≥ 48 hours, coagulopathy, renal replacement therapy, liver disease, multiple comorbidities, and higher organ failure score
Reduce the development of antimicrobial resistance	• Utilize de-escalation protocols as soon as patient is clinically stable and there is no evidence of bacterial infection
Reduce the development of adverse drug effects	• Expose patient to empiric antimicrobial therapy for the shortest time possible, to prevent nephrotoxicity, and other side-effects from unnecessary antimicrobial use
Promote appropriate antimicrobial prescribing and use during the COVID-19 pandemic *(173)*	• Do not prescribe antibiotics to suspected or confirmed COVID-19 patients with low suspicion of a bacterial infection, to avoid more short-term side-effects of antibiotics in patients and negative long-term consequences of increased antimicrobial resistance



WHO/2019-nCoV/clinical/2021.2

Fluidos versus complicaciones

Use cautious fluid management in patients with COVID-19 without tissue hypoperfusion and fluid responsiveness.

Remark: *Patients with COVID-19 should be treated cautiously with intravenous fluids; aggressive fluid resuscitation may worsen oxygenation, especially in settings where there is limited availability of mechanical ventilation (129). This applies to both children and adults.*

WHO/2019-nCoV/clinical/2021.2

Therapeutics and COVID-19

Recommendation against

New

We recommend against administering convalescent plasma for treatment of COVID-19. *(Strong recommendation against)*

For patients with severe or critical COVID-19

Only in research settings

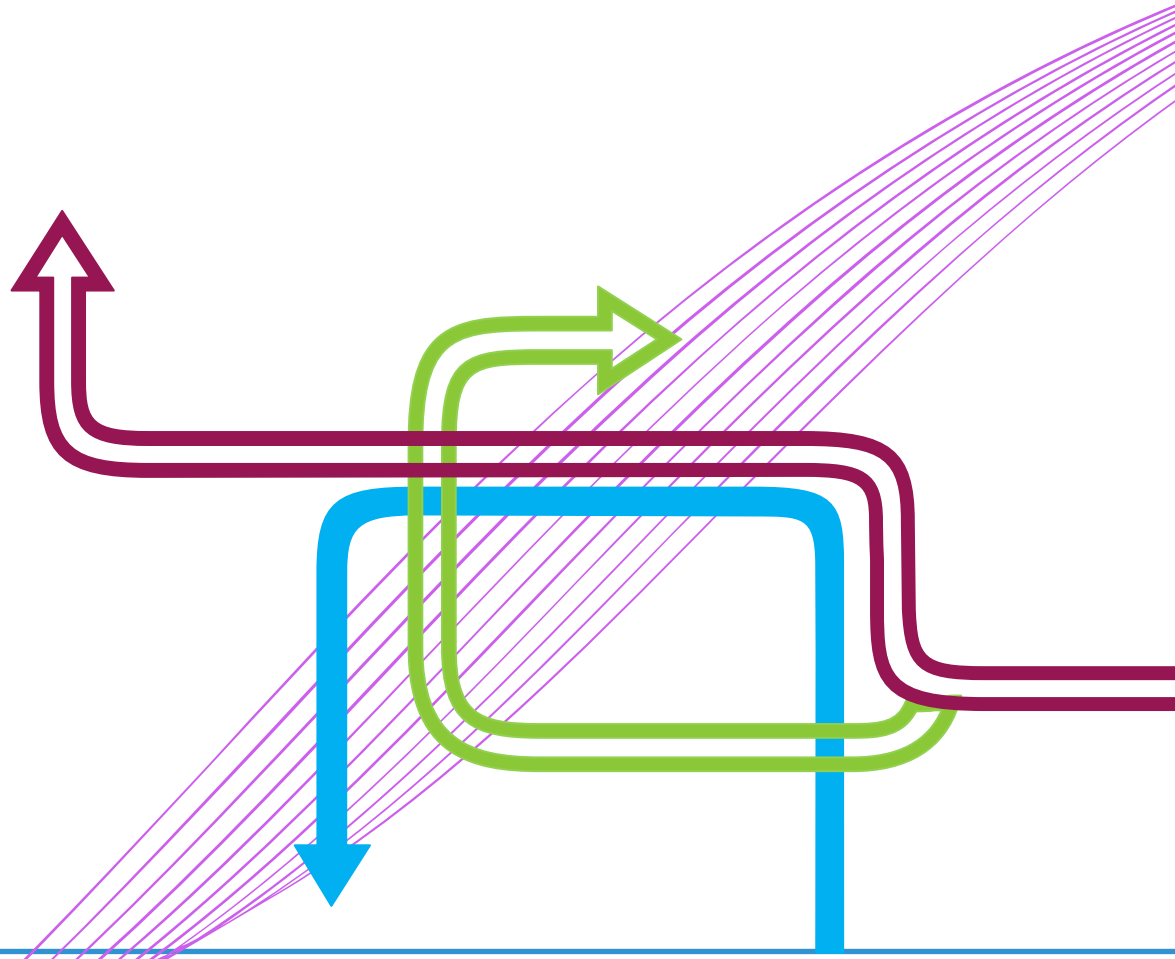
New

We recommend not to use convalescent plasma for treatment of COVID-19, except in the context of a clinical trial.
(Recommended only in research settings)

WHO/2019-nCoV/therapeutics/2021.4

Convalescent Plasma for Pregnant Women with COVID-19: A Systematic Literature Review

Los datos publicados en la literatura parecen indicar que el plasma convaleciente administrado a mujeres embarazadas con COVID-19 grave brinda beneficios tanto para la madre como para el feto. Sin embargo, la calidad de los estudios disponibles es muy limitada, ya que todos son informes de casos y, por lo tanto, presentan un sesgo de notificación relevante.



Franchini M et al. Viruses. 2021 Jun 22;13(7):1194.
doi: 10.3390/v13071194.

Therapeutics and COVID-19

For patients with severe or critical COVID-19

Conditional recommendation

We suggest treatment with casirivimab and imdevimab, under the condition that the patient has seronegative status. *(Conditional recommendation for)*

- *With benefits of casirivimab and imdevimab observed only in patients with seronegative status, clinicians will need to identify these patients by credible tests available at the point of care to appropriately apply this recommendation (see Evidence to Decision section).*
- *Treatment with casirivimab and imdevimab is in addition to the current standard of care, which includes corticosteroids and IL-6 receptor blockers.*

WHO/2019-nCoV/therapeutics/2021.4

Monoclonal Antibodies Casirivimab and Imdevimab in Pregnancy for Coronavirus Disease 2019 (COVID-19)

Monoclonal antibody treatment of symptomatic COVID-19 in pregnancy: initial report

Los anticuerpos monoclonales como casirivimab e imdevimab, aprobados bajo una autorización de uso de emergencia, deben considerarse en embarazadas no vacunadas con COVID-19 de leve a moderado para disminuir el riesgo de enfermedad grave.

Mayer C et al. Obstet Gynecol. 2021 Dec 1;138(6):937-939. doi: 10.1097/AOG.0000000000004603.
Hirshberg JS et al. Am J Obstet Gynecol. 2021 Dec;225(6):688-689. doi: 10.1016/j.ajog.2021.08.025.

Therapeutics and COVID-19

For patients with severe and critical COVID-19

Strong recommendation for

We recommend treatment with IL-6 receptor blockers (tocilizumab or sarilumab). *(Strong recommendation for)*

Corticosteroids have previously been strongly recommended in patients with severe and critical COVID-19 (4), and we recommend patients meeting these severity criteria should now receive both corticosteroids and IL-6 receptor blockers.

WHO/2019-nCoV/therapeutics/2021.4

Tocilizumab for coronavirus disease 2019 in pregnancy and lactation: a narrative review

Los datos disponibles tienen limitaciones significativas y no son suficientes para delinear el espectro completo de posibles resultados adversos que pueden estar asociados con la exposición a tocilizumab durante el embarazo y la lactancia. Claramente se necesita un marco regulatorio más eficaz para garantizar la inclusión equitativa de las personas embarazadas en la investigación

Jorgensen SCJ et al. Clin Microbiol Infect. 2022 Jan;28(1):51-57.
doi: 10.1016/j.cmi.2021.08.016.

Only in research settings

We recommend not to use ivermectin in patients with COVID-19 except in the context of a clinical trial. *(Recommended only in research settings)*

Recommendation against

We recommend against administering lopinavir/ritonavir for treatment of COVID-19. *(Strong recommendation against)*

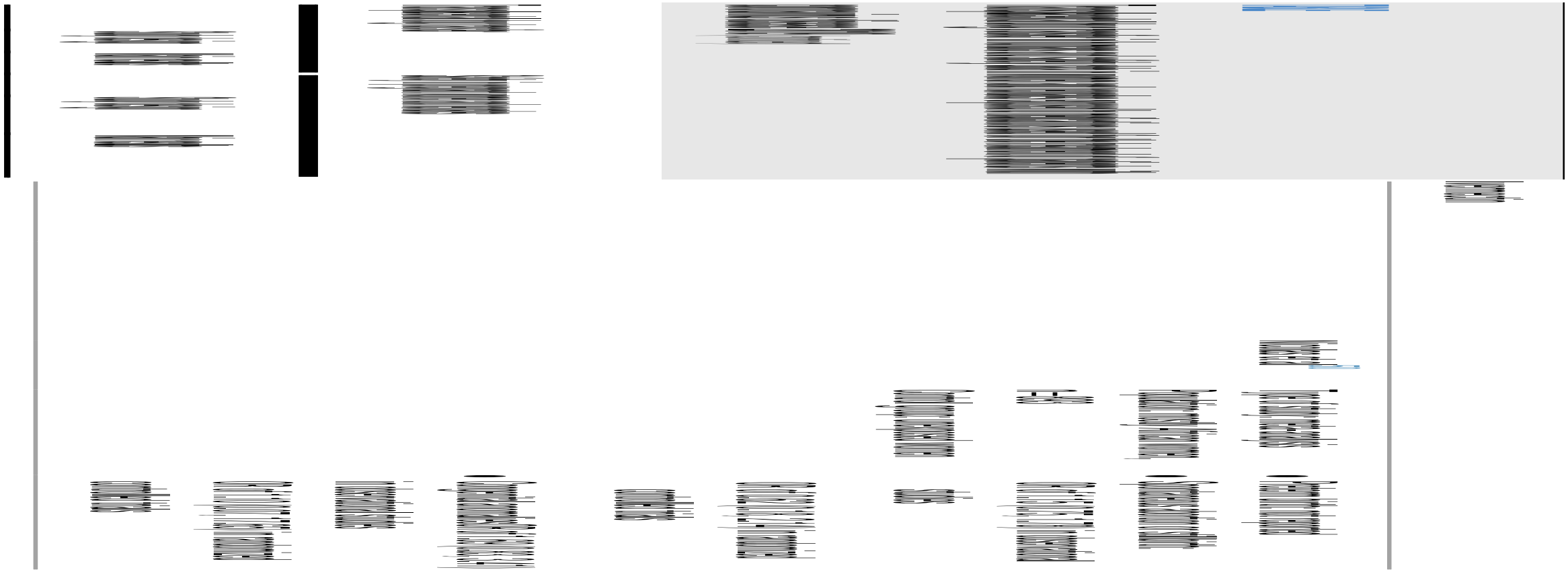
Remark: This recommendation applies to patients with any disease severity and any duration of symptoms.

Recommendation against

We recommend against administering hydroxychloroquine or chloroquine for treatment of COVID-19. *(Strong recommendation against)*

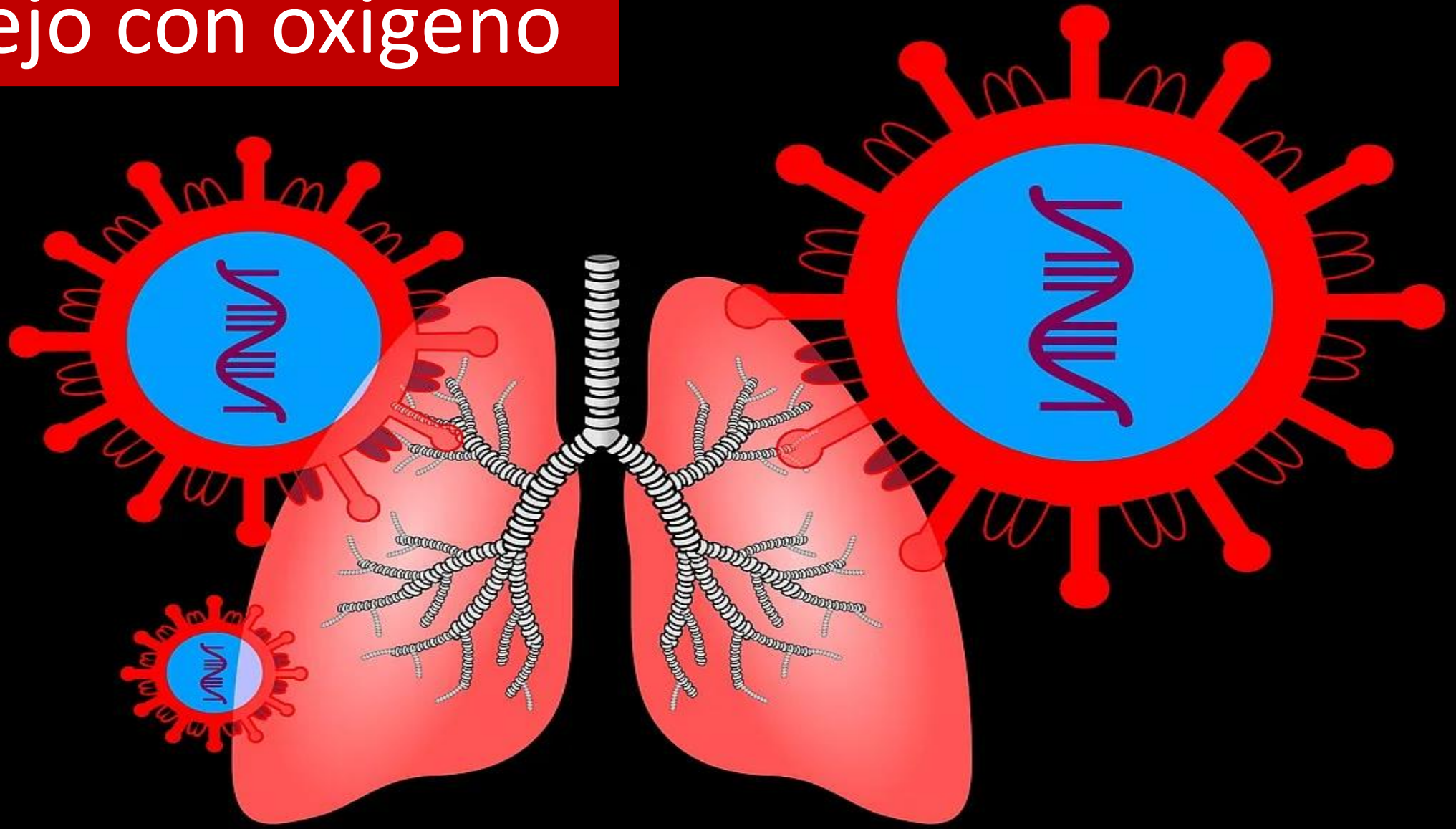
Remark: This recommendation applies to patients with any disease severity and any duration of symptoms.

Placental transfer and safety in pregnancy of medications under investigation to treat coronavirus disease 2019



Louchet M. Am J Obstet Gynecol MFM. 2020;2(3):100159. doi:10.1016/j.ajogmf.2020.100159

Manejo con oxigeno



Putting It All Together: Clinical Considerations in the Care of Critically Ill Obstetric Patients with COVID-19

Las 24 horas después del ingreso son de suma importancia en la evaluación de la trayectoria clínica.

Oxford-Horrey C et al. Am J Perinatol. 2020;10.1055/s-0040-1713121.
doi:10.1055/s-0040-1713121

Living guidance for clinical management of COVID-19

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.

Remark: *Patients may continue to have increased work of breathing or hypoxaemia even when oxygen is delivered via a face mask with reservoir bag (flow rates of 10–15 L/min, which is typically the minimum flow required to maintain bag inflation; FiO_2 0.60–0.95). Hypoxaemic respiratory failure in ARDS commonly results from intrapulmonary ventilation-perfusion mismatch or shunt and usually requires mechanical ventilation (109).*

Hospitalización

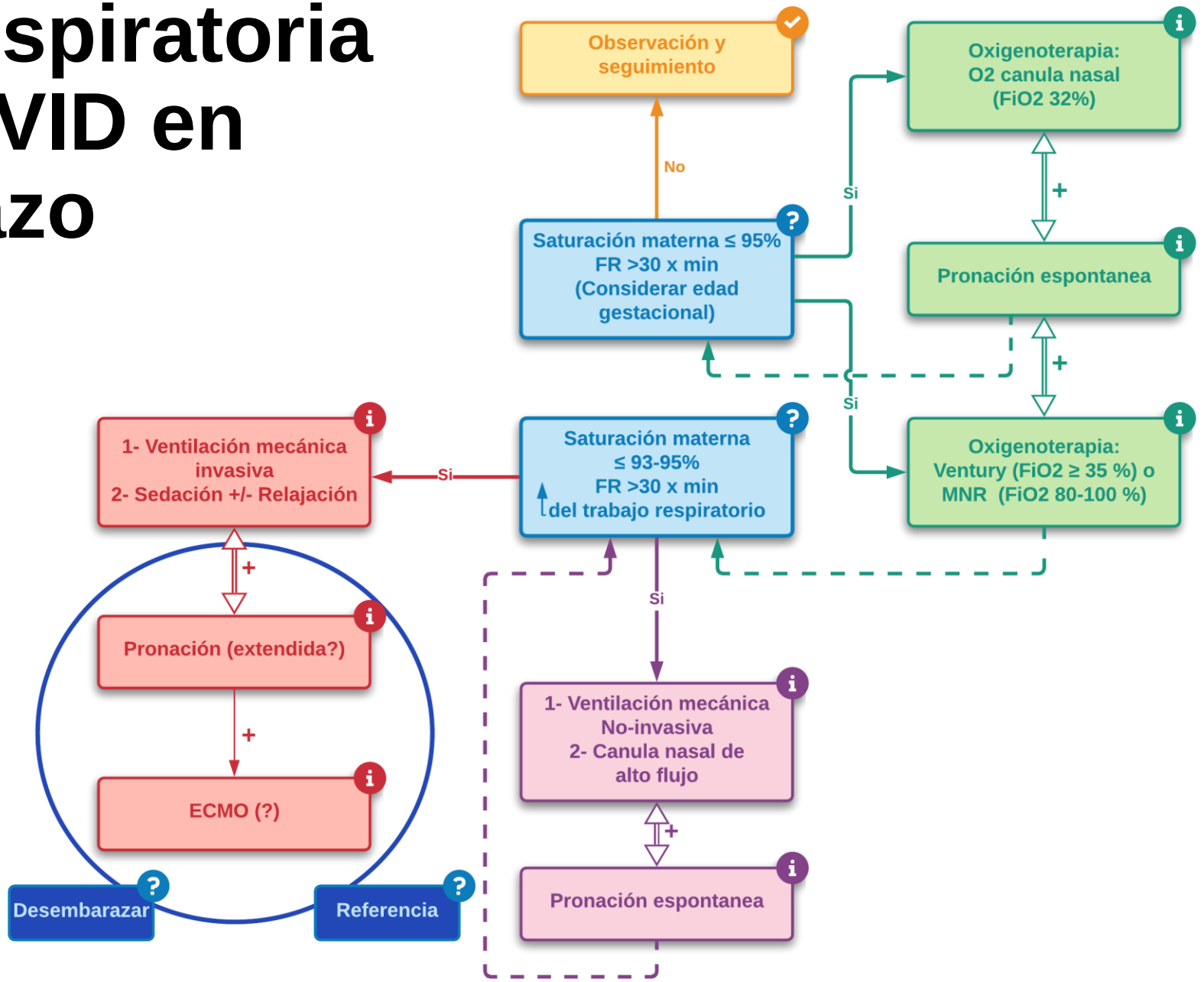
- Oxígeno suplementario para lograr una $SatO_2$ en reposo> 95% para apoyar la oxigenación fetal

We recommend immediate administration of supplemental oxygen therapy to any patient with emergency signs during resuscitation to target SpO_2 ≥ 94% and to any patient without emergency signs and hypoxaemia (i.e. stable hypoxaemic patient) to target SpO_2 > 90% or ≥ 92–95% in pregnant women.

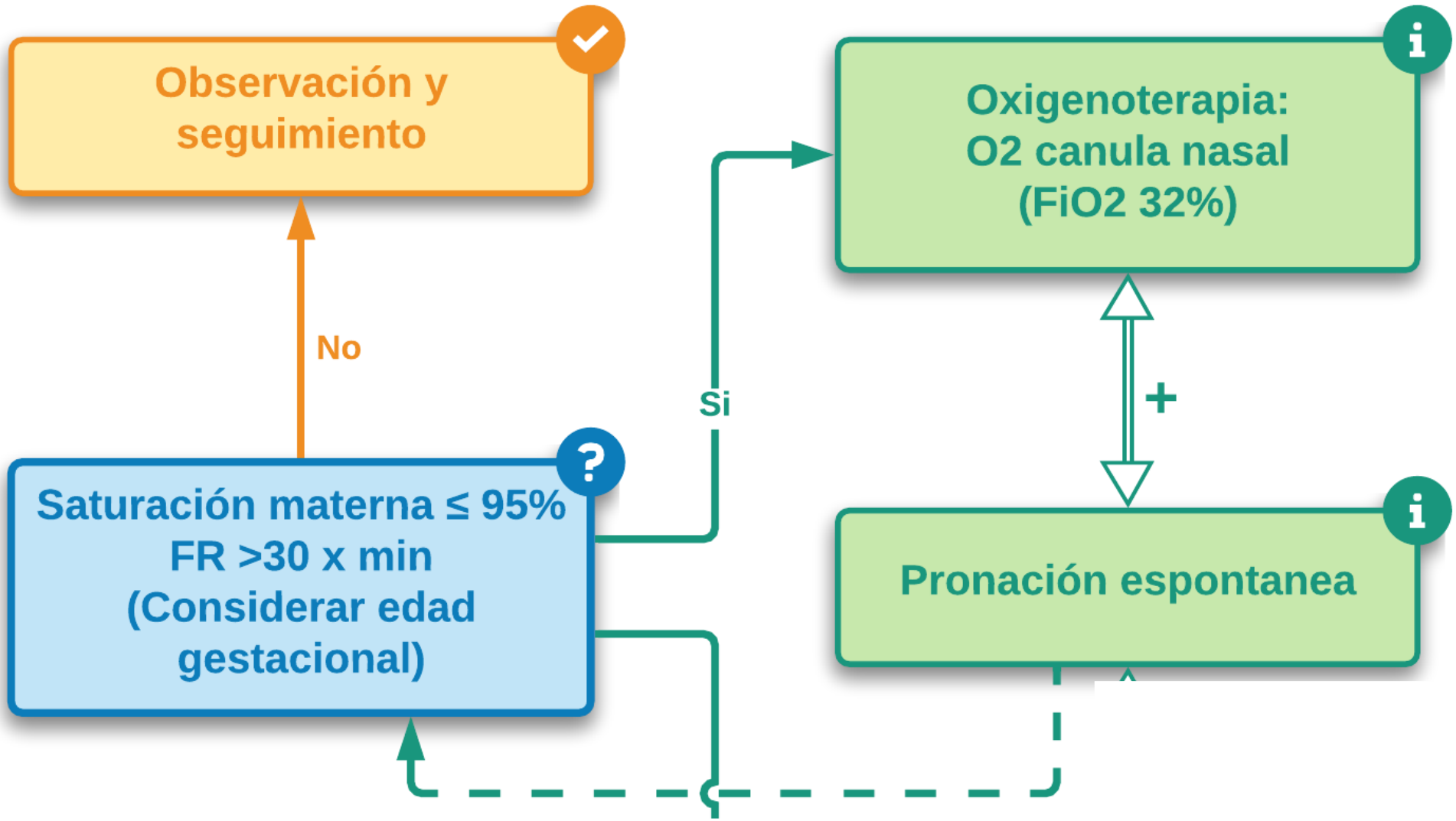
requerimiento de oxígeno creciente o retención de CO2 que puede anunciar insuficiencia respiratoria.

Oxford-Horrey C et al. Am J Perinatol. 2020;10.1055/s-0040-1713121. doi:10.1055/s-0040-1713121

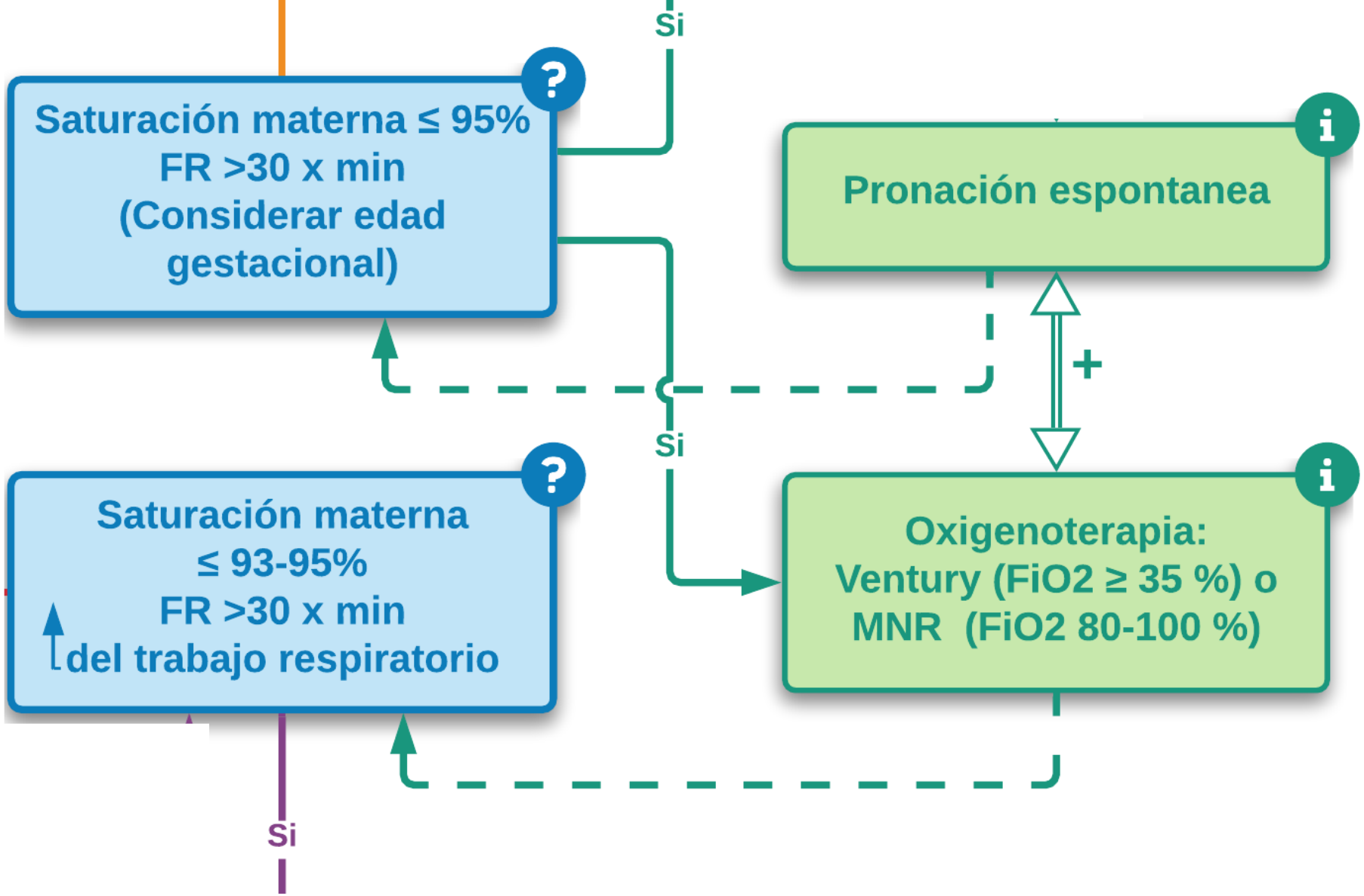
Falla respiratoria por COVID en embarazo



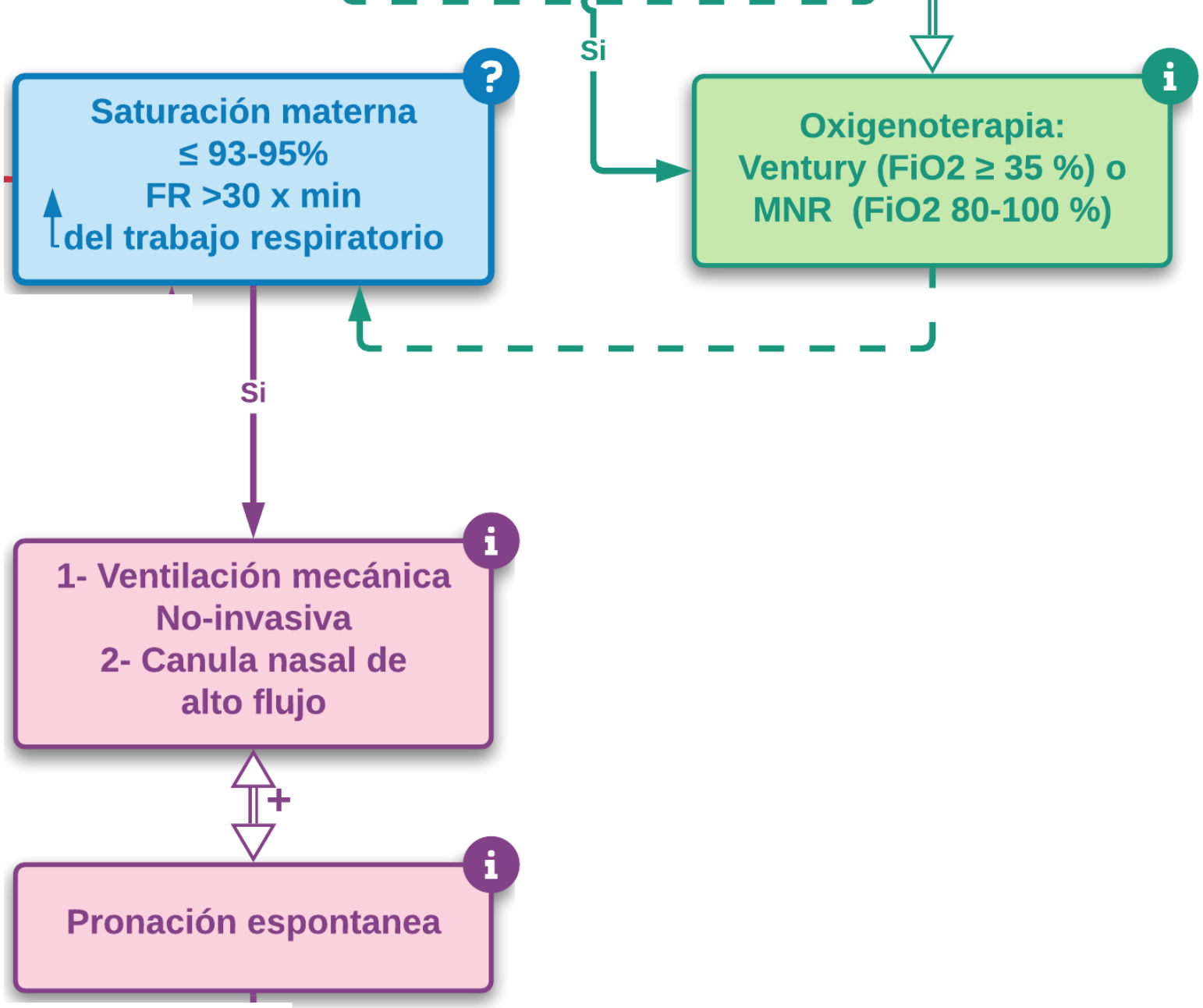
Adaptado de Ashokka B, Loh MH, Tan CH, et al. Am J Obstet Gynecol. 2020;223(1):66-74.e3. doi:10.1016/j.ajog.2020.04.005



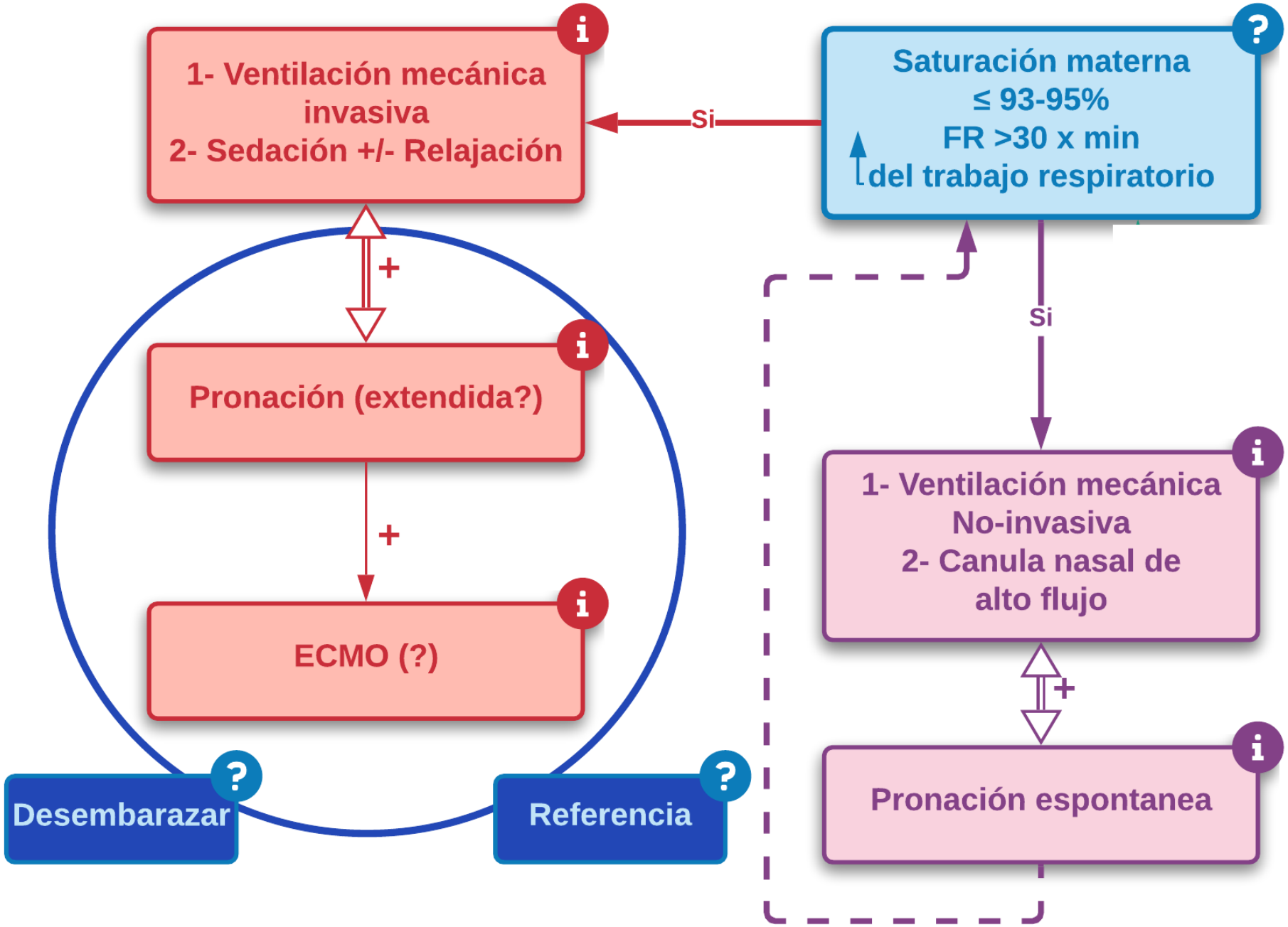
Adaptado de Ashokka B, Loh MH, Tan CH, et al. *Am J Obstet Gynecol*. 2020;223(1):66-74.e3. doi:10.1016/j.ajog.2020.04.005

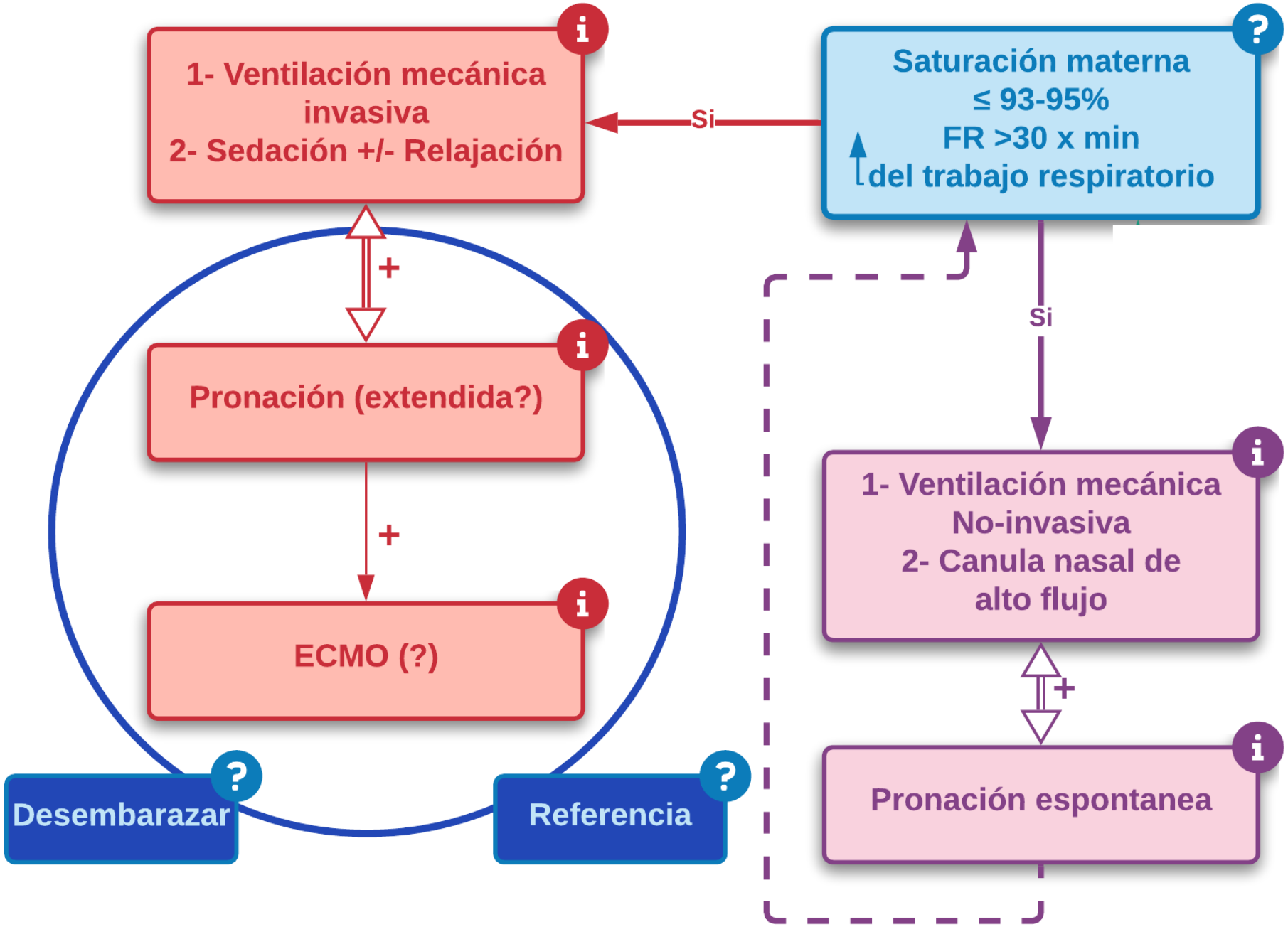


Adaptado de Ashokka B, Loh MH, Tan CH, et al. *Am J Obstet Gynecol*. 2020;223(1):66-74.e3.
doi:10.1016/j.ajog.2020.04.005



Adaptado de Ashokka B, Loh MH, Tan CH, et al. *Am J Obstet Gynecol*. 2020;223(1):66-74.e3. doi:10.1016/j.ajog.2020.04.005


Saturación materna
≤ 93-95%
FR >30 x min
del trabajo respiratorio
Si
1- Ventilación mecánica invasiva
2- Sedación +/- Relajación
+
Pronación (extendida?)
+
ECMO (?)
Desembarazar
Referencia
Si
1- Ventilación mecánica No-invasiva
2- Canula nasal de alto flujo
+
Pronación espontanea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+
ECMO (?)
Desembarazar
Referencia
Si
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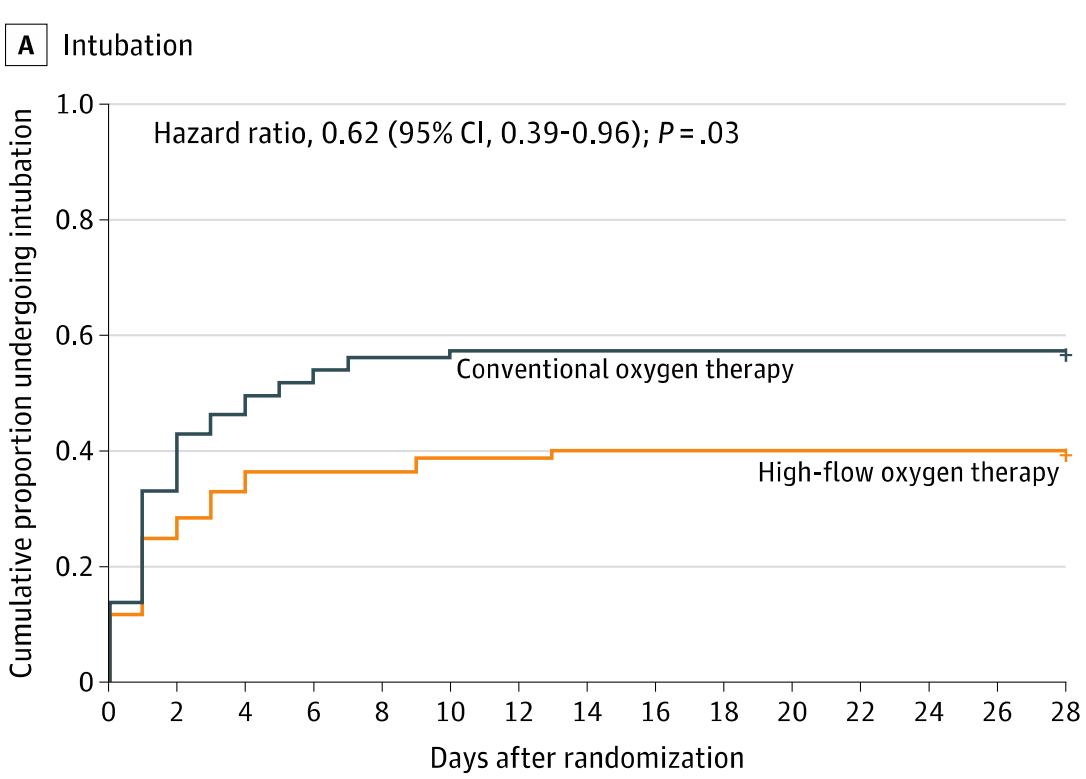
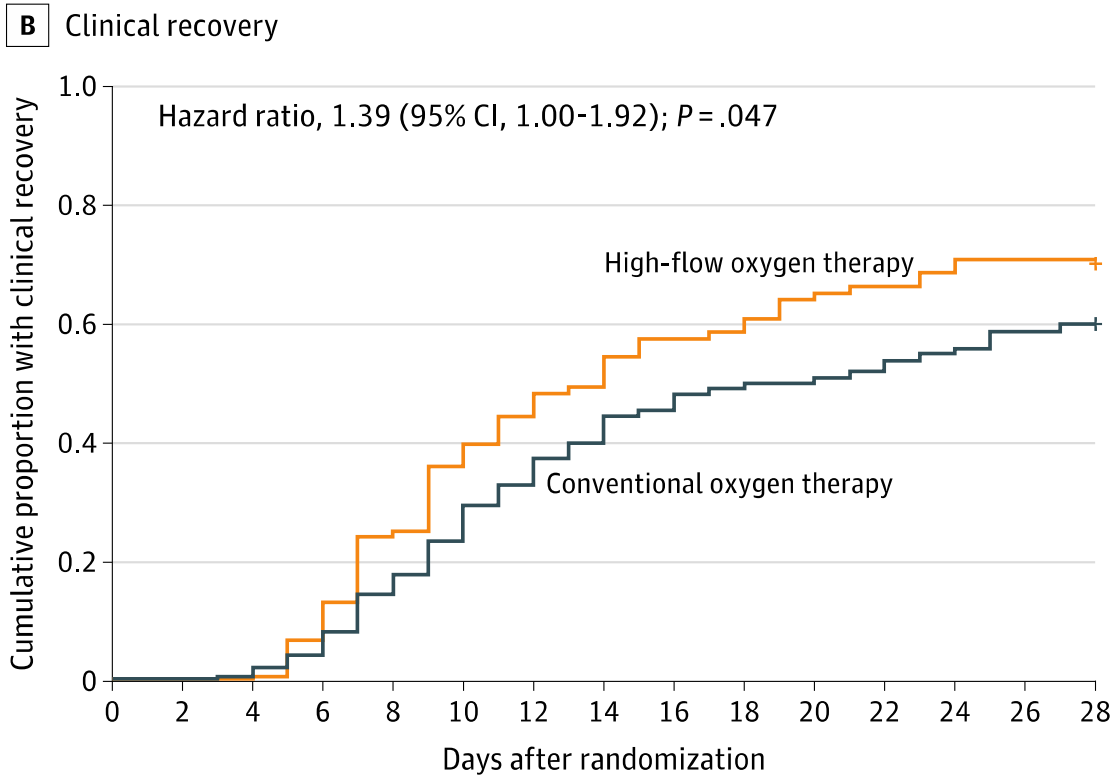
2- Canula nasal de alto flujo
+
Pronación espontanea

Effect of High-Flow Oxygen Therapy vs Conventional Oxygen Therapy on Invasive Mechanical Ventilation and Clinical Recovery in Patients With Severe COVID-19

A Randomized Clinical Trial





Ospina-Tascón GA et al. JAMA. 2021 Dec 7;326(21):2161-2171.
doi: 10.1001/jama.2021.20714

Conditional recommendation

We suggest awake prone positioning of severely ill patients hospitalized with COVID-19 requiring supplemental oxygen (includes high flow nasal oxygen) or non-invasive ventilation (conditional, low certainty evidence).

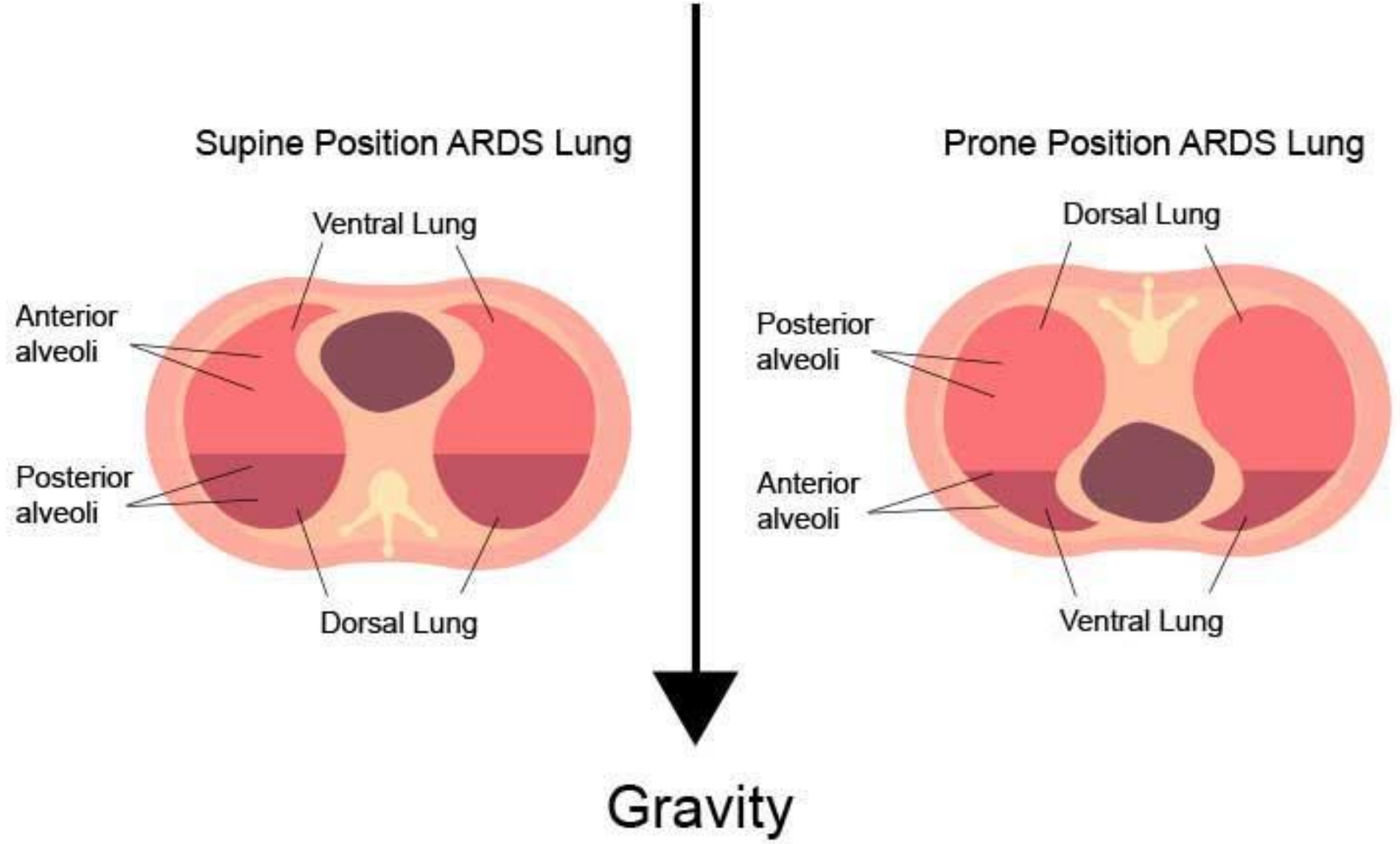
In adult patients with severe ARDS (PaO_2/FiO_2 < 150) prone ventilation for 12–16 hours per day is recommended.

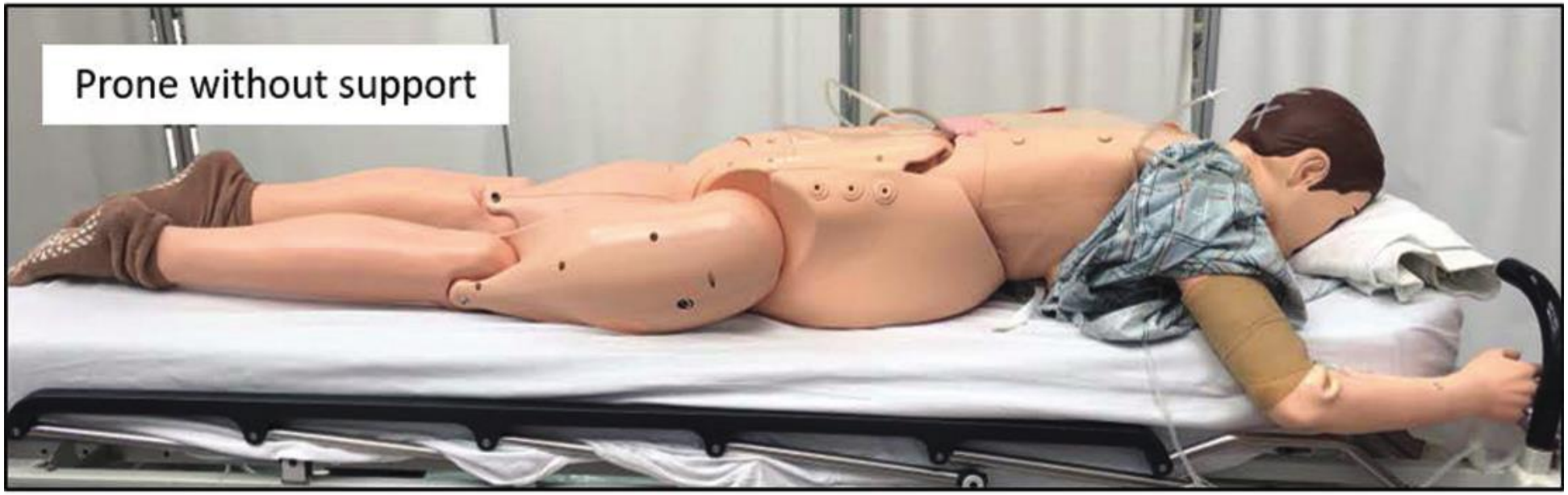
Remarks:

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.

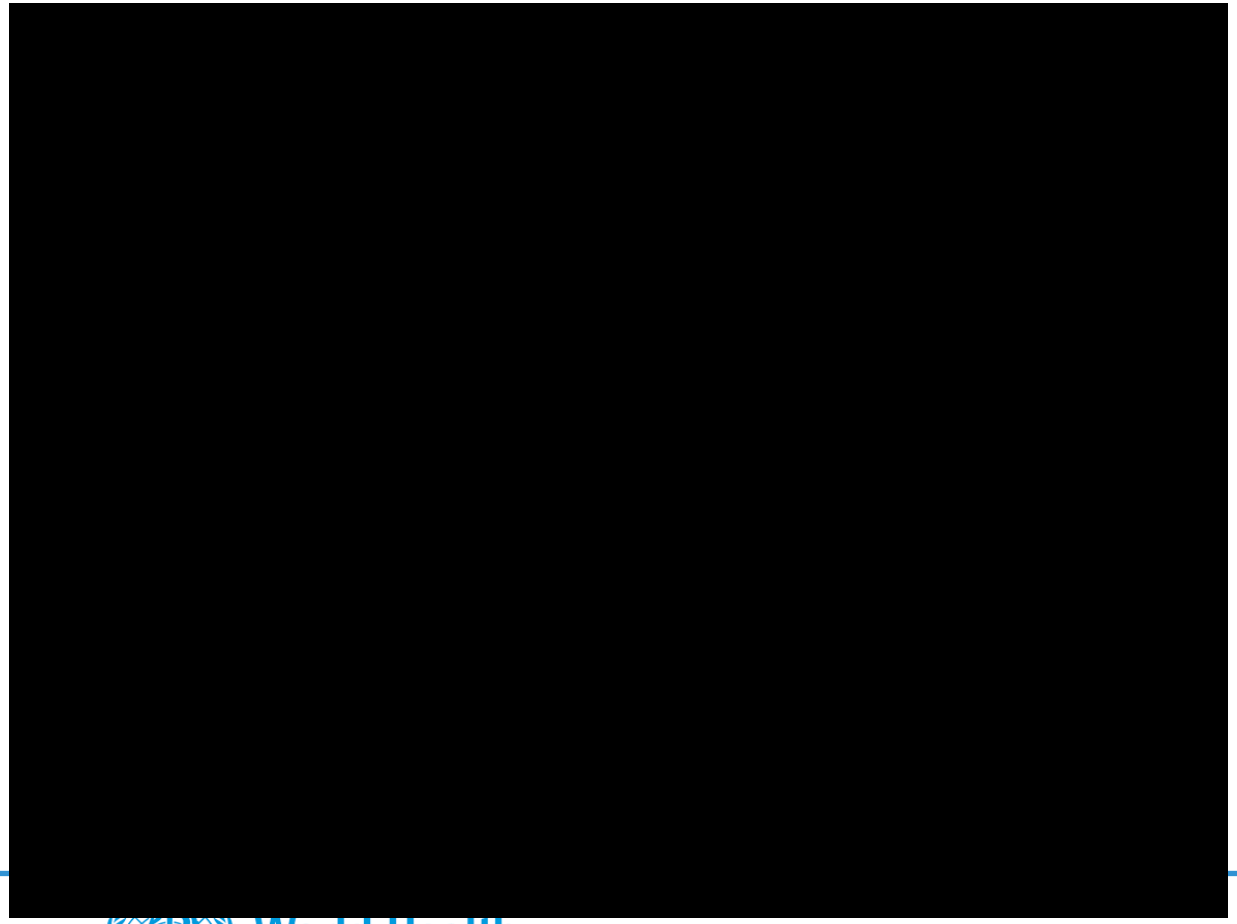
Posición prono




Prone without support


Prone with support

Prone Positioning for Pregnant Women With Hypoxemia Due to Coronavirus Disease 2019 (COVID-19)



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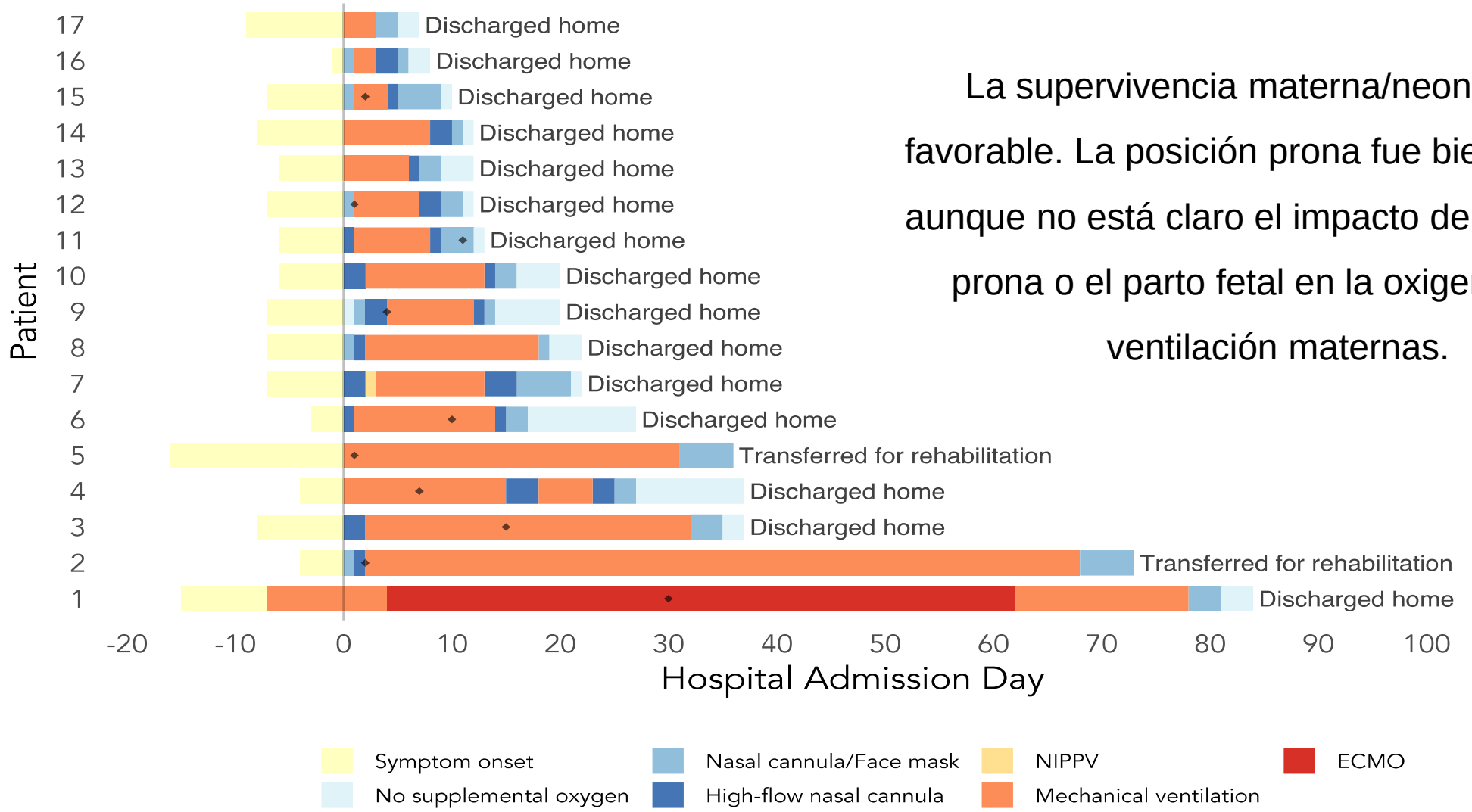
HEALTH EMERGENCIES

Tolcher MC et al. Obstet Gynecol. 2020;136(2):259-261.
doi:10.1097/AOG.0000000000004012

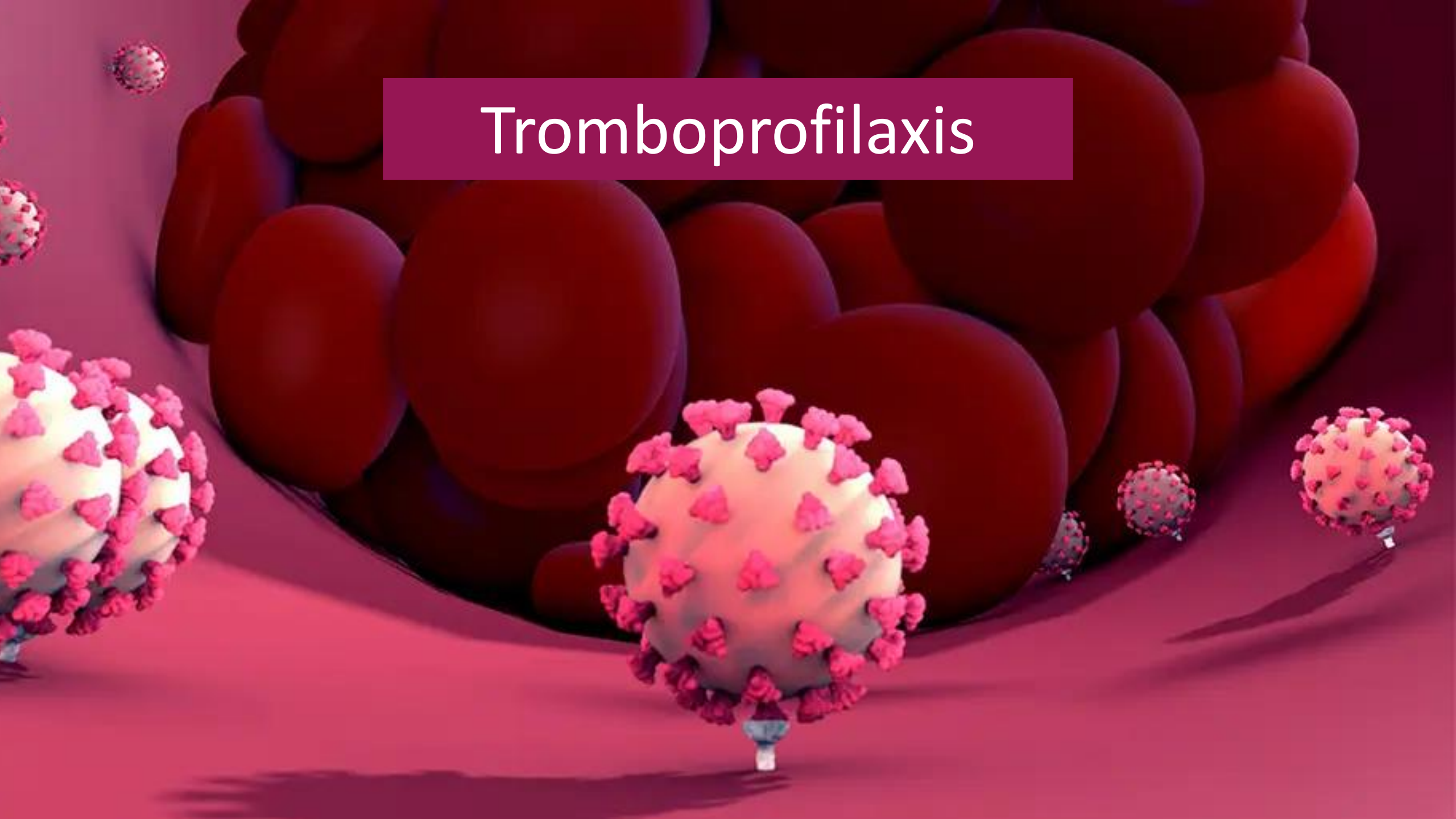
Mechanical ventilation and prone positioning in pregnant patients with severe COVID-19 pneumonia: experience at a quaternary referral center



La supervivencia materna/neonatal fue favorable. La posición prona fue bien tolerada, aunque no está claro el impacto de la posición prona o el parto fetal en la oxigenación y ventilación maternas.

Wong MJ et al. Int J Obstet Anesth. 2021 Nov 8:103236.
doi: 10.1016/j.ijoa.2021.103236.

Tromboprofilaxis



Coagulopathy is common in patients with severe COVID-19, and both venous and arterial thromboembolism have been reported *(27)(28)(166)(167)(168)*.

Monitor patients with COVID-19, for signs or symptoms suggestive of thromboembolism, such as stroke, deep venous thrombosis, pulmonary embolism or acute coronary syndrome. If these are clinically suspected, proceed immediately with appropriate diagnostic and management pathways.

Thromboprophylaxis

Conditional recommendation

In hospitalized patients with COVID-19, without an established indication for higher dose anticoagulation, we suggest administering standard thromboprophylaxis dosing of anticoagulation rather than therapeutic or intermediate dosing (conditional recommendation, very low certainty).

Pregnancy and COVID-19: pharmacologic considerations

	Isolating at home			*Inpatient*		
	Low-risk pregnancy and low risk for VTE	*Risk factors for VTE and not receiving TP*	*Receiving TP*	*Hospitalized for non-COVID-19-related reason, but asymptomatic or minor symptoms such as anosmia*	*Pneumonia requiring supplementary oxygen but not ventilation*	*Pneumonia requiring mechanical ventilation*
Antepartum	Encourage hydration and mobilization	Conduct risk assessment and consider TP on individual basis	Continue TP	Conduct risk assessment and consider TP on individual basis	Give TP (LMWH)	Give TP (LMWH); dose according to local critical care protocol
Peripartum	Not applicable	Follow local policy for interruption of anticoagulation prior to delivery	Follow local policy for interruption of anticoagulation prior to delivery	Follow local policy for interruption of anticoagulation prior to delivery	Follow local policy for interruption of anticoagulation prior to delivery	Follow local policy for interruption of anticoagulation prior to delivery
Postpartum (while in hospital)	Usual care	Conduct risk assessment and consider TP on individual basis	Continue usual TP	Conduct risk assessment and consider TP on individual basis	Give TP (LMWH)	Give TP (LMWH); dose according to local critical care protocol
Postpartum (upon discharge)	Usual care; encourage hydration and mobilization	Usual care and consider TP on individual basis; encourage hydration and mobilization	Decision based on primary indication for TP; encourage hydration and mobilization	Conduct risk assessment and consider TP on individual basis; encourage hydration and mobilization	Conduct risk assessment and consider extended TP on individual basis; encourage hydration and mobilization	Conduct risk assessment and consider extended TP on individual basis; encourage hydration and mobilization

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Dosis profilácticas	Depuración de creatinina mayor de 30 ml/min	Depuración de creatinina menor de 30 ml/min
Enoxaparina	Menos 80 kg: 40 mg SC al día 80-100 kg: 60 mg SC al día Mas de 100 kg: 40 mg SC cada 12 horas	Menos 80 kg: 20 mg SC al día Mas 80 kg: 40 mg SC al día
Nadroparina	0,3 ml SC cada día	
Dalteparina	5000 UI SC cada día	

https://www.covid-19.seth.es/recomendaciones-de-tromboprofilaxis-y-tratamiento-antitrombotico-en-pacientes-con-covid-19/

GRACIAS!!!

World Health Organization