







Ensuring Maternal, Newborn, and Child Health Commodity Availability During the 2019 Novel Coronavirus Pandemic

Distribution and dispensing considerations for public sector supply chain and MNCH program stakeholders in low-and-middle-income countries

SUMMARY AND OVERVIEW

In many low- and middle-income countries (LMICs), the 2019 novel coronavirus (COVID-19) has challenged efforts to ensure access to and availability of quality maternal, newborn and child health (MNCH) services and essential MNCH commodities.

In this document, MNCH program managers and supply chain leads will find:

-  An overview of how MNCH commodity needs may have shifted during the COVID-19 pandemic
-  A recommended priority list of MNCH commodities that should be in full supply at health facilities especially throughout the pandemic
-  Considerations for ensuring health care worker safety during COVID-19
-  Alternative options for dispensing and distribution of MNCH commodities during COVID-19
-  A set of actions and considerations to help stakeholders prioritize next steps
-  An annex containing detailed MNCH commodity information, including dosage, packaging information, and supply chain information



EVOLVING MNCH COMMODITY NEEDS IN THE CONTEXT OF COVID-19

Since the initial outbreak of COVID-19, LMIC health supply chains have been forced to adjust to new demands, including changes in patient consumption dynamics, upstream supply shocks, and the need to ensure that health care workers have access to appropriate personal protection equipment (PPE). Maintaining MNCH service and commodity availability at health facilities remains critical because without them, women and children may suffer, and even die, from preventable causes. However, COVID-19 has worsened existing challenges in many LMICs. When surveyed, LMIC health care providers cited the following concerns:

- Reduced access to antenatal care and fewer associated outpatient visits¹
- Reduced skilled birth attendance in primary health care and referral/hospital settings¹
- Fewer outpatient visits for childhood illnesses, including pneumonia, diarrhea, and malaria²

Decreased contact with the health system on the part of patients requires government stakeholders and decision-makers to adjust their supply chain strategies. These strategies may need to accommodate new and different MNCH health service utilization trends and account for supply chain delays. In many cases, this need translates into something that is not new—essential MNCH commodities should always be available in primary health care facilities and hospitals. However, reduced MNCH outpatient visits may also necessitate that Ministries of Health (MOHs) employ alternative strategies that leverage existing community health platforms and multi-month dispensing options for certain MNCH commodities.



THE VITAL FEW MNCH COMMODITIES

Pregnant women and children under the age of five face the highest risk of death immediately before, during and after birth;^{3,4} however, ensuring the availability of a limited set of high-impact, essential MNCH services and commodities can mitigate these risks and improve MNCH outcomes. In the context of COVID-19, ensuring consistent availability of these commodities at health facilities—both public and private—is critical because decreased antenatal care (ANC) outpatient visits and primary care consultations for children have been reported (see Box 1), which suggests that opportunities to administer care and treatment are more limited than ever. Lack of commodity stock may further discourage MNCH care-seeking behavior; full supply of essential MNCH commodities is important.

Box 1. MNCH service utilization decreases in Bangladesh

In Bangladesh, substantive reductions in MNCH care-seeking behaviors have been observed.

- There was a 25% reduction in women receiving their first antenatal care visit when comparing 2019 to 2020 data².
- Regular primary care consultations for children under the age of five declined by approximately 65% from February 2020 to June 2020².

Since women and children are receiving fewer health services, opportunities to ensure they receive needed medicines have declined. In the event that they do seek care, MNCH commodities must be available at health facilities.

In the context of COVID-19, MOHs may face serious financial resource constraints and may need to make tough choices on where to invest limited funds. Table 1 lists the most essential MNCH interventions and commodities that are important for prevention and treatment in MNCH. Several of these commodities may be available over the counter from private sector sources such as local private pharmacies.

Table 1. MNCH commodities required, by health system level

	Referral hospitals	Primary health care facilities	Community level
Pregnancy			
Antihypertensives (intravenous [IV], intramuscular [IM], oral) for treatment of hypertensive diseases of pregnancy	✓	✓	✗
Magnesium sulphate (IV) for treatment of pre-eclampsia and eclampsia; and calcium gluconate (used as treatment when toxicity of magnesium sulfate occurs)*	✓	✓	✗
Iron and folic acid supplementation to prevent maternal anemia, puerperal sepsis, low birth weight, and preterm birth	✓	✓	✓
Low dose aspirin for the prevention of pre-eclampsia	✓	✓	✓
Sulfadoxine-pyrimethamine for intermittent preventive treatment of malaria in pregnancy (IPTp)	✓	✓	✓
Birth and immediate postnatal care for women			
Oxytocin (IM, IV) for prevention and treatment of post-partum hemorrhage (PPH)	✓	✓	✗
Misoprostol (oral) for prevention and treatment of PPH**	✓	✓	✓
Tranexamic acid (IV) for treatment of PPH	✓	✓	✗
Antibiotics (ampicillin and/or gentamicin, [IV, IM]) for maternal sepsis*	✓	✓	✗
Immediate postnatal care for newborns			
Newborn resuscitation equipment for birth asphyxia	✓	✓	✗
Chlorhexidine digluconate (7.1%) solution or gel for umbilical cord care	✓	✓	✓
Gentamicin (IV, IM) for infections, including pneumonia*	✓	✓	✗
Oral antibiotics, i.e. amoxicillin dispersible tablets (DT) for infections, including pneumonia	✓	✓	✓
Care for infants and children			
Oral rehydration salts (ORS) and zinc tablets (co-packaged or individual) for diarrhea	✓	✓	✓
Oral antibiotics, i.e. amoxicillin DT, for infection, including pneumonia	✓	✓	✓
Gentamicin (IV, IM), for severe infection, including severe pneumonia*	✓	✓	✗

* For IV and IM administration, IV infusion sets, syringes, needles, and alcohol swabs are required.

**Oral misoprostol for PPH has been used effectively in community settings; however, facility-based skilled birth attendance remains critical to ensure that women receive quality maternal health services. MOH officials are in the best place to review their national standard treatment guidelines to determine if community-based distribution is appropriate.





ENSURING HEALTH CARE WORKER SAFETY

Keeping health care workers safe and healthy will help ensure that MNCH services remain available during the COVID-19 pandemic. The availability of appropriate PPE coupled with recommended processes and procedures will help prevent the spread of COVID-19 between health care providers and women receiving maternity services.

Table 2 outlines PPE required for maternity care providers delivering care to women with suspected/confirmed COVID-19 and those who are asymptomatic.

Table 2. Recommended PPE for maternity care provision (excerpted from UNFPA's COVID-19 Technical Brief Package for Maternity Services)⁵

<p>PPE for maternity care providers delivering care to women <u>with suspected or confirmed cases of coronavirus</u> in a health facility</p> 	<p>WHO indicates that the following PPE must be worn: long sleeve gown, surgical mask (for all patient interaction) or an N95/P2 mask (if the maternity care provider is directly involved in aerosol performing procedures such as suctioning airway secretions, administering nebulizing medication or CPR), eye protection and non-sterile gloves.</p>
<p>PPE for maternity care providers delivering care to women <u>without symptoms of coronavirus</u> in a health facility</p> 	<p>WHO recommends that PPE needs to be used according to standard precautions and risk assessment. Wearing PPE for all patient contact will be dependent on availability of PPE within individual facilities and individual judgement of the exposure risk by the maternity care provider. Gloves and a plastic apron need to be worn during the delivery of care that may involve exposure to blood, body fluids, secretions, excretions, touching oral mucosa, or medication assistance (including: taking blood or vaginal swabs, performing a stretch and sweep and first stage of labor). During second and third stage of labor, in addition to hand washing, a surgical mask, plastic apron, eye protection, a plastic apron and gloves need to be worn.</p>

Health care workers in facilities should additionally have access to appropriate PPE when they are diagnosing and treating children. Where community health platforms are in place, community health workers or similar cadres will also need to be equipped with appropriate PPE (gloves and masks). National-level PPE forecasting, procurement, and distribution efforts should account for community health workers. Refer to [UNICEF's guidance for adaptations to community case management of childhood illness in the context of COVID19 to ensure uninterrupted provision of life-saving services](#) for additional information⁶.



ALTERNATIVE DISTRIBUTION AND DISPENSING APPROACHES FOR MNCH COMMODITIES IN THE CONTEXT OF COVID-19

Ensuring the availability of quality MNCH services and commodities in primary health care facilities remains critical for the health of women and children. COVID-19 has affected changes within the MNCH landscape, and health systems need to adapt to meet the new landscape. Some countries have added telemedicine and blended approaches for MNCH service provision per global recommendations.^{5,7} Robust community health networks can be included in primary health care systems

to expand geographical coverage of MNCH services. LMICs may leverage community health platforms to alleviate COVID-19 related challenges; however, adapted service delivery models may require some supply chain adjustments. The next section provides detailed MNCH distribution and dispensing options that may prove useful during the pandemic.



Community distribution options for pregnancy-related commodities

In the context of COVID-19, pregnant women may forgo ANC or opt for community health worker home visits and/or telemedicine options where available to avoid contact at health facilities. In these cases, LMICs may consider adjusting policies during the COVID-19 pandemic to allow for multi-month and/or advanced dispensing of certain medications and supplements to limit the necessity of face-to-face out-patient visits. Not all MNCH medicines are appropriate for self-administration or for community distribution as many require injection or intravenous administration or may need to be administered by a trained health care provider.

Community-based management of hypertensive diseases of pregnancy

Hypertensive diseases of pregnancy, including eclampsia and pre-eclampsia, are the second leading cause of maternal death in LMICs⁸. MNCH program managers may want to evaluate whether multi-month dispensing is appropriate in some cases. Two commodities may be appropriate for multi-month dispensing and/or distribution at the community level via home visits. **Low-dose aspirin** is an often-overlooked clinical intervention to assist in preventing severe pre-eclampsia. In populations with low dietary calcium intake, daily **calcium supplementation** is recommended for pregnant women to reduce the risk of pre-eclampsia⁹.

Additional vitamin supplementation during pregnancy

If community-based distribution of pregnancy-related commodities is occurring, countries may also want to include commodities for vitamin supplementation during pregnancy. Daily oral **iron and folic acid supplementation** is recommended for pregnant women to prevent maternal anemia, puerperal sepsis, low birth weight, and preterm birth.⁹ Community distribution and bulk dispensing of iron and folic acid supplements may be appropriate in many contexts.

Intermittent preventive treatment of malaria in pregnancy (IPTp)

In malaria-endemic areas, IPTp with sulfadoxine-pyrimethamine (SP) should be provided to all pregnant women as part of standard ANC.⁹ In several countries, IPTp has been successfully used in community-based settings, and countries may want to consider further leveraging community-based programs to ensure that pregnant women receive SP at appropriate times and intervals.^{10,11} Notably, dosing should start in the second trimester, and doses should be given at least one month apart, with the objective of ensuring that at least three doses are received during the pregnancy.¹² Health care workers in facilities and in the community should directly observe SP administration.¹³ Finally, if SP is being used in conjunction with iron and folic acid supplementation, higher doses of folic acid (5 mg daily) can reduce the efficacy of IPTp; therefore, only low doses (0.4 mg daily) should be prescribed.¹²



Promoting clean and safe delivery during the COVID-19 pandemic

For pregnant women, deliveries at home and/or those attended by skilled and non-skilled providers outside facilities may increase the risk of complications and are generally not recommended. To maintain the gains in facility-based births, health facilities must observe COVID-19 infection prevention protocols and continue to reach out to pregnant women during ANC to plan for facility-based births. Facility-based births help ensure that a trained provider is present, and that equipment and supplies are available during labor and if complications arise. Declining rates of facility-based ANC and labor and delivery services may prompt MOHs to consider stop-gap, home-based options to improve birth outcomes, where appropriate.

Clean birth kits to prevent maternal and newborn infection

Infection is a leading cause of maternal and newborn death in LMICs, and poor hygiene during the intrapartum period contributes to maternal and newborn sepsis.¹⁴ While skilled birth attendance at a health facility is recommended for all pregnant women, specific contextual situations—including if women decline to give birth in the facility due to fears of COVID-19—may prompt MOHs to consider home-based options, including advanced distribution of **clean birth kits**. The most basic clean birth kits contain **soap, plastic sheet, razor blade, cord ties, alcohol swabs, and gauze** and have been employed in low-resource settings to support and promote clean birth practices.¹⁴ A 2020 systematic review that examined quantitative and qualitative studies on use of clean birth kits reported reduced rates of puerperal sepsis and cord infection, particularly when used jointly with other measures such as the training of traditional birth attendants (TBAs).¹⁴

Key supply chain considerations include:

Clean birth kit contents

Kit contents should align with local contextual needs. UNFPA's ERH Kit 2A offers an example of basic kit content options. Re-packaged clean birth kits, such as the 2A kit, may provide some efficiency.

“Add-ons”, such as **chlorhexidine digluconate 7.1% gel** or **oral misoprostol for PPH prevention and treatment, may also be useful**. These decisions will be context specific and will depend on the presence of TBAs (either traditional or part of the formal health system), national standard treatment guidelines, and national dispensing guidelines.

Clean birth kit distribution model

To ensure that clean birth kits are available at the point of care, pregnant women need to obtain the kit in advance of giving birth. In a study that looked at distribution of oral misoprostol in kits, distribution rates were higher when distributed via home visits when compared with distribution during routine ANC visits at health facilities.¹⁵ Where clean birth kits are under consideration, countries may opt for home-based distribution to minimize the need for women to come into the facility.

Chlorhexidine digluconate for newborn cord care

Studies have shown that **chlorhexidine digluconate 7.1% (gel or aqueous solution)** for cord care in home-based settings in LMICs has been an effective intervention to prevent infection in newborns when used as directed.^{16,17} In the context of COVID-19, advanced and community distribution of chlorhexidine with use instructions may be appropriate in many contexts. Notably, health workers in facilities and those that are community-based must instruct mothers and families to only apply

chlorhexidine to the tip of the cord, the stump, and around the base of the stump and indicate that it should never be applied to the eyes as it can cause permanent blindness.¹⁸

Oral misoprostol for PPH prevention and treatment

A number of studies have evaluated the use of misoprostol for PPH prevention in community settings via clean birth kits and as a stand-alone commodity with results indicating that it can be used safely and effectively outside of facility settings.¹⁵ There are concerns that advanced distribution of misoprostol for PPH for home births may disincentivize facility-based care; however, studies do not support this claim.¹⁵ In settings with high home birth rates, which are likely compounded by COVID-19, advanced distribution of oral misoprostol for PPH may offer a workable approach. MOHs will need to consider their distribution strategy, including distribution timing during pregnancy, what cadre will be dispensing, and administration methods. Irrespective of distribution strategy, oral misoprostol tablets must always be kept in original blister packaging (only double-aluminum blister packs) as the tablets will rapidly disintegrate when exposed to open air and humidity.



Community-based care and advanced distribution for treatment of childhood diarrhea and pneumonia

Pneumonia and diarrhea are common preventable causes of childhood mortality, and their treatments—oral antibiotics and a combination of ORS and zinc, respectively—are effective, affordable, and widely available in public and private sectors. Community dispensing of these products has been studied extensively and is considered safe and effective.¹⁹

ORS and zinc for treatment of childhood diarrhea

Community-based and advanced distribution of **ORS and zinc** (either as separate products or as a combination pack) is appropriate and may be useful during the COVID-19 pandemic. Often, these products are widely available in public and private sectors and may not require prescription, though in some countries, zinc may not yet be available over the counter. In LMIC settings, diarrhea may occur frequently in children at approximately twice per year.²⁰ During the COVID-19 pandemic, households may benefit from having ORS and zinc on hand, and these commodities may be distributed in advance.

Amoxicillin DT for infections, including childhood pneumonia

Amoxicillin DT is an effective and easily administered antibiotic for childhood pneumonia. Extensively used in LMIC integrated community case management programs, amoxicillin DT is appropriate for community distribution by trained community health workers.¹⁹



MNCH SUPPLY CHAIN ACTIONS AND CONSIDERATIONS

As COVID-19 continues to shift MNCH and supply chain dynamics, MNCH policy makers and supply chain stakeholders will have the opportunity to revise and adapt existing policies and processes to maintain full supply of essential MNCH commodities during the COVID-19 pandemic.

Forecasting and supply planning

Changing dispensing practices may impact consumption patterns, and supply chain managers will need to monitor data and trends regularly. In instances where multi-month dispensing occurs, supply chain managers may observe sharp increases and decreases in consumption; however, these need to be analyzed considering dispensing changes. For example, if certain commodities are dispensed in three- or nine-month increments, overall consumption will remain the same even if spikes appear during certain time periods.

Additionally, supply chain managers may consider carrying out more frequent reviews of MNCH supply plans during the pandemic. Reported delays at pharmaceutical manufacturing sites in India and China, travel restrictions over land, and port and airport shut-downs have impacted MNCH commodity lead times throughout the pandemic and require in-country supply chain staff to build in extra time for order shipments and delivery.

Procurement and sourcing

At the beginning of the pandemic, manufacturing and shipping timelines were significantly delayed, especially when products were originating in India and China. While lead times have shortened since that time, procurement agents should continue to monitor product availability and lead times from key suppliers. Several LMICs have employed strategies to help ensure product availability, including early initiation of procurement to account for longer lead times and diversifying supplier bases to help mitigate the risk of stockouts due to unavailable finished pharmaceuticals and/or active pharmaceutical ingredients from routine suppliers.

Inventory management

As the pandemic continues, LMICs may need to adjust inventory management strategies to accommodate changing consumption needs and upstream supply dynamics. To date, several LMICs have adjusted their min/max levels to reflect longer procurement and distribution timelines. Additionally, some countries are proactively evaluating in-country stocks at central, regional, and sub-regional levels to determine if stock redistribution of MNCH commodities is appropriate using logistics management information systems (LMISs). Countries may want to pursue similar strategies to prevent stock outs and expiries if demand shifts occur.

Leveraging multiple data sources and information systems

Accurate and timely data is the foundation for strong supply chain performance, and using existing data sources, such as those from LMISs and health information management systems (HMISs), will allow stakeholders to better understand MNCH supply and demand dynamics. However, COVID-19 has negatively impacted reporting rates and supply chain managers will need to supplement routine data with additional validation. Actions may include:

- Review HMIS data to supplement existing LMIS-based consumption data. In some cases, HMIS data may act as an “early warning” for changes in disease patterns or service delivery/ patient

visits which then call for changes in commodity consumption patterns and should be further leveraged for supply-related decisions.

- Contact high volume or trusted hospitals, health centers and warehouses to validate data when there is uncertainty. While these facilities may not fully represent the national situation, they can provide early evidence of changes in health service provision and commodity patterns. This will allow supply chain managers and decision-makers to validate data and make strong, data-informed decisions.
- Make additional efforts to obtain frequent updated reports from the different supply chain levels and analyze these reports to inform decision making.

Using data effectively will allow supply chain actors to adjust strategies as dynamics change and will serve as the basis for a responsive health supply chain system.

Evaluating distribution and dispensing options

MNCH service delivery and supply management are part of a complex and adaptive health system. When service delivery models change, supply chains must adapt to ensure that MNCH commodities are available at the point-of-care. MNCH program managers and supply chain managers cannot work in isolation since the two parts of the system are interdependent. These two groups will need to coordinate and consult with one another.

MNCH program managers can advise on:

- Current MNCH community strategies and dispensing options based on national standard treatment guidelines
- How the primary health care center and clinics are operating and if task shifting to community health workers occurs
- Care provider suggestions and reception to changes in existing policies and strategies
- Feasibility of service delivery and dispensing options *vis-à-vis* contextual, on-the-ground realities

Supply chain managers can provide guidance on:

- MNCH commodity requirements, including those on needed quantities, storage and distribution requirements, and other commodity related considerations
- Warehousing and distribution needs
- Locations of overstock and understock to facilitate transfer and redistribution of already available MNCH commodities
- Weekly/monthly snapshots on expected shipments that account for anticipated logistics delays due to the impact of COVID-19
- Identification of critical supply chain risk indicators and other opportunities to improve operations across the supply chain
- Differentiated drug distribution mechanisms that suit the implementation environment

Decisions on MNCH care and service models will be highly contextual, and changes in service utilization and upstream supply dynamics will require regular, on-going monitoring and assessment. Because of the global reach of the pandemic, external factors, including supply and manufacturing delays in China and India, may also impact timelines and decisions. MNCH and supply chain leads may consider developing a

joint technical sub-committee to ensure that information on service models, utilization, and supply chain consumption is shared with relevant stakeholders.

CONCLUSION

The COVID-19 pandemic continues to have broad reaching effects on MNCH and seems to be affecting the availability of MNCH services and commodities. Creative solutions, including blended service delivery models and expanded community-based and home-based care, offer new ways to tackle COVID-19 related challenges, and health supply chains will need to respond to these new approaches.



ANNEX: ESSENTIAL MNCH COMMODITIES—DETAILED INFORMATION ON PRODUCT FORMULATIONS, DOSAGE, PACKAGING, AND SUPPLY CHAIN CONSIDERATIONS

This table was created by the GHSC-PSM project and is a consolidation of recommendations and guidelines from the WHO, UNFPA, UNICEF, and leading implementing partners. Where data unavailable from public sources, data were collected via independent supplier verifications.

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
PREGNANCY					
Iron and folic acid supplementation	<p>Daily oral iron and folic acid supplementation is recommended for pregnant women to prevent maternal anemia, low birth weight, and preterm birth⁹</p> <p>WHO recommends taking the supplement daily from conception (or earlier if possible) until delivery⁹</p>	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> Iron/Folic Acid 60 mg/400 mcg²¹ Iron/Folic Acid 60 mg/2800 mcg²¹ Ferrous Sulfate/Folic Acid 200/0.25 mg Coated Tablet²² Ferrous Sulfate/Folic Acid 200/0.4 mg Coated Tablet²² 	<ul style="list-style-type: none"> 3 x 10 blister pack tablets²¹ 10 x 10 blister pack tablets²¹ 100 tablet bottle²¹ 1000 tablet bottle²² 	<p>Storage: Should not be stored above 30°C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: Appropriate for community-based and advanced dispensing; should be stored and dispensed in original packaging²¹</p>
Malaria prevention: intermittent preventive treatment in pregnancy (IPTp)	<p>In malaria-endemic areas, intermittent preventive treatment with sulfadoxine-pyrimethamine (SP) should be provided to all pregnant women as part of antenatal care⁹</p> <p>Dosing should start in the second trimester, and doses should be given at least one month apart, with the objective of ensuring that at least three doses are received¹²</p> <p>Higher doses of folic acid (5 mg daily) supplementation can reduce the efficacy of IPTp; therefore, only low doses (0.4 mg daily) should be prescribed¹²</p>	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> Sulfadoxine/Pyrimethamine 500/25 mg Tablet^{21,22} 	<ul style="list-style-type: none"> 3 x 10 blister pack tablets²² 3 x 50 blister pack tablets²² 100 tablet bottle^{21,22} 1000 tablet bottle^{21,22} 	<p>Storage: Store and transport at temperatures not exceeding 25°C. Excursions permitted to 15-30°C (59-86°F)²¹</p> <p>Standard shelf-life: 24 months²¹</p> <p>Additional considerations: Appropriate for community-based and advanced dispensing</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
Calcium supplementation	<p>In populations with low dietary calcium intake, daily calcium supplementation is recommended for pregnant women to reduce the risk of pre-eclampsia⁹</p> <p>WHO recommends dividing the total daily dose into three doses, and taking the supplements from 20 weeks' gestation until delivery⁹</p>	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> A range of products available containing the equivalent of elemental calcium 1.5–2.0 g, i.e. Calcium carbonate 500 mg⁹ 	<p>Range of packaging options, including:</p> <ul style="list-style-type: none"> 100 tablet bottle²³ 300 tablet bottle²³ 	<p>Storage: Do not store or transport above 30°C²³</p> <p>Standard shelf-life: 24-36 months²³</p> <p>Additional considerations: Appropriate for community based and advanced dispensing</p>
Vitamin A Supplementation	<p>Vitamin A supplementation is only recommended for pregnant women in areas where vitamin A deficiency is a severe public health problem to prevent night blindness²⁴</p> <p>Vitamin A should be taken for at least 12 weeks during pregnancy until delivery. WHO recommends a dose of up to 10 000 IU vitamin A per day, or a weekly dose of up to 25 000 IU²⁴</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> Vitamin A soft gel capsules, 10,000 IU²³ 	<p>Range of packaging options, including:</p> <ul style="list-style-type: none"> 100 tablet bottle²³ Vitamin A is frequently included in multiple vitamin formulations for prenatal care²⁴ 	<p>Storage: Do not store or transport above 30°C²¹</p> <p>Standard shelf-life: 24-36 months²³</p> <p>Additional considerations: decision to use vitamin a is a highly contextual decision and should only be used in locations with vitamin a deficiency</p>
Low dose aspirin for prevention of pre-eclampsia	<p>Low-dose aspirin is recommended for the prevention of pre-eclampsia in women at high risk of developing the condition²⁵</p> <p>1-2 tablets daily of low dose aspirin should be initiated before 20 weeks of gestation, and, if possible, as early as 12 weeks of gestation until delivery²⁵</p>	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> Aspirin 75 mg tablet²⁵ 	<p>Range of packaging options, including:</p> <ul style="list-style-type: none"> 100 tablet bottle²³ 500 tablet bottle²³ 1000 tablet bottle²³ 	<p>Storage: Do not store or transport above 30°C²¹</p> <p>Standard shelf-life: 36 months²³</p> <p>Additional considerations: Appropriate for community based and advanced dispensing</p>
Magnesium sulfate for prevention and treatment of eclampsia	<p>Intravenous or intramuscular magnesium sulfate regimens are recommended for the prevention and treatment of eclampsia²⁵</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> Magnesium sulfate injection, 500 mg/mL in 2-mL and 10-mL ampoules²⁶ <p>Additional required commodities:</p>	<ul style="list-style-type: none"> 10 ampoule box^{21,22} 10 vial box²² 100 ampoule box^{21,22} 	<p>Storage: Do not store or transport above 30°C; do not freeze²⁶</p> <p>Standard shelf-life: Standard shelf life: 24-36 months²⁶</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
	<p>Pritchard regimen: administration of 44 ampoules of 1g in 2ml per case and 9 ampoules of 5g in 10ml per case²⁰</p> <p>Zuspan regimen: administration of 28 ampoules of 1g in 2ml per case and 6 ampoules of 5g in 10ml per case²⁶</p>		<ul style="list-style-type: none"> • IV infusion set (for IV only) 2% lidocaine solution (for IM only) • Syringes, needles, and alcohol swabs • In case of overdose/intoxication: calcium gluconate (1 g in 10 ml (10% solution) IV slowly over 3 minutes is an antidote and must be available in cases of MgSO₄ toxicity²⁶ 		<p>Additional considerations: N/A</p>
Antihypertensives for use during pregnancy: hydralazine (injection)	<p>Hydralazine is recommended for acute-onset, severe hypertension. Hydralazine works by relaxing the muscles in your blood vessels to lower blood pressure^{20,25}</p> <p>Administer 5 mg intravenous injection slowly, repeat every five minutes or give 12.5 mg intramuscular injection every two hours until the blood pressure goal has been achieved. The maximum dose should not exceed 20 mg within 24 hours²⁰</p>	<ul style="list-style-type: none"> • Referral • Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> • Hydralazine HCl 20 mg powder for injection in 2ml vials²⁰ <p>Additional required commodities:</p> <ul style="list-style-type: none"> • Blood pressure cuff, urine dipstick • IV infusion set (for IV only)²⁰ • 2% lidocaine solution (for IM only) • Syringes, needles, and alcohol swabs • 5% dextrose in water solution • Normal saline solution²⁰ 	<ul style="list-style-type: none"> • 10 vial box²³ • 100 vial box²³ • 10 vial box²³ • 100 vials box²³ 	<p>Storage: Store and transport between 20°C and 25°C²⁰</p> <p>Standard shelf-life: Standard shelf life: 24-36 months²⁰</p> <p>Additional considerations: N/A</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
Antihypertensives for hypertensive disorders of pregnancy: labetalol (oral and injection)	<p>Labetalol is recommended for acute treatment of severe hypertension in pregnancy²⁵</p> <p>IV: Administer 10 mg intravenously. If response is inadequate after 10 minutes, administer 20 mg. The dose can be doubled to 40 mg and then 80 mg with 10-minute intervals between each increased dose until blood pressure is lowered below threshold. The maximum total dose is 300 mg²⁰</p> <p>Oral: Administer 200 mg orally; repeat dose after one hour until the treatment goal is achieved; the maximum daily dose is 1,200 mg²⁰</p>	<ul style="list-style-type: none"> Referral Health facility Community* 	<p>Product information:</p> <ul style="list-style-type: none"> Labetalol HCl IV solution 20 mg/2 ml ampoule²⁰ Labetalol HCl 200 mg tablet²⁰ <p>Additional required commodities:</p> <ul style="list-style-type: none"> For the IV presentation, IV infusion set (for IV only) 2% lidocaine solution (for IM only) Syringes, needles, and alcohol swabs 5% dextrose in water solution Normal saline solution²⁰ 	<ul style="list-style-type: none"> 10 ampoule box²³ 100 ampoule box²³ 100 tablet bottle²³ 	<p>Storage: Store and transport between 20°C and 25°C²⁰</p> <p>Standard shelf-life: 24-36 months²³</p> <p>Additional considerations: Oral tablet formulation may be appropriate for community-based and advanced dispensing; IM/IV administration must be done in a health facility with a skilled provider</p>
Antihypertensives for hypertensive disorders of pregnancy: methyldopa (oral)	<p>Methyldopa is recommended for acute treatment of severe hypertension in pregnancy²⁵</p> <p>Provide 750 mg orally. Repeat dose after three hours until the treatment goal is achieved. The maximum dose is 3 g in 24 hours²⁰</p>	<ul style="list-style-type: none"> Referral Health facility Community* 	<p>Product information:</p> <ul style="list-style-type: none"> Methyldopa 125 mg; 250 mg, 500 mg tablets²³ 	<p>Range of presentations and packaging including:</p> <ul style="list-style-type: none"> 100 tablet bottle²³ 500 tablet bottle²³ 	<p>Storage: Store and transport between 20°C and 25°C²⁰</p> <p>Standard shelf-life: 24-36 months²³</p> <p>Additional considerations: May be appropriate for community-based and advanced dispensing</p>
CHILDBIRTH					
Oxytocin injection for postpartum hemorrhage (PPH) prevention and treatment	<p>Oxytocin is an injectable drug. It is the preferred uterotonic for the prevention and treatment of PPH²⁷</p> <p>For prevention, administer 1 ampoule of the 10 IU formulation per patient. For treatment, administer 4 ampoules of the 10 IU formulation per patient²⁰</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Presentation information:</p> <ul style="list-style-type: none"> Oxytocin 10 IU/mL (1 mL) ampoule^{21,22} <p>Required commodities:</p> <ul style="list-style-type: none"> IV infusion set (for IV only) Syringes, needles, and alcohol swabs²⁰ 	<ul style="list-style-type: none"> 10 ampoule box²¹ 100 ampoule box²² 	<p>Storage: Store and transport between 2°C and 8°C²¹</p> <p>Standard shelf-life: 24 to 36 months²²</p> <p>Additional considerations: N/A</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
Tranexamic acid (TXA) for PPH	<p>Treatment Recommendation: WHO recommends early use of intravenous TXA within 3 hours of birth in addition to standard care for women with clinically diagnosed PPH following vaginal birth or caesarean section¹⁰</p> <p>TXA should be administered at a fixed dose of 1 g in 10 mL (100 mg/mL) IV at 1 mL per minute (i.e., administered over 10 minutes), with a second dose of 1 g IV if bleeding continues after 30 minutes²⁸</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> Tranexamic acid 1g/10 mL²⁹ <p>Additional required commodities:</p> <ul style="list-style-type: none"> IV infusion set (for IV only) Syringes, needles, and alcohol swabs²⁹ 	<p>Range of packaging options, including:</p> <ul style="list-style-type: none"> 10 ampoule box²³ 50 ampoule box²³ 	<p>Storage: Store and transport between 15°C and 30°C²⁸</p> <p>Standard shelf-life: 36 months²⁸</p> <p>Additional considerations: TXA should only be available at health facilities where appropriately skilled health personnel are present²⁹</p>
Oral misoprostol for PPH prevention and treatment	<p>An oral uterotonic that is recommended for the treatment and prevention of PPH in settings where skilled birth attendants are not available to administer oxytocin or when oxytocin quality cannot be guaranteed³⁰</p> <p>For prevention, administer 400 mcg or 600 mcg; 2 to 3 oral tablets per patient. For treatment, administer 800 mcg; 4 oral tablets per patient²⁰</p>	<ul style="list-style-type: none"> Referral Health facility Community* 	<p>Product information:</p> <ul style="list-style-type: none"> Misoprostol 200 mcg blister pack tablets³¹ 	<ul style="list-style-type: none"> Blister pack tablets, 3 tablets³¹ Blister pack tablets, 4 tablets³¹ Blister pack tablets, 60 tablets²³ 	<p>Storage: Do not store or transport above 30°C²⁶; oral misoprostol should always be in sealed blister packs as exposure to ambient air and humidity can degrade the product</p> <p>Standard shelf-life: 24-36 months²⁶</p> <p>COVID-19 notes: Depending on national guidelines, oral misoprostol may be appropriate for community-based dispensing</p>

MATERNAL HEALTH (PERINATAL)

Gentamicin for maternal infection	<p>WHO recommends broad spectrum antibiotics as the first-line treatment for maternal sepsis. It should be administered within 1 hour of suspected sepsis³²</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> Gentamicin 10 mg/mL (2 mL) vial or ampoule^{21,26} Gentamicin 40 mg/mL (2 mL) vial or ampoule^{21,22,26} <p>Additional required commodities:</p>	<p>Range of presentations and packaging including:</p> <ul style="list-style-type: none"> 50 ampoules²¹ 100 ampoules²² 	<p>Storage: Do not store above 25°C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: Gentamicin may only be administered by a skilled health provider</p>
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Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
			<ul style="list-style-type: none"> • 1 to 3 ml syringe and 23-gauge needle, butterfly needle or IV cannula, IV infusion and drip set • Alcohol swab • Sterile water 10 ml vials/ampoules • 5% dextrose in water solution • Normal saline solution • 1% lidocaine • Sharps containers²⁰ 		
Clindamycin for treatment of maternal infection	WHO recommends broad spectrum antibiotics as the first-line treatment for maternal sepsis. It should be administered within 1 hour of suspected sepsis ³²	<ul style="list-style-type: none"> • Referral • Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> • Clindamycin 300 mg/2 mL, 600 mg/4 mL, 900 mg/6 mL vial or ampoule³³ <p>Additional required commodities:</p> <ul style="list-style-type: none"> • 1 to 3 ml syringe and 23-gauge needle, butterfly needle or IV cannula, IV infusion and drip set • Alcohol swab • Sterile water 10 ml vials/ampoules, • 5% dextrose in water solution • Normal saline solution • 1% lidocaine • Sharps containers²⁰ 	<p>Range of presentations and packaging including:</p> <ul style="list-style-type: none"> • 25 ampoules or vials²³ • 50 ampoules or vials²³ 	<p>Storage: Do not store above 25°C²³</p> <p>Standard shelf-life: 24-36 months²³</p> <p>Additional considerations: Clindamycin may only be administered by a skilled health provider</p>
Ampicillin for treatment of maternal infection	WHO recommends broad spectrum antibiotics as the first-line treatment for maternal sepsis. It should be administered within 1 hour of suspected sepsis ³²	<ul style="list-style-type: none"> • Referral • Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> • Ampicillin powder for injection 500 mg vial²¹ <p>Additional required commodities:</p> <ul style="list-style-type: none"> • 1 to 3 ml syringe and 23-gauge needle, butterfly needle or IV cannula, IV infusion and drip set • Alcohol swab • Sterile water 10 ml vials/ampoules, • 5% dextrose in water solution • Normal saline solution • 1% lidocaine • Sharps containers²⁰ 	<ul style="list-style-type: none"> • Box of 50 vials²¹ • Box of 100 vials²¹ 	<p>Storage: Do not store above 25°C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: Ampicillin may only be administered by a skilled health provider</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
NEWBORN HEALTH					
Newborn resuscitation equipment	Effective neonatal resuscitation; immediate care, including thorough drying, suction and stimulation after assessment; and positive-pressure ventilation, if needed, can prevent a high number of neonatal deaths due to the failure to initiate and sustain breathing at birth ³⁴	<ul style="list-style-type: none"> • Referral • Health facility 	Product information: <ul style="list-style-type: none"> • Self-inflating neonatal resuscitation bag with masks for pre-term (size 0) and term (size 1) babies. • Electric or foot operated suction machine/pump, negative pressure less than 100mm Hg, with 1 bottle. • Suction catheter, length 50 cm, single use, conical tip, Fr #8. • Single use suction bulb. • Multi-use suction bulb that can be opened, cleaned, and sterilized. • Training mannequin/simulator for neonatal resuscitation. • Infant stethoscope³⁵ 	N/A	Additional considerations: During use, equipment becomes contaminated from maternal and neonatal bodily fluids. Therefore, equipment must undergo a thorough, multi-step process known as "reprocessing" to sterilize and make it safe for use on the next patient. Reprocessing requires supplies including, but not limited to, appropriate personal protective equipment, clean water, autoclave for sterilization or chemical or physical methods of disinfection, multiple containers (buckets), gloves, scrub brushes, and gauze/cloth ³⁴
Chlorhexidine for newborn cord care	<p>Chlorhexidine is recommended for umbilical cord care during the first week of life for babies born at home settings with high neonatal mortality³⁶</p> <p>A seven-day regimen requires a 20-gm tube or 30 ml solution bottle²⁰</p> <p>A one-day regiment requires a 3 g sachet or 10 ml solution bottle²⁰</p>	<ul style="list-style-type: none"> • Referral • Health facility • Community 	Product information: <ul style="list-style-type: none"> • Chlorhexidine Di-gluconate 7.1% Topical Gel, 3 gm²² • Chlorhexidine Di-gluconate 7.1% Topical Gel, 10 gm²² • Chlorhexidine Di-gluconate 7.1% Topical Gel, 20 gm^{21,22} • Chlorhexidine Gluconate 4% Topical Solution²² 	<ul style="list-style-type: none"> • 1 tube (gel)²¹ • 1 bottle (solution)²⁰ 	Storage: Do not store above 25°C ²¹ Standard shelf-life: 36 months ²¹ COVID-19 notes: Chlorhexidine can be delivered through antenatal care, delivery, and postnatal care services. It can be provided by health professionals, TBAs, and community health workers; however careful instructions must be provided that indicate that chlorhexidine use in eyes will cause blindness
Gentamicin for newborn sepsis and possible	Gentamicin is the first line antibiotic treatment for the management of neonatal sepsis and PSBI ³⁷	<ul style="list-style-type: none"> • Referral • Health facility 	Product information: <ul style="list-style-type: none"> • Gentamicin 10 mg/mL (2 mL) vial or ampoule^{21,26} 	Range of packaging options, including: <ul style="list-style-type: none"> • 50 ampoules²¹ • 100 ampoules²² 	Storage: Do not store above 25°C ²¹

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
severe bacterial infection (PSBI)	<p>At the health facility and community level, gentamicin 7.5 mg/kg per dose once a day for 7 days in critical cases and 5-7.5 mg/kg per dose once a day for 2 or 7 days for severe symptoms²⁰</p> <p>At the hospital, during the first week of life, newborns with normal weight should be given 5 mg/kg per dose once a day for 7-10 days and for low weight, they should be given 3 mg/kg once a day for 7-10 days. During 2-4 weeks of life, newborns should be given 7.5 mg/kg once a day for 7-10 days²⁰</p>		<ul style="list-style-type: none"> Gentamicin 40 mg/mL (2 mL) vial or ampoule^{21,22,26} <p>Additional required commodities:</p> <ul style="list-style-type: none"> 1 to 3 ml syringe and 23-gauge needle, butterfly needle or IV cannula, IV infusion and drip set Alcohol swab Sterile water 10 ml vials/ampoules, 5% dextrose in water solution Normal saline solution 1% lidocaine Sharps containers²⁰ 		<p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: Gentamicin may only be administered by a skilled health provider</p>
Amoxicillin for treatment of PSBI in newborns	<p>Amoxicillin is recommended to manage PSBI in newborns³⁷</p> <p>At the health facility and community levels, amoxicillin (50 mg/ kg, every 12 h for 7 days) should be given for PSBI cases with severe symptoms and fast breathing in newborns²⁰</p>	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> Amoxicillin 250 mg dispersible tablet^{21,22} 	<ul style="list-style-type: none"> 1 x 10 blister pack tablets²¹ 2 x 10 blister pack tablets²¹ 10 x 10 blister pack tablets^{21,22} 	<p>Storage: Do not store or transport above 30°C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: appropriate for community-based dispensing</p>
CHILD HEALTH					
Gentamicin for treating pneumonia in children under 5	<p>Gentamicin is recommended for the treatment of severe pneumonia in children under 5³⁸</p> <p>At the hospital, children with severe pneumonia should be given gentamicin (7.5 mg/kg IM/IV once a day for at least for 5 days), regardless of their HIV status²⁰</p>	<ul style="list-style-type: none"> Referral Health facility 	<p>Product information:</p> <ul style="list-style-type: none"> Gentamicin 10 mg/mL (2 mL) vial or ampoule^{21,26} Gentamicin 40 mg/mL (2 mL) vial or ampoule^{21,22,26} <p>Additional required commodities:</p> <ul style="list-style-type: none"> 1 to 3 ml syringe and 23-gauge needle, butterfly needle or IV cannula, IV infusion and drip set Alcohol swab 	<ul style="list-style-type: none"> 50 ampoules²¹ 100 ampoules²² 	<p>Storage: Do not store above 25°C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>COVID-19 notes: Gentamicin may only be administered by a skilled health provider</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
			<ul style="list-style-type: none"> • Sterile water 10 ml vials/ampoules, • 5% dextrose in water solution • Normal saline solution • 1% lidocaine • Sharps containers²⁰ 		
Amoxicillin for treating pneumonia in children under 5	<p>WHO recommends amoxicillin 250 mg dispersible tablet for the treatment of non-severe pneumonia at the community and health facility levels³⁸</p> <p>At all health care levels, amoxicillin (40mg/kg twice daily (80mg/kg/day) for 5 days) should be given for the treatment of fast breathing pneumonia in children under 5²⁰</p>	<ul style="list-style-type: none"> • Referral • Health facility • Community 	<p>Product information:</p> <ul style="list-style-type: none"> • Amoxicillin 250 mg Dispersible Tablet^{21,22} 	<ul style="list-style-type: none"> • 1 x 10 blister pack tablets²¹ • 2 x 10 blister pack tablets²¹ • 10 x 10 blister pack tablets^{21,22} 	<p>Storage: Do not store or transport above 30 degrees C²¹</p> <p>Standard shelf-life: 36 months²¹</p> <p>Additional considerations: Appropriate for community-based dispensing</p>
Oral rehydration salts (ORS) for treating diarrheal diseases in children under 5	<p>ORS is used as replacement therapy of body fluids for children under five with diarrhea²⁷</p> <p><24 months of age: administer 50–100 ml after each loose stool for 2 days²⁰</p> <p>24-59 months of age: administer 100-200 ml after each loose stool for 2 days²⁰</p>	<ul style="list-style-type: none"> • Referral • Health facility • Community 	<p>Product information:</p> <ul style="list-style-type: none"> • ORS low osmolality 10.25 gm/500 mL Dispersible Powder^{21,22} • ORS low osmolality 20.25 gm/L dispersible powder^{21,22} • ORS low osmolality 42 gm/L dispersible powder^{21,22} <p>Additional required commodities:</p> <ul style="list-style-type: none"> • Clean /boiled water to disperse the ORS. • Jugs of the appropriate size • Spoons and cups²⁰ 	<ul style="list-style-type: none"> • 20 sachets²² • 100 sachets^{21,22} • 10 x 100 sachets²¹ 	<p>Storage: Do not store or transport above 30°C²⁶</p> <p>Standard shelf-life: 24-36 months²⁶</p> <p>Additional considerations: appropriate for community-based and advanced dispensing</p>
Zinc for treating diarrheal diseases in children under 5	<p>Zinc reduces the incidence of diarrhea in children under five and reduces the duration of acute diarrhea³⁹</p> <p>2–6 months of age: administer 10 mg once a day for 10–14 days²⁰</p>	<ul style="list-style-type: none"> • Referral • Health facility • Community 	<p>Product information:</p> <ul style="list-style-type: none"> • Zinc Sulfate 20 mg Dispersible Tablet^{21,22} <p>Additional required commodities:</p> <ul style="list-style-type: none"> • Clean /boiled water or milk to disperse the zinc tablets. 	<ul style="list-style-type: none"> • 10 x 10 blister pack tablets²¹ • 100 blister pack tablets²¹ 	<p>Storage: Do not store or transport above 30°C²⁶</p> <p>Standard shelf-life: 36 months²⁶</p> <p>Additional considerations: appropriate for community and advanced distribution</p>

Intervention	Treatment Recommendations	Health System Level	Required Commodities	Packaging Options	Supply Chain Considerations
	6–59 months: administer 20 mg once a day for 10–14 days ²⁰		<ul style="list-style-type: none"> Jugs of the appropriate size Spoons and cups²⁰ 		
Zinc + ORS co-pack for treating diarrheal diseases in children under 5	ORS and zinc are recommended by WHO for combination use to ensure the effective treatment of diarrhea ²⁶	<ul style="list-style-type: none"> Referral Health facility Community 	<p>Product information:</p> <ul style="list-style-type: none"> Oral Rehydration Salts low osmolality 10.25 gm/L Dispersible Powder + Zinc Sulfate 20 mg Tablet²⁶ Oral Rehydration Salts low osmolality 20.25 gm/500ml Dispersible Powder + Zinc Sulfate 20 mg Tablet²⁶ <p>Additional required commodities:</p> <ul style="list-style-type: none"> Clean /boiled water or milk to disperse the zinc tablets and ORS (water only). Jugs of the appropriate size Spoons and cups²⁰ 	<ul style="list-style-type: none"> 2 ORS sachets + 10 zinc tablets^{21,22} 4 ORS sachets + 10 zinc tablets²¹ 	<p>Storage: Do not store or transport above 30°C²⁶</p> <p>Standard shelf-life: 36 months²⁶</p> <p>Additional notes: Verify registration requirements prior to sourcing. Co-packaged product may need to be registered in addition to existing separate registrations of ORS and zinc.</p> <p>COVID-19 notes: appropriate for community-based and advanced dispensing</p>

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