IJH INTERNATIONAL JOURNAL OF HEALTH
Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

Comprehensive midwifery care for a 14-day-old term neonate with severe dehydration and pneumonia

Titis Auliana Widiantoro[1], Dwi Estuning Rahayu[1], Ririn Indriani[1]

1Bachelor of Applied Midwifery Study Program, Health Polytechnic of the Ministry of Health of Malang, Kediri, Indonesia

Corresponding Author: Ririn Indriani, ririnindriani2025@gmail.com

Check for updates

Abstract:

Severe dehydration in neonates is a medical emergency that can lead to hypovolemic shock, kidney injury, and death, and pneumonia worsens the outlook. This study describes comprehensive midwifery care for a 14-day-old term neonate with severe dehydration and pneumonia at Gambiran Regional Hospital, Kediri City, Indonesia. A descriptive single-case study was conducted from 16 to 28 June 2025 using Varney's seven-step midwifery management and SOAP documentation. Data came from observation, medical records, interviews, and literature review, and the case follows the CARE guideline. The infant presented with repeated vomiting, weight loss, and shortness of breath. Findings included sunken eyes, dry oral mucosa, poor skin turgor, chest indrawing, a respiratory rate of 56 breaths/min, and a pulse of 146 beats/min. Care included intravenous Ringer's lactate according to protocol, nasal oxygen at 1–2 L/min, monitoring of vital signs and urine output, collaboration with a pediatrician for antibiotics, and parent education. Consciousness improved and vital signs stabilized. Early recognition, protocol-based rehydration, oxygen support, and interprofessional collaboration can stabilize a neonate with these two conditions, and family education supports safe care after discharge.

Keywords:
severe dehydration; pneumonia; neonate; midwifery care; case study

Article Info:
Submitted: 17-03-2025
Revised: 13-05-2025
Accepted: 16-05-2025
Published: 31-05-2025

https://doi.org/10.53713/ijh.v1i1.501

This work is licensed under the CC BY-SA License.

INTRODUCTION

The neonatal period is a time of rapid physiological adjustment. In the first weeks of life, a baby must keep its fluid balance, take in enough milk, and rely on an immune system that is still immature. Neonates lose water easily because they have a large body surface area relative to their weight, a high metabolic rate, and kidneys that cannot yet concentrate urine well. As a result, dehydration can develop quickly and can progress to shock and organ injury (Kight & Waseem, 2023).

Dehydration in a young infant has several causes. Diarrhea and vomiting are common ones, and the World Health Organization (2023) describes dehydration as the main life-threatening complication of diarrheal disease. In the first weeks of life, poor milk intake is another important cause. Breastfed newborns who do not receive enough milk can lose too much weight and develop

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

hypernatremic dehydration. This condition is easy to miss and can lead to serious complications and, in some series, death (Moritz et al., 2005; Unal et al., 2008). Weight monitoring in the first days of life helps to find these babies early (Flaherman et al., 2015; van Dommelen et al., 2016).

Pneumonia is also a leading infectious cause of illness and death in young children worldwide (McAllister et al., 2019). In neonates, pneumonia is difficult to distinguish from sepsis because the signs are non-specific and infection can spread rapidly (Duke, 2005; Shane et al., 2017). Newborn infections remain a major contributor to neonatal deaths, especially in low-resource settings (Lawn et al., 2014; Liu et al., 2015).

In Indonesia, childhood pneumonia is linked with nutritional status, immunization coverage, and living conditions (Ananda & Budyanra, 2024), as well as with low exclusive breastfeeding coverage and undernutrition (Wigunawanti et al., 2024). Acute respiratory infection in young children can progress to pneumonia if not treated early (Lutpiatina et al., 2024). Breastfeeding protects against pneumonia (Lamberti et al., 2013), so feeding problems may raise two risks at once: dehydration from low intake and respiratory infection from reduced protection.

When dehydration and pneumonia occur together, each can worsen the other. Fast breathing and fever increase water loss, while poor feeding and vomiting reduce intake. At the same time, fluid replacement has to be given carefully, because too much fluid can burden an infant with lung disease. These babies need prompt assessment, rehydration, oxygen, antibiotics, and close monitoring, delivered by a team (Duke, 2005; World Health Organization, 2013).

Midwives in Indonesian hospitals are part of this team. They assess neonates, monitor vital signs, give oxygen and fluids as ordered or by protocol, and teach families about danger signs. However, few case reports describe how this care is organized and documented for a neonate with both problems. Structured frameworks such as Varney's seven-step management and SOAP notes make the reasoning behind care visible (Varney et al., 2004). This case study therefore describes comprehensive midwifery care for a 14-day-old term neonate with severe dehydration and pneumonia. It also discusses how clinical findings, rehydration, oxygen therapy, collaboration, and family education fit together. The case is reported in accordance with the CARE guidelines (Riley et al., 2017).

METHODS

This study used a descriptive single-case design with a comprehensive midwifery care approach. This design suits a clinical emergency because it allows an in-depth look at the care process in its real setting. The case is reported in accordance with the CARE guidelines (Riley et al., 2017). The study took place in the Neonatal Care Room (Panji Room) of Gambiran Regional Hospital, Kediri City, Indonesia, from 16 to 28 June 2025. The subject was the 14-day-old term baby of Mrs. N., who was diagnosed with severe dehydration and pneumonia. The study focused on the midwifery care process provided to the baby.

Data were collected from four sources to allow triangulation: (1) direct observation of the baby's condition; (2) interviews with family members and health professionals; (3) review of the medical record; and (4) a literature review to support the clinical reasoning. The instruments were maternal and neonatal assessment formats, a midwifery management format based on Varney's

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

seven steps (data collection, interpretation, potential diagnoses and problems, immediate need for action or collaboration, planning, implementation, and evaluation), and progress notes using the SOAP (Subjective, Objective, Assessment, Plan) approach.

Hydration status was assessed using clinical signs (sunken eyes, dryness of the oral mucosa, skin turgor, and general condition) and graded according to WHO criteria. Pneumonia was identified based on respiratory signs, including rapid breathing and chest indrawing, and was confirmed by the treating team (World Health Organization, 2013). Vital signs were compared with the usual ranges for neonates. Data were analyzed with a qualitative descriptive approach. The findings of each Varney step were written out in order: assessment, diagnosis, planning, implementation, and evaluation. They were then summarized in tables and compared with current literature and with midwifery practice standards. The parents gave written informed consent for the use of the care record and for the publication of this report, and the hospital gave permission for data collection. The baby and mother are identified only by initials.

RESULTS

The infant, aged 14 days and born at term, was brought to the emergency room with repeated vomiting, weight loss, and shortness of breath. Table 1 summarizes the findings at presentation.

Table 1. Clinical findings of the neonate at presentation

Parameter	Finding	Usual reference for a young infant	Interpretation
Age and maturity	14 days; term	—	Early neonatal period
Presenting complaints	Repeated vomiting, weight loss, shortness of breath	—	Fluid loss with respiratory distress
Temperature	36.8 °C	36.5–37.5 °C	Normal; no fever
Pulse rate	146 beats/min	About 100–160 beats/min	Within the usual range
Respiratory rate	56 breaths/min	Fast breathing: 60 breaths/min or more (age < 2 months)	Just below the threshold
Chest wall	Chest indrawing	Absent	Danger sign of lower respiratory infection
Eyes, oral mucosa, skin turgor	Sunken eyes, dry oral mucosa, poor skin turgor	Eyes normal, moist mucosa, normal turgor	Signs of severe dehydration
Working diagnosis	Severe dehydration with pneumonia	—	Emergency; needs urgent treatment

Note. Reference values are commonly used ranges for neonates and young infants (World Health Organization, 2013).

The infant had no fever (36.8 °C), and the pulse rate (146 beats/min) was within the usual range for a neonate. The respiratory rate (56 breaths/min) was just below the threshold of 60 breaths/min used to define fast breathing in infants younger than 2 months, but chest indrawing was present, which is a danger sign. Sunken eyes, dry oral mucosa, and poor skin turgor showed marked fluid loss. Based on these findings, the diagnosis was severe dehydration with pneumonia.

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

Table 2 shows the care that followed. Intravenous Ringer's lactate was given according to protocol, and nasal oxygen was given at 1–2 L/min. Vital signs and urine output were monitored, and the pediatrician was consulted for antibiotic therapy and supporting examinations. The parents were educated about the danger signs of dehydration and pneumonia.

Table 2. Midwifery care provided and type of action

Care component	Action	Type of action
Immediate assessment	Assessment of general condition, hydration status, and respiratory status in the emergency room	Independent
Fluid replacement	Intravenous Ringer's lactate according to protocol	Protocol-based
Oxygen therapy	Nasal oxygen at 1–2 L/min to prevent hypoxia	Independent
Monitoring	Vital signs and urine output to assess fluid status and response	Independent
Medical therapy	Antibiotics and supporting examinations decided with the pediatrician	Collaborative
Family education	Danger signs of dehydration and pneumonia	Independent
Evaluation	Vital signs stabilized; consciousness improved	—
Working diagnosis	Severe dehydration with pneumonia	—

Note. Volumes and rates of fluid, antibiotic names, and doses were not available in the summarized record.

After the interventions, the infant's vital signs stabilized and consciousness improved, which indicated hemodynamic recovery. The medical record summarized for this report did not include numerical follow-up values such as oxygen saturation, body weight, or laboratory results.

DISCUSSION

This case shows a neonate with two linked emergencies. Sunken eyes, dry oral mucosa, and poor skin turgor are consistent with significant fluid loss. In children, a few signs, such as abnormal skin turgor, prolonged capillary refill, and an abnormal breathing pattern, are the most useful for judging dehydration, but no single sign is perfect (Steiner et al., 2004). Neonates add further difficulty because their signs are less specific, so findings should be combined with the history and with weight. Weight charts for the first days help identify infants who lose too much weight (Flaherman et al., 2015), and most healthy term babies have regained their birth weight by about two weeks. Weight loss in a 14-day-old baby is therefore a warning sign. Birth weight and current weight were not available in the record, so the percentage of weight lost could not be calculated.

The respiratory findings also need careful reading. The respiratory rate of 56 breaths/min did not reach the 60 breaths/min threshold for fast breathing in infants younger than two months, and the baby had no fever. Yet young infants with serious infection may show neither sign, and chest indrawing is a danger sign (World Health Organization, 2013). In neonates, pneumonia can present like sepsis, so the team should consider a systemic infection and order blood tests and cultures where available (Duke, 2005; Shane et al., 2017).

Vomiting and weight loss at this age have other possible causes as well. Infection, feeding problems, reflux, and gut obstruction should all be considered. Hypertrophic pyloric stenosis, for example, can present in the first weeks of life and should be considered when vomiting is persistent and forceful (Hernanz-Schulman, 2003). The summary record did not describe the vomiting,

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

feeding history, or stool pattern. These details would help to narrow the cause and are worth recording in future reports.

Rapid rehydration was the central life-saving step. Intravenous Ringer's lactate was administered according to protocol, consistent with the principle that severe dehydration requires urgent intravenous replacement (Anigilaje, 2018; World Health Organization, 2013). Two points deserve attention. The first is the choice of fluid. Isotonic solutions lower the risk of hospital-acquired hyponatremia compared with hypotonic ones (Moritz & Ayus, 2003). A Cochrane review in children found that isotonic maintenance fluids reduced hyponatremia without more adverse events (McNab et al., 2014). The American Academy of Pediatrics guideline also favors isotonic fluids, but it covers children older than 28 days (Feld et al., 2018). For neonates under 28 days, direct evidence is thinner, so isotonic fluid is best seen as a sound principle rather than a proven rule.

The second is the speed and amount of fluid. In a baby with a lung infection, excessive fluid can worsen breathing, while replacement that is too slow can prolong shock. The volume, the rate, and the serum sodium level were not recorded here. Sodium levels matter because dehydration in a breastfed baby can cause hypernatremia, which is usually corrected gradually to protect the brain (Moritz et al., 2005; Unal et al., 2008). Early weight monitoring and feeding assessment can detect these infants before they become critical (van Dommelen et al., 2016). Urine output, which the midwife monitored, is a simple, low-cost indicator of response to fluids and helps guide the pace of therapy.

Hypoxia is a major cause of death in pneumonia, so oxygen is a key treatment. WHO guidance recommends oxygen for children when saturation falls below 90% and advises adjusting the flow to reach the target (World Health Organization, 2013). In this case, nasal oxygen at 1–2 L/min helped to stabilize the infant. Oxygen saturation was not reported. Recording it before and after starting oxygen would show the effect and would help to decide when oxygen can be stopped. Low-flow nasal oxygen is suitable for a baby who is breathing spontaneously. Worsening effort, apnea, or increasing oxygen requirement should trigger escalation to a higher level of respiratory support.

Neonatal pneumonia can be caused by several organisms, and treatment is started empirically, according to local guidelines, before culture results are known (Duke, 2005; World Health Organization, 2013). Prescribing antibiotics belongs to the pediatrician. The midwife's role is to recognize the need, administer medications as ordered, observe the response and any adverse effects, and report any changes. This division matches the independent and collaborative actions in Table 2.

Teamwork matters because the combination of severe dehydration and infection can lead to shock and acute kidney injury (Kight & Waseem, 2023), and a neonate can deteriorate within hours. No single professional can cover all tasks, and improving the quality of care for small and sick newborns depends on coordinated work among health workers (Lawn et al., 2014). The use of Varney's steps and SOAP notes in this case supported teamwork because each step of reasoning was documented and could be checked by others.

Education was an essential part of care. Parents should learn to recognize danger signs such as poor feeding, repeated vomiting, fewer wet diapers, sunken eyes, unusual sleepiness, and fast or

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

difficult breathing. This allows them to return to care earlier. Families also need advice on breastfeeding technique, feeding frequency, and growth monitoring, because feeding problems are an important and preventable cause of dehydration in the first weeks of life (Moritz et al., 2005; van Dommelen et al., 2016).

Prevention of pneumonia also begins at home. Exclusive breastfeeding protects against pneumonia (Lamberti et al., 2013), and Indonesian studies link childhood pneumonia to undernutrition, incomplete immunization, low coverage of exclusive breastfeeding, and living conditions (Ananda & Budyanra, 2024; Wigunawanti et al., 2024). Respiratory infections that are not treated early can progress to pneumonia (Lutpiatina et al., 2024), so prompt care-seeking matters.

The pregnancy and birth history may add further clues. Environmental exposures during pregnancy, such as pesticides in farming communities, have been linked with low birth weight and other adverse outcomes (Faza et al., 2025; Kurniyawan et al., 2024). A small or vulnerable newborn may be more likely to have feeding difficulties and infection. Birth weight and maternal occupation were not reported in this case, but asking about them is a simple way to identify babies who need closer follow-up.

Another important consideration is the need for systematic monitoring after initial stabilization. Although improved consciousness and stable vital signs suggest a positive response, continued assessment is necessary to confirm adequate hydration, respiratory recovery, and feeding tolerance. Monitoring urine output, daily weight, respiratory rate, oxygen saturation, and feeding patterns can help identify persistent problems or early deterioration. Before discharge, the healthcare team should ensure that the infant can feed adequately, maintain stable vital signs, and has a clear follow-up plan. Parents should also know when to seek urgent care, particularly for poor feeding, reduced urine output, repeated vomiting, or breathing difficulties. These measures support continuity of care and may reduce the risk of delayed recognition of complications in vulnerable neonates (World Health Organization, 2013; van Dommelen et al., 2016).

A strength of this report is the structured use of Varney's seven steps and SOAP notes, together with several data sources and a clear link between clinical findings and the care given. There are also limitations. This is a single case, so the findings cannot be generalized. Birth weight, current weight, feeding history, serum electrolytes, oxygen saturation, blood count or inflammatory markers, chest imaging, culture results, and the details of fluid and antibiotic therapy were not reported. Length of stay and follow-up after discharge were also not described. Recovery was described as improved consciousness and stable vital signs, not as objective values, so this report describes care and cannot show that the interventions caused the recovery.

Four practical lessons follow. First, a neonate with vomiting and weight loss should be assessed for hydration and for respiratory status together, and not one after the other. Second, a simple list of danger signs can trigger early escalation and referral. Third, key numbers such as weight, oxygen saturation, serum sodium, and fluid volumes should be recorded so that care can be reviewed and compared. Fourth, education before discharge should include a feeding assessment and a clear follow-up plan. Future studies should audit or follow similar infants through discharge and describe their outcomes in larger series.

CONCLUSION

This case study describes comprehensive midwifery care for a 14-day-old term neonate with severe dehydration and pneumonia. The infant was recognized promptly, rehydrated with intravenous Ringer's lactate per protocol, supported with nasal oxygen, closely monitored, and treated with antibiotics in collaboration with a pediatrician. The infant's vital signs stabilized and consciousness improved. The case shows that early recognition, protocol-based rehydration, oxygen support, interprofessional teamwork, and family education about danger signs are key components of care for these babies. Reports of similar cases should include objective values and follow-up so that practice can be compared and improved.

ACKNOWLEDGEMENT

The authors thank Gambiran Regional Hospital, Kediri City, and the baby's family for their cooperation during the baby's care and the preparation of this report.

CONFLICT OF INTEREST

The authors declare no conflict of interest in this article.

REFERENCES

Ananda, I. P., & Budyanra, B. (2024). Determinants of pneumonia status in under-five children in Indonesia. *Jurnal Epidemiologi Kesehatan Komunitas*, 9(2). https://doi.org/10.14710/jekk.v9i2.11775

Anigilaje, E. A. (2018). Management of diarrhoeal dehydration in childhood: A review for clinicians in developing countries. *Frontiers in Pediatrics*, 6, 28. https://doi.org/10.3389/fped.2018.00028

Duke, T. (2005). Neonatal pneumonia in developing countries. *Archives of Disease in Childhood: Fetal and Neonatal Edition*, 90(3), F211–F219. https://doi.org/10.1136/adc.2003.048108

Faza, N., Novita, R., Trisnawati, D., Kurniyawan, E. H., Afandi, A. T., Kurniawan, D. E., & Nur, K. R. M. (2025). Pesticide exposure increases the incidence of low birth weight (LBW) in agricultural areas. *Journal of Nursing Periodic*, 2(2). https://doi.org/10.36858/jnp.v2i2.39

Feld, L. G., Neuspiel, D. R., Foster, B. A., Leu, M. G., Garber, M. D., Austin, K., … Moritz, M. L. (2018). Clinical practice guideline: Maintenance intravenous fluids in children. *Pediatrics*, 142(6), e20183083. https://doi.org/10.1542/peds.2018-3083

Flaherman, V. J., Schaefer, E. W., Kuzniewicz, M. W., Li, S. X., Walsh, E. M., & Paul, I. M. (2015). Early weight loss nomograms for exclusively breastfed newborns. *Pediatrics*, 135(1), e16–e23. https://doi.org/10.1542/peds.2014-1532

Hernanz-Schulman, M. (2003). Infantile hypertrophic pyloric stenosis. *Radiology*, 227(2), 319–331. https://doi.org/10.1148/radiol.2272011329

Kight, C. E., & Waseem, M. (2023). Dehydration, pediatric. In *StatPearls*. StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK560540/

Kurniyawan, E. H., Iswatiningtyas, N. F., Cahyarani, F. B., Sholihah, N. L. I. M., Wati, D. Y., Sapitri, R. D. A., & Afandi, A. T. (2024). Overview of reproductive health in women in agricultural areas due to exposure to pesticides. *Malang Journal of Midwifery (MAJORY)*, 6(1), 1–13. https://doi.org/10.31290/majory.v6i1.4131

Lamberti, L. M., Zakarija-Grković, I., Fischer Walker, C. L., Theodoratou, E., Nair, H., Campbell, H., & Black, R. E. (2013). Breastfeeding for reducing the risk of pneumonia morbidity and mortality in children under two: A systematic literature review and meta-analysis. *BMC Public Health*, 13(Suppl 3), S18. https://doi.org/10.1186/1471-2458-13-S3-S18

Lawn, J. E., Blencowe, H., Oza, S., You, D., Lee, A. C. C., Waiswa, P., … Cousens, S. N. (2014). Every Newborn: Progress, priorities, and potential beyond survival. *The Lancet*, 384(9938), 189–205. https://doi.org/10.1016/S0140-6736(14)60496-7

Liu, L., Oza, S., Hogan, D., Perin, J., Rudan, I., Lawn, J. E., Cousens, S., Mathers, C., & Black, R. E. (2015). Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: An updated systematic analysis. *The Lancet*, 385(9966), 430–440. https://doi.org/10.1016/S0140-6736(14)61698-6

Lutpiatina, L., Sulistyorini, L., Yudhastuti, R., & Notobroto, H. B. (2024). Prediction of toddlers' acute respiratory infection (ARI) to become pneumonia in Martapura catchment area, Banjar District, Indonesia. *Global Pediatric Health*, 11. https://doi.org/10.1177/2333794X241227694

McAllister, D. A., Liu, L., Shi, T., Chu, Y., Reed, C., Burrows, J., … Nair, H. (2019). Global, regional, and national estimates of pneumonia morbidity and mortality in children younger than 5 years between 2000 and 2015: A systematic analysis. *The Lancet Global Health*, 7(1), e47–e57. https://doi.org/10.1016/S2214-109X(18)30408-X

McNab, S., Ware, R. S., Neville, K. A., Choong, K., Coulthard, M. G., Duke, T., … Davis, P. (2014). Isotonic versus hypotonic solutions for maintenance intravenous fluid administration in children. *Cochrane Database of Systematic Reviews*, 2014(12), CD009457. https://doi.org/10.1002/14651858.CD009457.pub2

Moritz, M. L., & Ayus, J. C. (2003). Prevention of hospital-acquired hyponatremia: A case for using isotonic saline. *Pediatrics*, 111(2), 227–230. https://doi.org/10.1542/peds.111.2.227

Moritz, M. L., Manole, M. D., Bogen, D. L., & Ayus, J. C. (2005). Breastfeeding-associated hypernatremia: Are we missing the diagnosis? *Pediatrics*, 116(3), e343–e347. https://doi.org/10.1542/peds.2004-2662

Riley, D. S., Barber, M. S., Kienle, G. S., Aronson, J. K., von Schoen-Angerer, T., Tugwell, P., … Gagnier, J. J. (2017). CARE guidelines for case reports: Explanation and elaboration document. *Journal of Clinical Epidemiology*, 89, 218–235. https://doi.org/10.1016/j.jclinepi.2017.04.026

Shane, A. L., Sánchez, P. J., & Stoll, B. J. (2017). Neonatal sepsis. *The Lancet*, 390(10104), 1770–1780. https://doi.org/10.1016/S0140-6736(17)31002-4

Steiner, M. J., DeWalt, D. A., & Byerley, J. S. (2004). Is this child dehydrated? *JAMA*, 291(22), 2746–2754. https://doi.org/10.1001/jama.291.22.2746

Unal, S., Arhan, E., Kara, N., Uncu, N., & Aliefendioglu, D. (2008). Breast-feeding-associated hypernatremia: Retrospective analysis of 169 term newborns. *Pediatrics International*, 50(1), 29–34. https://doi.org/10.1111/j.1442-200X.2007.02507.x

van Dommelen, P., Boer, S., Unal, S., & van Wouwe, J. P. (2016). Evidence based weighing policy during the first week to prevent neonatal hypernatremic dehydration while breastfeeding. *PLoS ONE*, 11(12), e0167313. https://doi.org/10.1371/journal.pone.0167313

Varney, H., Kriebs, J. M., & Gegor, C. L. (2004). *Varney's midwifery* (4th ed.). Jones and Bartlett.

Wigunawanti, R. A., Astutik, E., & Khan, R. (2024). Pneumonia cases among toddlers based on exclusive breastfeeding coverage, undernutrition status, and population density in Sidoarjo Regency in 2019, 2020, and 2021. *The Indonesian Journal of Public Health*, 19(2), 237–250. https://doi.org/10.20473/ijph.v19i2.2024.237-250

Volume 01 Number 01 (May 2025)
e-ISSN: 3164-8835; p-ISSN: 3164-8827

World Health Organization. (2013). *Pocket book of hospital care for children: Guidelines for the management of common childhood illnesses* (2nd ed.). World Health Organization. https://www.who.int/publications/i/item/978-92-4-154837-3

World Health Organization. (2023). *Diarrhoeal disease*. https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease