Issues With Midwife-Obstetrician Collaborations: An Analysis of Three Medical Malpractice Cases

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Abstract
Purpose: Midwives and obstetricians are involved in making critical decisions regarding the safety of both the mother and child; hence, an adequate collaboration between them is imperative. This study aimed to identify issues in midwife-obstetrician collaborations by examining three representative perinatal medical malpractice court cases between 1999 and 2021. In Japan, researching judicial decisions is considered literature research; therefore, an ethical review was not necessary.
Methods: A legal datatbase was comprehensively searched using keywords "medical accident" and/or "childbirth," yielding 122 relevant cases, of which three were selected based on specific criteria. Three cases were selected from this pool for the present study. The selection criteria focused on cases where plaintiffs prevailed and where collaboration between midwives and obstetricians played a significant role.
Results: In Case 1, the midwife's prompt recognition of potential risks and the implementation of preventive measures were deemed necessary. Case 2 highlights the importance of practical skills and decision-making. Regular training of midwives during neonatal resuscitation is crucial. Case 3 emphasizes the midwife's role in independently monitoring the fetal heart rate and accurately interpreting the readings, encouraging exercising judgment and taking appropriate action.
Conclusion: This study emphasizes the need for midwives and obstetricians to leverage their respective expertise, maintain constant communication, and collaborate to provide optimal care and prevent medical accidents. Recognizing problems with such collaborations and addressing them in postgraduate education is essential.

Keywords: Collaboration, Midwife, Malpractice, Resuscitation, Obstetrician, Patient Care Team

Introduction

Approximately 38,000 midwives are employed in Japan across various settings, including hospitals, clinics, and midwifery centers (Ministry of Health, Labour and Welfare, 2022). A midwife's role includes monitoring the progress of the delivery appropriately and providing accurate advice to pregnant women when necessary. They also contribute to the overall health support of mothers and children by ensuring a safe birthing environment and remaining actively involved in postpartum care. These advanced midwifery practices, which emphasize the autonomy of midwives, are recognized as crucial care standards globally (World Health Organization, 2016). Additionally, inter-professional collaboration is crucial because of the potential unforeseen risks associated with childbirth (Romijn et al., 2018). The collaboration of midwives with obstetricians is especially important, as midwives and obstetricians work together to make the necessary decisions that prioritize the safety of both the mother and child. Midwives and obstetricians are obliged to provide care based on their professional knowledge and skills, as well as to fulfill their responsibilities according to their respective roles (Ishibiki et al., 2013). Conversely, inadequate collaboration between them can cause adverse effects (Leonard et al., 2004; Manser, 2009). Cases in medical practice have been reported in which this collaboration has been problematic, highlighting the need for improved collaboration and communication among healthcare professionals (Berglund et al., 2008; Weller et al., 2014; Eggermont, 2015). Professional rivalries and philosophical differences in childbirth practices generate significant tension in clinical settings (Behruzi, 2017). Some surveys mention power imbalances, a lack of trust, and mutual acquaintances as causes (Van et al., 2016). Midwives, in collaboration with obstetricians, can provide continuous care to women experiencing complications during pregnancy and/or childbirth (Skinner et al., 2010). A positive and open relationship that fosters frank discussions is deemed crucial for effective collaboration between midwives and obstetricians (Schmiedhofer et al., 2021). However, there is a notable dearth of research investigating strategies to facilitate collaboration between the two professions (Manser, 2009; Adeyemo et al., 2022). and satisfaction with collaboration with other obstetric care providers (Warmelink et al., 2017). Limited evidence hinders the development of best practices and guidelines to promote successful partnerships between midwives and obstetricians. Further research is needed to explore and identify effective approaches, communication techniques, and interventions to enhance collaboration and teamwork between midwives and obstetricians. Particularly, there is a scarcity of studies that have thoroughly analyzed the underlying factors contributing to inadequate collaboration between midwives and obstetricians, which often leads to medical errors. Furthermore, research exploring practical measures to prevent the recurrence of such errors is lacking.

Therefore, this study aimed to investigate the issues with collaboration between midwives and obstetricians using three representative medical malpractice court cases in which collaboration between the two professions was questioned. By leveraging these findings, this study seeks to contribute to the prevention of medical errors and adverse events by reducing the associated risks and improving collaborative practices between midwives and obstetricians. The issues identified in this study are relevant and useful in modern healthcare practices.

Methods

In Japan, researching judicial decisions is considered literature research; therefore, informed consent is exempted (as stated in Article 82 of the Constitution: Public access to court proceedings, Article 91 of the Code of Civil Procedure: Inspection of case records, Article 13 of the Copyright Act: Works that are not the subject of rights, etc.). Ethical considerations

ensured the privacy and confidentiality of the individuals and medical facilities included in this study. Moreover, descriptions that could potentially identify individuals or specific medical institutions were deliberately avoided when citing court cases. As this study is a literature review, an ethical review was not necessary.

This study involved the collection and analysis of perinatal medical malpractice court cases from 1999 to 2021 using a legal database (TKC Law Library, 2022). This approach can be considered a form of literature review wherein the cases serve as valuable sources of information. The chosen timeframe of approximately 20 years is significant because of Japan's focus on enhancing medical safety measures during this period, driven by a history of similar recurring incidents.

From April to December 2020, a comprehensive search was conducted using the keywords "medical accident" and/or "childbirth" to identify 122 relevant court cases. Three cases were selected from this pool for the present study. The selection criteria focused on cases where plaintiffs prevailed and where collaboration between midwives and obstetricians played a significant role. However, the following cases were excluded: those where the primary fault of medical malpractice was attributed to the individual judgment of a midwife or physician and those where it was impossible to examine the issue with collaboration between both parties unless the fault was rectified.

The three cases were chosen because they presented clear and well-documented actions of the midwives and circumstances in chronological order, allowing detailed analysis and examination. The analysis method involved organizing the identified issues, studying the arguments presented by the parties involved, and determining the background information of the cases. Organization was achieved by utilizing a medical progress chart prepared in chronological order following the guidelines outlined (Supreme Court of Japan, 2007). The chronological arrangement of the chart allowed a systematic examination of the case details, facilitating a comprehensive analysis of the issues at hand. In conducting the case review, utmost efforts were made to maintain objectivity. This involved a comprehensive evaluation of the scientific basis, evidence, testimonies, and statements presented by the parties involved in the trial. Three experts supervised the review process to ensure the validity of the analysis, thereby contributing to a rigorous and well-informed assessment.

Operational Definitions of Terms

Collaboration Between Midwives and Obstetricians

This refers to the cooperative and coordinated efforts between a midwife and an obstetrician, working together towards the shared objective of reducing the incidence of medical errors and adverse events in obstetric care. The goal of this collaborative approach is to ensure the safety and well-being of both the mother and child by leveraging each professional’s unique expertise and skills.

Results

Case 1 (Tokyo District Court, May 20, 2002), LEX/DB Reference No. 28071876

1) Case Overview

In this case, the plaintiff, a first-time mother A, had been diagnosed with impending premature labor and was prescribed tablets for uterine contraction inhibition (ritodrine hydrochloride). However, A experienced increased lower abdominal pain, leading her to contact her doctor, who worked at a university hospital, seeking guidance. A was admitted to the hospital (at 35 weeks and 5 days of pregnancy) on the doctor's instructions; the obstetrician, in collaboration with a midwife, provided general medical care. Approximately 20 min after admission, the midwife was instructed by a doctor to perform cardiotocography (CTG). Despite attempts to perform CTG, the fetal heartbeat could not be confirmed. Subsequently, the obstetrician confirmed advanced bradycardia using ultrasonography. Baby B was delivered via an emergency cesarean section. Unfortunately, the premature separation of the normally implanted placenta resulted in severe neonatal temporal death and subsequent disability, specifically cerebral palsy, in baby B.

2) Issue of Law

The primary point of contention was whether or not the hospital acted negligently by failing to promptly measure the fetal heart rate using CTG after the patient's arrival at the hospital.

3) Court Judgment on the Issue

The court determined that when Mother A was admitted to the hospital for the first time, she exhibited severe lower abdominal pain, pale complexion, cold extremities, and a rigid abdomen. These symptoms were indicative of the initial signs of premature separation of the normally implanted placenta. Consequently, the doctor had a duty to promptly measure the fetal heart rate. Given that the doctor was conducting the examination in collaboration with the midwife, it was possible for them to concurrently attempt to perform a CTG while conducting the general examination. However, the doctor failed to initiate the measurement of the fetal heart rate, prioritizing vital signs and internal examination instead.

Case 2 (Osaka High Court, September 13, 2005), LEX/DB Document No. 28110568

1) Case Overview

In this case, Mother C was admitted to the hospital with a diagnosis of placenta previa. Due to genital bleeding, she underwent a cesarean section at 31 weeks and 4 days of pregnancy. Upon birth, baby D displayed poor general color and weak muscle tone, with an Apgar score of 7 at 1 min. The obstetrician administered oxygen using an artificial manual breathing unit bag and noted a slight improvement in baby D's condition. Subsequently, the infant was placed in an incubator with oxygen support and was prepared for transport to the neonatal intensive care unit (NICU) for further care in the prematurity room. The obstetrician entrusted baby D to the midwife after leaving the operating room and proceeded to the prematurity room via the stairs. Meanwhile, the midwife applied an oxygen mask to baby D's mouth and administered oxygen during transport, which involved using an elevator. Unfortunately, baby D experienced respiratory failure and exhibited severe cyanosis during transport. Despite the midwife's

attempts to stimulate the baby, his condition did not improve, and she was unable to take further action. Upon arrival at the NICU, the obstetrician attended to baby D, but he was left disabled due to cerebral palsy.

2) Issue of Law

The main issue in this case pertains to whether or not there was negligence in respiratory management during the transport of the premature baby to the NICU.

3) Court Judgment on the Issue

The court determined that the obstetrician, who proceeded to the NICU ahead of baby D and entrusted baby D's transport to the NICU to the midwife, acted negligently by failing to respond appropriately to the respiratory failure that occurred during transport.

Case 3 (Kyoto District Court, October 13, 2006), LEX/DB Reference No. 2811227<u>6</u>

1) Case Overview

First-time mother E had a high blood pressure of 150/100 mmHg at the time of admission to the hospital. Fetal heart rate monitoring ("admission monitoring") showed a normal baseline heart rate of 140-150 bpm, but no acceleration was observed. The baseline variability was generally poor, with a single deceleration episode. The midwife brought the recordings to the obstetrician for instructions, and at the obstetrician's discretion, the CTG was removed. About an hour later, the midwife independently measured the fetal heart rate using CTG for approximately 2 min. She observed a baseline fetal heart rate of 140 bpm, but baseline variability was poor. However, she did not report these findings to the obstetrician. Approximately 2.5 hours later, the midwife used a fetal Doppler to measure the fetal heart rate, which was found to be 104-108 bpm. Realizing a significant decrease in the baseline heart rate, the midwife promptly reattached the CTG and resumed fetal heart rate monitoring. The baseline heart rate had further reduced to 100-110 bpm. The midwife sought assistance from other midwives and an obstetrician. Upon the obstetrician's arrival in the labor room, the fetal heart rate had dropped to 70-80 bpm, and meconium staining of the amniotic fluid was observed, indicating an emergency situation. Subsequently, an emergency cesarean section was performed. As a result of the premature separation of the normally implanted placenta, mother E delivered baby F in a state of severe fetal neonatal distress. Baby F was diagnosed with cerebral palsy and was not expected to recover. Additionally, mother E developed disseminated intravascular coagulation syndrome and underwent upper vaginal ablation, rendering her unable to deliver in the future.

2) Issue

The issue was whether or not there was negligence in breaching the duty to continue monitoring the progress of mother E after the CTG was removed.

3) Judgment by the Court on the Issue

Considering that mother E was diagnosed with gestational hypertension and was at a higher risk of experiencing premature separation of the normally implanted placenta, the obstetrician had a duty to order continuous or intermittent fetal heart rate monitoring upon receiving the admission monitoring report from the midwife. The court determined that the duty of care had

been breached. Furthermore, the court recognized that relying solely on fetal heart rate measurements was insufficient for the midwife to adequately monitor the condition. Fetal heart rate monitoring could detect bradycardia and tachycardia but could not detect transient fluctuations in fetal heart rate or its relationship with uterine contractions.

Discussion

This section analyzes the factors contributing to inadequate collaboration between midwives and obstetricians and proposes necessary measures to reduce the risk of medical errors and adverse events. It also discusses the associated legalities and provides evidence that the measures proposed here are useful.

Failure to Promptly Measure the Required Parameters

When mother A was admitted to the hospital, she presented with severe lower abdominal pain, which was indicative of the premature separation of the normally implanted placenta. Additionally, her pale face, cold extremities, and stiff abdomen were signs of a potentially serious condition (Brandt et al., 2023). It was crucial for the midwife, who examined the patient alongside the doctor, to recognize the significance of the initial response upon admission and consider appropriate measures accordingly. The court also emphasized the importance of dividing the attention and responsibilities of obstetricians and midwives in providing medical care. The case summary suggests that the midwife could have attempted to prepare for CTG while the doctor examined the patient. This case highlights that relying solely on waiting for a doctor's instructions is insufficient to safeguard the life of a newborn. Eggermont showed that adequate education with solid expertise in fetal heart rate monitoring can maximize the likelihood of a safe delivery (Eggermont, 2015). Therefore, midwives must recognize the potential risks and complications associated with delivery and promptly consider preventive measures and countermeasures. In Case 1, since the primary concern was to assess the health of the fetus, continuous real-time monitoring of the fetus from the moment of admission, such as using a monitoring device, was crucial. To enable such proactive measures, obstetricians and midwives need to discuss how to collaborate effectively on a daily basis. The foundation for this collaboration lies in establishing a good working relationship between the two parties. In Japan, midwives are legally permitted to assist with normal deliveries (Health Nurse Midwife and Nurse Practitioner Act, Article 3). However, in abnormal deliveries, such as that in this case, it is essential for midwives to follow the doctor's instructions while communicating their perspectives and implementing their care practices (Ministry of Health, Labour and Welfare, 2021).

A case similar to those included in the present study is one with the verdict of the Supreme Court on April 28, 2017, wherein a pregnant woman who had developed placental abruption during hospitalization died after an emergency cesarean section was performed when the midwife reported the inability to detect fetal heartbeats to the physician.

Inappropriate Respiratory Management During Transport to the NICU

It was important to predict the risk of deterioration during the transportation of baby D, who was delivered by cesarean section at 31 weeks of gestation. Furthermore, it was necessary to discuss with the obstetrician who should transport the newborn and in what manner. Failure to follow such procedures would likely result in an inability to respond appropriately if the newborn's condition deteriorates, thereby increasing the likelihood of litigation, as in this case.

In the trial, the negligence of the obstetrician, who proceeded to the NICU ahead of the midwife, was recognized. However, it is necessary to consider the practical skills of the midwife who only provided oxygen supplementation using a mask. This is because midwives have a professional responsibility for their own decisions and actions (International Confederation of Midwives, 2008). The Japanese Society of Obstetrics and Gynecology developed the Japanese version of the Neonatal Cardio-Pulmonary Resuscitation (NCPR) guidelines and started conducting training workshops for perinatal healthcare providers (The Japanese Society of Obstetrics and Gynecology, 2007). This initiative plays an important role in providing healthcare providers with the necessary knowledge and skills for neonatal resuscitation and preparing them for emergencies immediately after birth. Midwives involved in deliveries should receive regular training based on the "Guidelines for Neonatal Resuscitation" and acquire the latest resuscitation techniques to be able to perform newborn resuscitation at any time (Murakami, 2018). The importance of the systematic repetition of knowledge and skills through training programs is obvious (Cetinkaya et al., 2022). Failing to do so would likely be considered a breach of the duty of care. This is because, in a medical accident, the existence of a breach of duty of care is determined by nursing standards, which assume a certain level of nursing knowledge and skills at that time (Ishii, 2015).

A case similar to the ones included in the present study is the Osaka District Court, January 24, 2023 case, wherein a newborn baby at 4 h of age showed facial cyanosis, pallor, decreased muscle tone, and moaning; the midwife stimulated the baby to encourage breathing, but the pallor did not improve.

Failure to Identify Fetal Distress in Fetal Monitoring

Dr. D, who instructed that admission monitoring be discontinued, did not provide any specific instructions to the midwife. The midwife only performed hourly fetal heart rate monitoring using Doppler and did not report it to the doctor despite noticing the lack of baseline variability. According to the obstetric clinical practice guidelines, primiparous woman E required continuous monitoring (The Japan Society of Obstetrics and Gynecology, 2020). Furthermore, during inpatient monitoring, her baseline variability decreased, and a single episode of bradycardia with a late deceleration pattern occurred. Based on the classification of fetal heart rate waveforms, the waveform was classified as level 3 (mildly abnormal waveform), indicating the need for continuous surveillance (The Japan Society of Obstetrics and Gynecology, 2020). According to the causal analysis report from the obstetric medical compensation system, abnormalities were observed in 28.1% of the inpatient fetal heart rate tracings, and cases with early deceleration or mild, variable deceleration accounted for 15.6% (The Japan Obstetric Compensation System for Cerebral Palsy, 2015). To improve the quality of obstetric care and prevent recurrence, midwives and other healthcare professionals should undergo training to accurately assess fetal heart rate waveform patterns. Midwives are responsible for independently managing labor and delivery without relying solely on the instructions of obstetricians. As part of their specific duties, midwives must continuously or intermittently monitor the fetal heart rate and accurately interpret readings. In such cases, midwives are expected to exercise their own judgment and take appropriate actions. Eggermont (Eggermont, 2015) reported that failure to identify fetal distress during fetal monitoring is the most common cause of midwifery liability. However, it has been speculated that midwives do not frequently encounter obstetric emergencies or high-risk deliveries, making it impossible for them to acquire the skills necessary to manage such events through clinical experience alone. Therefore, supplementary training is necessary (Høgh et al., 2021). Furthermore, additional safeguards against errors can be implemented in a team setting through

monitoring, double-checking, and mutual backup (Vincent, 2010). Thus, it becomes necessary to further explore the effectiveness of collaborative education between midwifery students and obstetrics and gynecology residents (Avery et al., 2022).

A case similar to those included in the present research is the one where a midwife reported the SpO_2 (saturation of percutaneous oxygen), respiratory rate, heart rate, tachypnea, and weak effort of the baby but failed to report facial cyanosis, pallor, and moaning, leading to negligence. The midwife was found to have violated her duties of continuously preparing for CTG and of reporting the fetal condition to the physician (the Gifu District Court verdict on November 21, 2012).

Importance of Continuing Education for Midwives

Learning from past mistakes can prevent medical accidents, and the importance of continuing education for midwives cannot be over-emphasized (Guidera et al., 2012). Midwifery licenses are not renewable in Japan. Therefore, a certification system called Advanced Midwifery was created in 2015 (Japan Institute of Midwifery Evaluation, 2015). Advanced Midwives are objectively evaluated professionals with advanced knowledge, skills, and the ability to independently provide standard midwifery care. They provide in-hospital midwifery care, midwifery outpatient services, and care for older women and high-risk expectant mothers. They are expected to work in teams and collaborate with physicians and nurses during abnormal deliveries.

Owing to advancements in healthcare, the field of midwifery is also constantly evolving. Midwives need to acquire the latest knowledge and skills and provide care based on the latest guidelines and best practices. Therefore, continuing education is an essential means for midwives to promote a safe environment and prevent medical errors. It also helps improve skills in teamwork, delegation, and information sharing within the team.

Study Limitations and Conclusion

This study is limited to cases reported in legal databases; therefore, it may not capture the complete picture of medical malpractice litigation cases that focus on the collaboration between midwives and obstetricians. However, it provides a deeper understanding of the collaboration between midwives and obstetricians, which is expected to improve patient management, safe childbirth, and maternal and child health. In the United States, there is a pressing need to promote effective collaboration between midwives and obstetricians (American College of Obstetricians and Gynecologists, 2018). It is equally important to establish a similar model in Japan. Further research highlighting the real-life experiences of midwives and obstetricians is necessary to achieve this goal.

In conclusion, based on the analysis of situations requiring an immediate response during hospital examinations, the transportation of premature infants with immature lung function from the operating room to the NICU, or continuous monitoring, midwives and obstetricians should leverage their respective expertise, maintain constant communication, and collaborate to provide optimal care. This study emphasizes the need for improved collaboration, self-improvement, and autonomous decision-making by midwives and obstetricians to enhance the quality of care and prevent adverse events.

References

Adeyemo, O. O., Morelli, E. E., & Kennedy, H. P. (2022). How to foster effective midwife-obstetrician collaboration on labor and birth units: Qualitative analysis of experiences of clinicians in the United States. Journal of Midwifery & Women's Health, 67(5), 552–560. https://doi.org/10.1111/jmwh.13382

American College of Obstetricians and Gynecologists. (2018). Joint statement of practice relations between obstetrician-gynecologists and certified nurse midwives/certified midwives. Retrieved from https://midwife.org/ACNM/files/ACNMLibraryData/UPLOADFILENAME/000000000224/ACNM-College-Policy-Statement-.pdf

Avery, M. D., Mathiason, M., Andrighetti, T., Autry, A. M., Cammarano, D., Dau, K. Q., et al. (2022). Improved self-assessed collaboration through interprofessional education: Midwifery students and obstetrics and gynecology residents learning together. Journal of Midwifery & Women's Health, 67(6), 598–607. https://doi.org/10.1111/jmwh.13394

Behruzi, R., Klam, S., Dehertog, M., Jimenez, V., & Hatem, M. (2017). Understanding factors affecting collaboration between midwives and other health care professionals in a birth center and its affiliated Quebec hospital: A case study. BMC Pregnancy and Childbirth, 17(1), 200. https://doi.org/10.1186/s12884-017-1381-x

Berglund, S., Grunewald, C., Pettersson, H., & Cnattingius, S. (2008). Severe asphyxia due to delivery-related malpractice in Sweden 1990–2005. BJOG: An International Journal of Obstetrics & Gynaecology, 115(3), 316–323. https://doi.org/10.1111/j.1471-0528.2007.01602.x

Brandt, J. S., & Ananth, C. V. (2023). Placental abruption at near-term and term gestations: Pathophysiology, epidemiology, diagnosis, and management. American Journal of Obstetrics and Gynecology, 228(Suppl), S1313–S1329. https://doi.org/10.1016/j.ajog.2022.06.059

Cetinkaya, S., Turkoglu, B., Dogan, E., & Kara, M. (2022). Examining the knowledge level of the nurses and midwives who had Neonatal Resuscitation Program (NRP) practitioner training course. Journal of Multidisciplinary Healthcare, 15, 281–288. https://doi.org/10.2147/JMDH.S352677

Eggermont, M. (2015a). Safety of birth: A comparative analysis of the legal guarantees in maternity care (Belgium--France--The Netherlands). European Journal of Health Law, 22(2), 113–140. https://doi.org/10.1163/15718093-12341355

Eggermont, M. (2015b). The Belgian, French and Dutch midwife on trial: A critical case study. Midwifery, 31(5), 547–553. https://doi.org/10.1016/j.midw.2015.02.008

Guidera, M., McCool, W., Hanlon, A., Schuiling, K., & Smith, A. (2012). Midwives and liability: Results from the 2009 nationwide survey of certified nurse-midwives and certified midwives in the United States. Journal of Midwifery & Women's Health, 57(4), 345–352. https://doi.org/10.1111/j.1542-2011.2012.00201.x

Høgh, S., Thellesen, L., Bergholt, T., Rom, A. L., Johansen, M., & Sørensen, J. L. (2021). How often will midwives and obstetricians experience obstetric emergencies or high-risk deliveries: A national cross-sectional study. BMJ Open, 11(5), e050790. https://doi.org/10.1136/bmjopen-2021-050790

International Confederation of Midwives. (2008). International code of ethics for midwives. Retrieved from https://www.internationalmidwives.org/assets/files/general-files/2019/10/eng-international-code-of-ethics-for-midwives.pdf

Ishibiki, K., Nagaoka, Y., & Kanou, N. (2013). Study on collaboration of midwives with obstetricians: With special focus on midwifery autonomy. Journal of the Japan Academy of Midwifery, 27(1), 60–71. https://doi.org/10.3418/jjam.27.60

Ishii, T. (2015). Medical Safety Patient Protection Nursing Professional: Future Nursing Science Standards and Nursing Standards. Ishiyaku-Publishing Inc., pp. 203–206.

Japan Institute of Midwifery Evaluation. (2015). Advanced midwifery. Retrieved from https://www.josan-hyoka.org/advanced/advanced/

The Japan Obstetric Compensation System for Cerebral Palsy. (2015). Report on Preventing Recurrence of the Japan Obstetric Compensation System for Cerebral Palsy (5th ed.). Retrieved from http://www.sanka-hp.jcqhc.or.jp/documents/prevention/report/pdf/Saihatsu_Report_05_All.pdf

The Japan Society of Obstetrics and Gynecology. (2007). Neonatal Cardio-Pulmonary Resuscitation (NCPR) Project. Retrieved from https://www.ncpr.jp/eng/

The Japan Society of Obstetrics and Gynecology. (2020). Guidelines for the practice of obstetrics and gynecology, obstetrics 2020. Retrieved from https://www.jsog.or.jp/activity/pdf/gl_sanka_2020.pdf

Leonard, M., Graham, S., & Bonacum, D. (2004). The human factor: The critical importance of effective teamwork and communication in providing safe care. Quality & Safety in Health Care, 13(Suppl 1), i85–i90. https://doi.org/10.1136/qhc.13.suppl_1.i85

Manser, T. (2009). Teamwork and patient safety in dynamic domains of healthcare: A review of the literature. Acta Anaesthesiologica Scandinavica, 53(2), 143–151. https://doi.org/10.1111/j.1399-6576.2008.01717.x

Ministry of Health, Labour and Welfare. (2021). Enforcement of the ministerial ordinance partially revising the ordinance for enforcement of the medical care act. Retrieved from https://www.mhlw.go.jp/content/000730756.pdf

Ministry of Health, Labour and Welfare. (2022). Overview of the Year 2020 Health Administration Report. Retrieved from https://www.mhlw.go.jp/toukei/saikin/hw/eisei/20/dl/gaikyo.pdf

Murakami, A. (2018). The Japan Obstetric Compensation System for Cerebral Palsy and Risk Management in Midwifery Practice – Learning Through Cases: Neonatal Resuscitation. Ishiyaku-Publishing Inc.

Romijn, A., Teunissen, P. W., de Bruijne, M. C., Wagner, C., & de Groot, C. J. M. (2018). Interprofessional collaboration among care professionals in obstetrical care: Are perceptions aligned? BMJ Quality & Safety, 27(4), 279–286. https://doi.org/10.1136/bmjqs-2016-006401

Schmiedhofer, M., Derksen, C., Keller, F. M., Dietl, J. E., Häussler, F., & Strametz, R., et al. (2021). Barriers and facilitators of safe communication in obstetrics: Results from qualitative interviews with physicians, midwives and nurses. International Journal of Environmental Research and Public Health, 18(3), 915. https://doi.org/10.3390/ijerph18030915

Skinner, J. P., & Foureur, M. (2010). Consultation, referral, and collaboration between midwives and obstetricians: Lessons from New Zealand. Journal of Midwifery & Women's Health, 55(1), 28–37. https://doi.org/10.1016/j.jmwh.2009.03.015

Supreme Court of Japan. (2007). From the filing of the lawsuit to the final judgment. Retrieved from https://www.courts.go.jp/osaka/saiban/medical/02_02_soutenseiri/index.html

TKC Law Library. (2022). Database of judicial precedents. Retrieved from https://www.tkc.jp/law/lawlibrary/company/

Van der Lee, N., Driessen, E. W., & Scheele, F. (2016). How the past influences interprofessional collaboration between obstetricians and midwives in the Netherlands: Findings from a secondary analysis. Journal of Interprofessional Care, 30(1), 71–76. https://doi.org/10.3109/13561820.2015.1064876

Vincent, C. (2010). Patient Safety. Wiley-Blackwell Publishing Inc., pp. 341– 367.

Warmelink, J. C., Wiegers, T. A., de Cock, T. P., Klomp, T., & Hutton, E. K. (2017). Collaboration of midwives in primary care midwifery practices with other maternity care providers. Midwifery, 55, 45–52. https://doi.org/10.1016/j.midw.2017.08.010

Weller, J., Boyd, M., & Cumin, D. (2014). Teams, tribes and patient safety: Overcoming barriers to effective teamwork in healthcare. Postgraduate Medical Journal, 90(1061), 149–154. https://doi.org/10.1136/postgradmedj-2012-131168

World Health Organization. (2016). Midwives' voices, midwives' realities. Retrieved from https://www.who.int/publications/i/item/9789241516112367

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