

COMMITTEE REPORT

Health care provider system for hypertensive disorders of pregnancy in Japan

Yoshitsugu Chigusa¹, Asako Mito², Shintaro Maki³,
Kazuya Mimura⁴, Sakiko Nanjo⁵, Munekage Yamaguchi⁶,
Keizo Kanasaki^{7, 8}, Eiji Kondoh⁶, Keiichi Matsubara⁹,
Yusuke Suzuki¹⁰, Kanji Tanaka¹¹, Atsuhiko Ichihara¹²

Reprint request to:

Yoshitsugu Chigusa, M.D., Ph.D.,
Department of Gynecology and
Obstetrics, Graduate School of
Medicine, Kyoto University, 54
Shogoin Kawahara cho, Sakyo ku,
Kyoto 606-8507, Japan.
E-mail: chigusa@kuhp.kyoto-u.
ac.jp

Key words:

health care provider, hypertensive
disorders of pregnancy,
multidisciplinary approach

Received: July 1, 2024

Accepted: July 1, 2024

DOI:10.14390/jsshp.HRP2024-007

¹Department of Gynecology and Obstetrics, Graduate School of Medicine, Kyoto University,

²Division of Maternal Medicine, Center for Maternal-Fetal-Neonatal and Reproductive Medicine, National Center for Child Health and Development, ³Department of Obstetrics and Gynecology, Mie University Graduate School of Medicine, ⁴Department of Obstetrics and Gynecology, Osaka University Graduate School of Medicine, ⁵Department of Obstetrics and Gynecology, Belland General Hospital, ⁶Department of Obstetrics and Gynecology, Faculty of Life Sciences, Kumamoto University, ⁷Department of Internal Medicine 1, Faculty of Medicine, Shimane University, ⁸The Center for Integrated Kidney Research and Advance, Faculty of Medicine, Shimane University, ⁹Department of Regional Pediatrics and Perinatology, Ehime University Graduate School of Medicine, ¹⁰Department of Nephrology, Juntendo University Faculty of Medicine, ¹¹Department of Obstetrics and Gynecology, Hirosaki General Medical Center, ¹²Department of Internal Medicine, Tokyo Women's Medical University

Hypertensive disorders of pregnancy (HDP) is a common but potentially life-threatening complication that affects 5–10% of all pregnancies. Due to the diverse pathologies and multiorgan dysfunction associated with HDP, multidisciplinary treatment is crucial. Moreover, HDP increases the risk of developing chronic diseases later in life and may impact offspring health. In response to these challenges, the Japan Society for the Study of Hypertension in Pregnancy (JSSHP) established the HDP health care provider certification in 2023. The aim is to increase awareness of HDP among medical professionals, expand the number of health care providers with expertise on this condition, and promote women's health through specialized care during pregnancy, postpartum, and preconception phases. The certification is open to various health care professionals involved in maternity care and requires attending a training session consisting of ten lectures. The first training session, held in September 2023, attracted over 200 participants, with 186 new HDP health care providers certified in January 2024. The majority of certified providers were midwives (49.5%) and medical doctors (36.6%), predominantly obstetricians. The ultimate objective of the HDP health care provider system is to establish a comprehensive support system for women with HDP and their families, utilizing accurate medical knowledge and evidence-based information.

Background to the establishment of HDP health care providers

Hypertensive disorders of pregnancy (HDP), defined as hypertension (blood pressure $\geq 140/90$ mmHg) in pregnancy,¹⁾ is a common but potentially life-threatening complication of pregnancy for mothers and fetuses that affects 5–10% of all pregnancies.^{2,3)} Since HDP encompasses a diverse array of pathologies including

preeclampsia, gestational hypertension, superimposed preeclampsia, and chronic hypertension,²⁾ and causes multiorgan dysfunction, interdisciplinary treatment is essential. Moreover, although HDP is a transient disease in pregnancy, it increases the likelihood of developing major chronic diseases later in life, including cardiovascular issues and diabetes,^{3,4)} and also increases the potential risk of hypertension in offspring.⁵⁾ Thus, HDP poses significant risks to both the mother and

Table 1. Program and contents of HDP health care provider training session

Title	Contents
1 Significance and role of the HDP Health Care Provider System	Expected role of HDP health care providers Introduction of follow-up systems for women with gestational hypertension in foreign countries Importance of multidisciplinary collaboration for gestational hypertension management
2 Introduction to HDP Part 1	Epidemiology, risk factors, pathogenesis, pathophysiology, symptoms, and diagnosis
3 Introduction to HDP Part 2	Treatment, blood pressure control during pregnancy and delivery, prophylaxis (aspirin administration), and prediction of disease onset (sFlt-1/PlGF ratio)
4 Introduction to hypertension	Essential hypertension, secondary hypertension, renal disease, white-coat hypertension, and physiological changes in blood pressure during pregnancy Treatment strategies for hypertension from the internist's perspective
5 Preconception and interconception care	Pre- and inter-conception guidance for women at high risk for HDP
6 Drugs used for HDP	Appropriate antihypertensive use during pregnancy and lactation
7 Neonates and HDP	Effects of HDP on the fetus Developmental outcomes and prognosis of newborns born to mothers with HDP
8 Perinatal mental health	Mental disorders during pregnancy and postpartum and countermeasures Involvement of psychologists in obstetrics
9 Nutrition administration	Preferred nutritional management, diet, and weight gain during pregnancy Dietary therapy for non-pregnant patients with hypertension
10 Long-term health outcomes in women with a history of HDP	Risk for developing long-term cardiovascular and renal diseases

HDP, Hypertensive disorders in pregnancy; sFlt-1, soluble fms-like tyrosine kinase-1; PlGF, placental growth factor.

child, necessitating ongoing care beyond pregnancy to ensure optimal health outcomes over the course of the woman's lifetime. Indeed, the importance of long-term follow-up of patients with HDP is emphasized in major clinical guidelines for HDP worldwide.^{6,7)} Meanwhile, ensuring appropriate care for women with HDP requires not only the coordination of obstetricians but also the collaboration of professionals from multiple disciplines who possess diverse areas of expertise and practical knowledge. In response to these specific circumstances and necessities, the Japan Society for the Study of Hypertension in Pregnancy (JSSHP) established the HDP health care provider system in 2023.

Our goal is to increase awareness of HDP among all medical professionals and to expand the number of health care providers with expertise in this condition. In addition, we strive to promote the maintenance of women's health by offering specialized care to women with HDP throughout their pregnancy, postpartum period, and preconception phase through collaborative efforts by

these health care professionals.

Certification system of HDP health care providers

HDP health care providers are certified by the JSSHP and comprise physicians, nurses, midwives, pharmacists, psychologists, registered dietitians, and public health nurses across specialties who are engaged in maternity care. They must be involved in the clinical practice of HDP regardless of their qualifications.

For certification, they must attend the "HDP health care provider training session" at the annual academic meeting of the JSSHP. The training session consists of ten lectures, as shown in Table 1, to provide participants with fundamental knowledge on the management of HDP. Participants do not necessarily need to attend all lectures in one session; they can take the lectures over a three-year period. HDP health care providers must renew their certification every five years, which requires participating

in the annual academic meeting of the JSSHP and attending the ten lectures again.

Roles of HDP health care providers

To ensure optimal medical care for women with HDP, not only during pregnancy but also after giving birth, it is imperative to emphasize team medicine that promotes collaboration among various health care professionals. Importantly, health care providers participating in this team need to possess a fundamental shared knowledge of HDP, which enables them to employ their expertise in caring for women with this condition.

The expected roles of health care professionals who obtain this certification are as follows. Midwives collaborate with obstetricians to manage the pregnancy and delivery of women with HDP, sharing their expertise on this condition. Pharmacists provide explanations to patients about medications used during pregnancy and postpartum based on the pathogenesis of HDP. Psychologists offer emotional support to women by comprehending the prognosis of both mothers and children due to HDP. Registered dietitians offer advice on preventing postpartum obesity and managing salt intake, taking into account the potential risk of developing HDP in future pregnancies. Anesthesiologists carefully consider maternal circulatory dynamics resulting from HDP when selecting the most suitable anesthesia. Endocrinologists and cardiologists continue to ensure treatment of hypertension until the next pregnancy and provide appropriate guidance to patients regarding the possibility of developing cardiovascular disease and diabetes in the future. Collectively, the key responsibility of HDP health care providers is to provide comprehensive support to patients and their families by utilizing accurate medical knowledge and evidence-based information regarding HDP.

HDP health care providers in 2024

The first HDP health care provider training session was held on September 30, 2023, at the 43rd annual academic meeting of the JSSHP in Tokyo, with more than 200 participants (Figure 1). A post-workshop survey ($n = 121$) reported that 84.3% of participants expressed a desire to assume a more proactive role in the care and education of women with HDP than they had in the past. Moreover, a significant majority of participants (90.1%) expressed their interest in altering the organizational structure of their institution to more actively participate in the care and management of women with HDP. These results imply that enrollment in HDP health care provider training sessions promotes changes in the attitudes and behaviors of participants.



Figure 1. HDP health care provider training session. HDP, Hypertensive disorders in pregnancy.

Ultimately, 186 new HDP health care providers were certified following a document review on January 1, 2024. A breakdown of occupational categories of certified HDP health care providers is shown in Figure 2A. There were 92 (49.5%) midwives, 68 (36.6%) medical doctors, and 13 (7%) pharmacists, nurses, registered dietitians, psychologists, and others. Figure 2B shows a breakdown of physician specialties, with the majority (83%) being obstetricians; however, anesthesiologists and internal medicine physicians were also certified.

Characteristics and future challenges of HDP health care providers

A prominent feature of HDP health care providers is that they are certified across a variety of health care professions, including medical doctors. In Japan, there is a system of certified educators who provide high-quality medical care guidance to patients with specific diseases, e.g., certified diabetes educators, certified cardiovascular disease prevention educators, certified kidney disease educators, and certified cardiovascular disease prevention educators. Notably, these certified educators do not include physicians in their certifications. This might be in part because a single department treats each disease. However, HDP is not a condition that can be treated solely by obstetricians; rather, it requires a multidisciplinary approach from multiple medical specialties. Therefore, HDP health care providers are accredited by physicians in a variety of medical specialties, representing a distinct departure from the current certified educator system for other diseases.

Our ultimate objective extends beyond the establishment of the HDP health care provider system to encompass the development of robust evidence demonstrating the benefits of HDP health care providers' interventions in

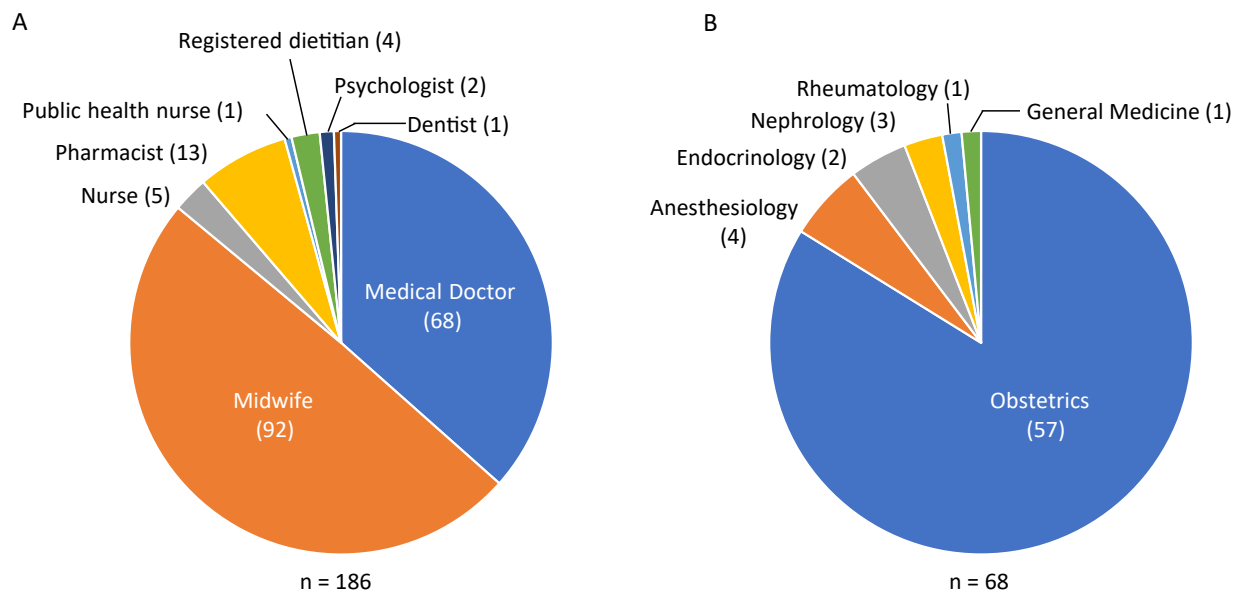


Figure 2. (A) Breakdown of occupational categories of certified HDP health care providers. (B) Breakdown of physician specialties.

HDP, Hypertensive disorders in pregnancy; sFlt-1, soluble fms-like tyrosine kinase-1; PlGF, placental growth factor.

the management of women with HDP. Unfortunately, few studies in Japan have demonstrated significant changes in the management or outcomes of patients with the disease due to the intervention of certified educators of several diseases. However, according to studies conducted in the United States, in-app coaching and remote lifestyle coaching by certified diabetes educators have resulted in a decrease in hemoglobin A1c levels, blood glucose, and body weight among individuals with type 2 diabetes.^{8,9)} In terms of preeclampsia, a survey in the United States showed that women who were properly educated and understood preeclampsia spotted the signs and symptoms of preeclampsia, thereby leading to earlier diagnosis and management.¹⁰⁾ In addition to these studies, we seek to demonstrate the significance and benefits of the HDP health care provider system by evaluating clinical outcomes for women who had HDP and were managed by HDP health care providers. The important task at hand is to widely disseminate information about the HDP health care provider system and develop opportunities for them to play a fully active role.

Acknowledgments

We are deeply thankful to the participants and instructors of the HDP health care provider training session in 2023. We wish to express our sincere appreciation to the newly certified HDP health care providers for their enthusiastic engagement and valuable contribution to HDP care.

Conflict of interest

The authors declare that they have no conflicts of interest.

References

1. Watanabe K, Matsubara K, Nakamoto O, et al. Outline of the new definition and classification of “Hypertensive Disorders of Pregnancy (HDP)”; a revised JSSHP statement of 2005. *Hypertens Res Pregnancy*. 2018; 6: 33–37.
2. Hutcheon JA, Lisonkova S, Joseph KS. Epidemiology of preeclampsia and the other hypertensive disorders of pregnancy. *Best Pract Res Clin Obstet Gynaecol*. 2011; 25: 391–403.
3. Bokuda K, Ichihara A. Preeclampsia up to date-What’s going on? *Hypertens Res*. 2023; 46: 1900–1907.
4. Chappell LC, Cluver CA, Kingdom J, Tong S. Pre-eclampsia. *Lancet*. 2021; 398: 341–354.
5. Xu M, Wang HX, Zu P, et al. Association Between Preeclampsia and Blood Pressure in Offspring: A Systematic Review and Meta-Analysis. *Curr Hypertens Rep*. 2024. doi: 10.1007/s11906-024-01306-3.
6. Hypertension in pregnancy: diagnosis and management. NICE Guideline, No. 133 London, 2019.
7. Gestational Hypertension and Preeclampsia: ACOG Practice Bulletin Summary, Number 222. *Obstet Gynecol*. 2020; 135: 1492–1495.
8. Bollyky JB, Bravata D, Yang J, Williamson M, Schneider J. Remote Lifestyle Coaching Plus a Connected Glucose Meter with Certified Diabetes Educator Support Improves Glucose and Weight Loss for People with Type 2 Diabetes. *J Diabetes Res*. 2018; 2018: 3961730.
9. Kumar S, Moseson H, Uppal J, Juusola JL. A Diabetes Mobile

App With In-App Coaching From a Certified Diabetes Educator Reduces A1C for Individuals With Type 2 Diabetes. *Diabetes Educ.* 2018; 44: 226–236.

an opportunity for improved outcomes in hypertensive disorders of pregnancy: results from an Internet-based survey. *J Matern Fetal Neonatal Med.* 2013; 26: 1565–1567.

10. Wallis AB, Tsigas EZ, Saftlas AF, Sibai BM. Prenatal education is