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Building a multidisciplinary fetal cardiac screening network with community engagement in a region without pediatric cardiac surgery in Japan

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Objective

To establish a regional, multidisciplinary fetal cardiac screening system and to describe collaborative efforts involving healthcare professionals and community members in eastern Hiroshima, where no local pediatric cardiac surgery facilities are available.

Methods

In eastern Hiroshima, where infants with critical congenital heart disease require transfer to tertiary centers outside the region, a multidisciplinary fetal cardiac screening framework was developed. Obstetricians, pediatricians, and sonographers implemented routine fetal echocardiographic screening, with suspected abnormalities referred for detailed fetal echocardiography by pediatric cardiologists. To enhance diagnostic quality and standardization, a multidisciplinary educational forum was established in 2024 involving obstetricians, pediatricians, midwives, and sonographers. Telemedicine-based image sharing enabled consultation between rural clinics and specialists, and public seminars were conducted to promote community awareness of prenatal diagnosis and perinatal care.

Results

This approach enabled earlier identification of suspected fetal congenital heart disease and timely specialist consultation and referral. Telemedicine improved information sharing across geographically dispersed facilities, while educational activities promoted standardization and quality improvement of fetal cardiac screening. Public seminars increased community understanding of prenatal diagnosis and regional perinatal care systems.

Conclusion

A regional, multidisciplinary fetal cardiac screening network can improve the quality and accessibility of fetal congenital heart disease care in areas without local pediatric cardiac surgery services.

By integrating professional collaboration, education, telemedicine, and public engagement, this model provides a practical framework for other regions facing similar healthcare limitations.

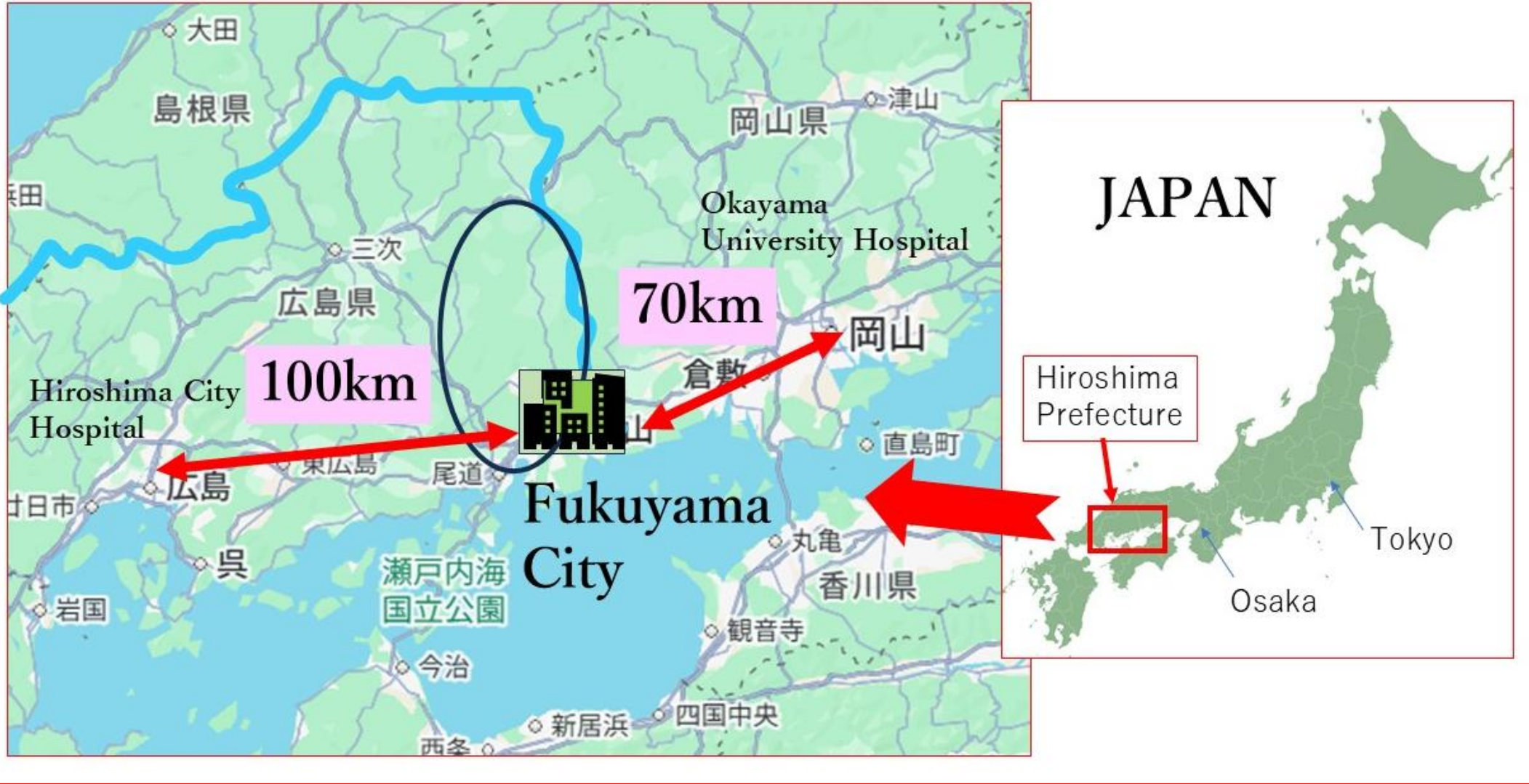


Figure 1. Patients requiring surgery are transferred 70–100 km to tertiary hospitals, highlighting the need for early fetal cardiac screening..

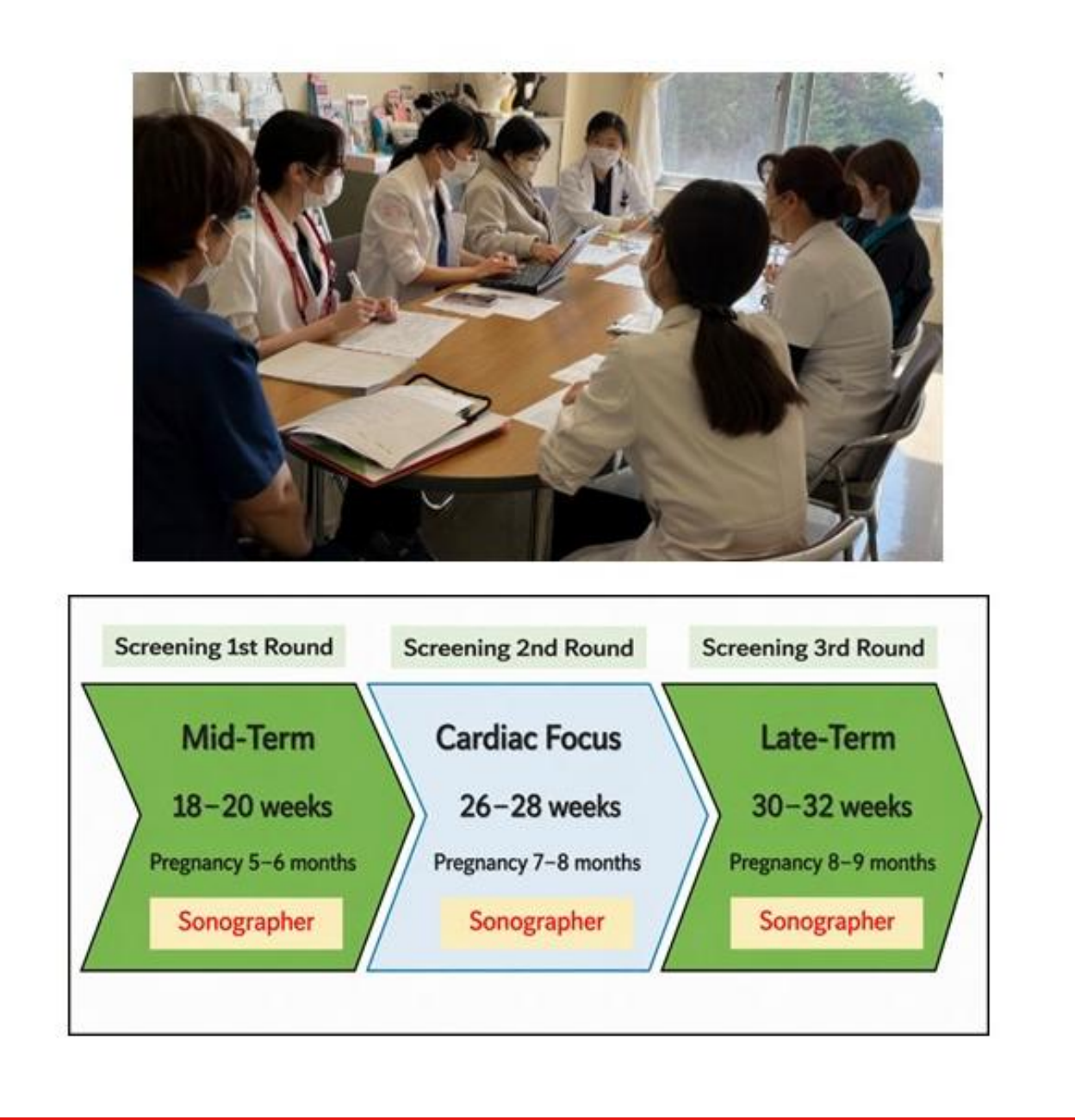


Figure 2. A multidisciplinary team introduced three-stage fetal ultrasound screening for all pregnant women. Suspected cardiac abnormalities are referred for detailed fetal echocardiography.

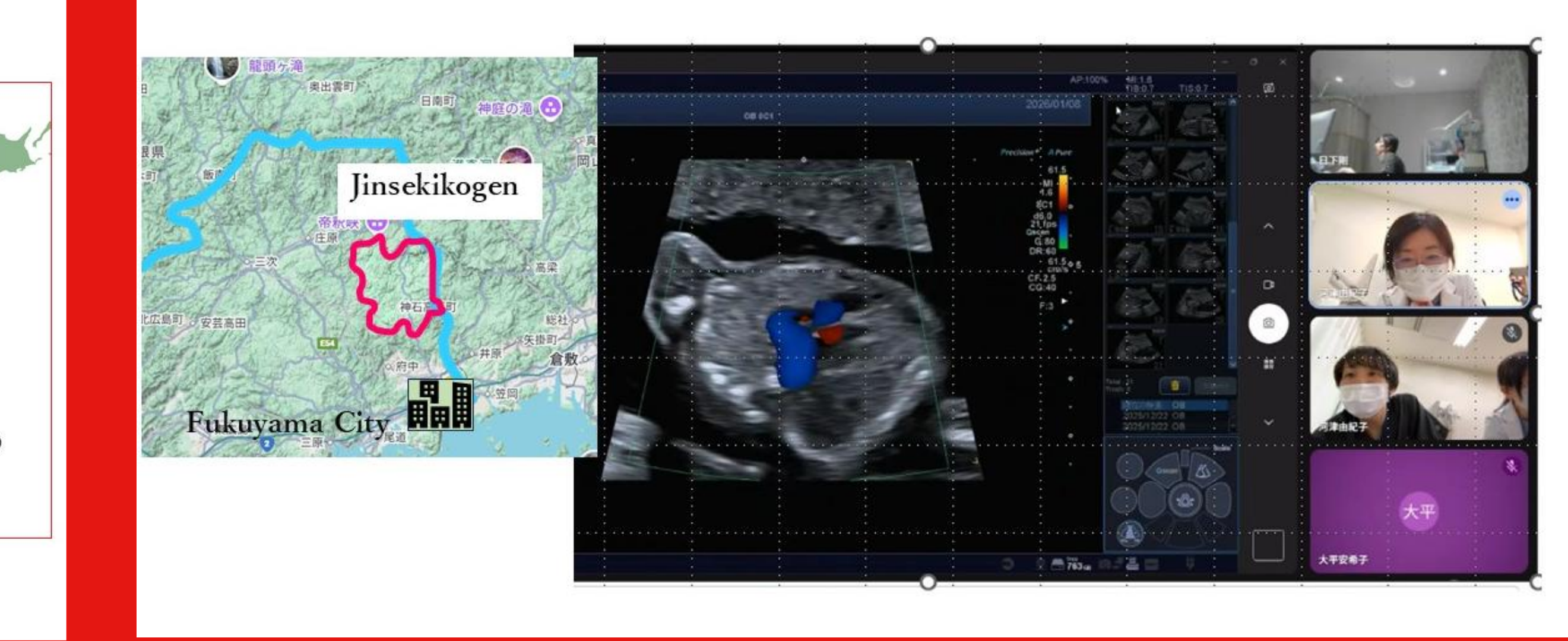


Figure 4. The Apligate tele-ultrasound system enables real-time image sharing between rural clinics and our hospital, improving access to specialist consultation.privacy.



Figure 5. Public seminars increased awareness of prenatal diagnosis and perinatal care. Participants reported better understanding and greater confidence in pregnancy and child-rearing.

Figure 3. We provide multidisciplinary lectures and hands-on training using fetal ultrasound phantoms. The workshop achieved a 94.4% satisfaction rate.