Educational activities in the community and live demonstrations of ultrasonography

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One of the characteristics of Japan's healthcare system is that hospital facilities are of a territorially distributed type; that is, small to medium-sized medical facilities exist in large numbers in this country. Under such conditions, ultrasonic diagnostic methods have come into wide use even among small-sized medical facilities. With a view to enhancing the quality of community medicine, it is important to maintain a more uniform level of diagnostic technique at every facility so that the information can be shared between facilities in the community according to a common standard. However, it is difficult for small or medium-sized facilities to independently provide adequate education and training to sonographers and trainee doctors. Ultrasonography-related educational activities, therefore, should be developed and enhanced in the community. In general, there are many learning methods available to trainees: practical training at a teaching hospital, book-work, web-based learning, and participation in medical meetings held by domestic and international societies as well as study groups in the region. Many seminars providing hands-on training are also held in various areas of Japan. Recently, we in Hokkaido recognized the beneficial educational effects of live demonstrations of an ultrasound examination and have begun to offer the demonstrations at a conference room from a distant hospital via the Internet. There are several advantages to live demonstrations.

Live demonstrations are a form of joint discussion through interactive communication among diverse members. For example, a team performing an echocardiographic

examination will have a varied membership. In the hospital, there will usually be a sonographer, a physician, a surgeon, and a company staff member of the vendor of the ultrasound machine. Also, other physicians and surgeons participate as commentators in the conference room. Such diverse members engage in face-to-face conversations with each other, and debate in real time about how to effectively utilize and accurately interpret the echocardiographic examination simultaneously performed on an actual patient. Supplementary echocardiographic studies are often performed based on commentators' advice. Sometimes, short lectures regarding the related content are provided during the demonstration. Live demonstrations are different from lectures and hands-on training. Unlike a lecture or hands-on training provided by a single lecturer or trainer, various opinions of professionals in each field can be obtained during a live demonstration. Furthermore, bidirectional communication between the examiner and commentators is a considerable advantage over any other form of educational activity. Thus, the participants in the seminar can witness the process of improving an examination through the debate among diverse members.

Live demonstrations have a favorable educational effect evenly in a broad range of participants with varying levels of attainment. From beginners to advanced learners, many participants with varying levels of knowledge and skills of ultrasonography get together at the seminars. If the organizers set a learning goal too high, the educational effect in beginners must be reduced. On the contrary, setting a goal too low makes advanced learners bored. In live demonstrations, however, every participant can find one's own viewpoint commensurate with one's achievement level, because an ultrasound examination performed with an actual patient is shown to them from beginning to end, and for what it is. Despite the fact that the participants have

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varying levels of attainment, all of them will benefit from live demonstrations. Furthermore, compared with hands-on training, this benefit can be obtained much more effectively from live demonstrations. Hands-on training is essentially individualized teaching on a one-to-one basis. Although hands-on training enables finely tuned education that is tailored to the ability of each participant, the number of participants is limited due to extremely low educational productivity. In contrast, a live demonstration yields a similar benefit to more than one hundred participants in a single sweep.

Finally, live demonstrations have an entertainment element. They give participants a realistic sensation and allow them to simulate performing the examination. They can even share a sense of tension with the actual examiner and feel like being not sure what will happen next during the investigation. Such simulated experiences should have a notable impact on their learning process. Moreover, the atmosphere in the conference room gets the participants excited. In fact, live sessions tend to attract a relatively large number of participants. In addition, live sessions are exciting for the members of the live demonstration team, as well. Painstaking collaborative work is required to lead the session to a successful conclusion. When a project can be

completed successfully as a result of much hard work, they get a big thrill. These processes may encourage a sense of unity in the team and promote understanding between team members, resulting in the facilitation of cooperation in the field of community medicine.

In conclusion, live demonstrations of an ultrasound examination offer an exciting opportunity for seminar participants to witness the joint discussion among diverse members and the process of improving an examination in real time through interactive communication among the members. As the whole examination is presented for what it is, every participant can find his or her own viewpoint; thus, all of the many participants effectively enjoy significant benefit from the demonstration. Additionally, the entertainment element is one of the characteristics of live demonstrations, getting both the participants and live team members excited. I thus believe that live demonstrations are ideally suited for educational activities in the community. On the other hand, it costs a considerable amount of money to hold a live demonstration session. Although figuring out how to cover the costs is a major hurdle for the educational community in the area, live demonstrations have great potential for improving the level of education on ultrasonography in every region of Japan.