



## Case Study

Intel® Health  
Government  
Public Health Center

# Improving Visiting Nurse Services

## Moak Public Health Center (MPHC) improves visiting nurse services with Intel's mobile clinical assistant technology

Moak Public Health Center (MPHC) provides medical services to approximately 500 local residents in the village of Moak, in the Younggwang county of Jeonnam, South Korea. MPHC has provided visiting nurse services since 2003, as part of the government policy to extend such services to its citizens. MPHC has tried several technology platforms to improve delivery of medical services for the visiting nurse, for example, using notebook PCs to manage medical data and produce medical reports. However, MPHC found the existing system was limited in its ability to accommodate a high degree of mobility, management of equipment and other non-medical office work. To meet the challenges MPHC decided to pilot a Motion C5 mobile clinical assistant (MCA), a mobile solution that is designed specifically for healthcare and integrates technology from Intel® Health. MPHC is the first public center in South Korea to employ the MCA, which is now enabling MPHC to provide more efficient and higher quality visiting nurse services to local residents.

“MPHC employed mobile clinical assistants based on Intel® Health technology to improve the quality of visiting nurse services.”

Sunmi Kim  
Chief  
Moak Public Health Center

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### Challenge

- **Improve mobility, manage equipment better.** Regular notebook PC designs were challenging to use in a medical environment, due to their general purpose design. Constraints such as the notebook PC's weight, space requirement, and vulnerability to shock and liquid spills were hindering mobility and effective usage.
- **Need an integrated system with multiple functions.** To provide visiting nurse services more efficiently by reducing a long span of visiting nurse consulting time MPHC needed a new solution.
- **Improve quality and productivity.** MPHC wanted a system on which they could store and access patient medical and prescription records so that the caregiver could provide more accurate and faster services to more patients while improving patients' trust in the medical services.

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### Solution

- **Deploy Motion Computing C5 MCA and ITN\* visiting nurse information system.** MPHC employed a MCA built on Intel® Health technology that features an integrated barcode reader, digital camera and is water-proof to access to the patient information system.
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# MPHC wanted to provide more efficient, higher quality of care to patients in their homes.

## Assessing the Situation

MPHC provides various medical services that include customized visiting nurse medical services, medical services for elderly people who live alone and other medical services such as health consulting, disease prevention, and chronic diseases. MPHC has been providing visiting nurse services since 2003 to people who are unable to travel to the medical center, and prides itself on setting a good example for efficient visiting nurse services to 2,000 other public health centers around South Korea.

MPHC is a small public health center with one nurse for Moak village. With 500 residents, this is not an easy job. For example, the paperwork involved after providing nursing visits is time-consuming, as precious time is required to manually document related case data draft medical reports for records. This time consuming work affected medical service quality.

MPHC tried using a notebook PC to manage medical data and medical reports, including administrative work, but found using a notebook PC to be restrictive. First, the weight of the notebook PC became a burden to the caregiver when visiting up to 30 households a day, situated at different locations across the village.

Second, the vulnerability of impact to the notebook PC restricted the nurse mobility during travel because she had to take extra care to prevent damage to it while carrying medical equipment required in providing visiting nurse services.

Third, it was a challenge to manage a notebook PC that was not designed to be water proof because liquid medicine and reagents used by the nurse could spill onto the notebook PC and result in losing medical data.

Another challenge MPHC faced with the notebook PC was the limited functionality and lack of built-in integration with devices needed to carry out medical services. For example, each household receiving visiting medical services has a barcode label on its front gate. The caregiver has to scan the label with a barcode reader to confirm the patient and then search for the patient's medical records on the notebook PC. She then proceeds to take a photo of the patient's wounds as she begins her medical examination. This requires the nurse to carry the notebook PC, a barcode reader, and a camera along with any medical equipment and

supplies, making traveling from house to house cumbersome.

The exact location of the patient also contributes to the difficulty in using the notebook PC, for example, out in the paddy fields, in two-wheeled vehicles or on a patch of ground. The form factor of the notebook PC with its hinged screen makes it difficult for the nurse to accurately key in patient information while trying to balance it on uneven ground. She has to resort to writing her notes on paper and manually key it into to the notebook PC upon returning to the public health center. This adds the risk of inaccuracy in data entry which directly affects the quality of visiting nurse services MPHC provides.

Finally, transferring the medical data collected in the field into the notebook PC is usually delayed as the nurse has to attend to patients waiting at the medical center first. Consequently, medical records take from several hours to a few days to be filed into the notebook PC.

MPHC wanted to solve the difficulties related to portability, mobility, and manageability of a notebook PC while minimizing the burden on the caregiver by employing a mobile solution integrated with multiple functions necessary for visiting nurse services and accelerating the speed of transferring medical reports. To meet these needs MPHC decided to employ a Motion C5 mobile clinical assistant, which is, based on a platform designed specifically for healthcare by Intel.

### Spotlight: Moak Public Health Center (MPHC)

- MPHC provides 500 villagers with various medical services including in-home health consulting.
- MPHC provides faster and more convenient services through visiting nurse services.
- MPHC is the first public health center to employ the mobile clinical assistant, and sets a good example to other public health centers for efficient visiting nurse medical services.



## Delivering the Solution

The new solution that MPHIC sought must support efficient medical services and other office work by improving mobility of the caregiver providing field medical services in the field.

MPHC looked at the C5 mobile clinical assistant from Motion Computing for a solution that would meet its needs. MPHIC decided to carry out a pilot for two months using a tablet PC, a Mobile Clinical Assistant (MCA) and the Nursing Home Information System\* from ITN. MCA is a mobile solution that is designed specifically for healthcare and integrates technology from Intel® Health. Embedded with appropriate software, the MCA enables clinicians to access patient care records at the point of care and document a patient's condition in real time, reducing transcription errors, enhancing workflow, and delivering faster, safer care.

Intel provided the hardware, technical support and public health seminars to the caregiver in different public health centers to enhance their understanding of MCA, which benefited MPHIC.

MPHC immediately began experiencing the benefits of the MCA during the pilot. The caregiver found the MCA, weighing 1.3 kg, to be very light and easy to travel with. The MCA has an attached handle making it easier to carry around. It is also water proof, allowing caregiver to focus on treating patients without worrying about medicinal fluids and reagents spilling onto the device.

Sunmi Kim, the chief of MPH explains, "Managing the device became much easier because of MCA's shock-resistant and sealed exterior which reduces the likelihood of damage and the

possibility of losing medical data."

The MCA is equipped with an integrated barcode reader and a digital camera which reduces the number of devices the nurse has to carry from three to one. With the barcode reader directly integrated into the MCA's software, the clinical assistant simply scans the barcode label on the gate of the patient's house and the patient's medical information is retrieved instantly and automatically. This frees the caregiver to begin her patient examination and treatment almost immediately. With the digital camera integrated into the MCA, the nurse is able to take instant photos of the patient's wounds which are immediately tagged into the patient's medical records so that healing can be tracked.

"With the MCA's integrated barcode reader and camera, I can examine double the number of patients than previously in the same amount of time," says Sunmi Kim. As a result, MPHIC is twice as productive and has reduced patient waiting time with the MCA as compared to the previously used notebook PC.

MPHC's experience with the MCA has been positive in other aspects. Sunmi Kim explains, "The integrated functionality of the MCA helps us save money, as we don't have to buy additional devices. The MCA's two batteries providing 7 hours of power in total is a big improvement over the notebook PC's one hour, enabling me to work out in the field without worrying about power."

The MCA also enables MPHIC to be more efficient in administrative work. This is because the MCA automatically transfers all patient data to the central EMR sever through a docking system in the public health center. This improves overall



**"With the multiple functions of camera and barcode reader integrated into the MCA, we can save the cost of buying equipment separately."**

Sunmi Kim  
Chief  
Moak Public Health Center

## Key Technologies

- The mobile solution with the mobile clinical assistant, designed by Intel specifically for healthcare plays a key role in providing visiting nurse services more accurately and faster.
- Mobile clinical assistant designed with Intel® Health technology offering an integrated digital camera, barcode scanner, shock-resistant and spill-proof exterior casing and handle is easy to manage and use for mobile clinicians.

## Integral Answers

- MPHIC could improve the quality of visiting nurse medical services by providing it efficiently with the mobile clinical assistant.
- With the mobile clinical assistant built with Intel Health technology MPHIC could minimize in-home consulting time and improve efficiency in office work by saving time for manually writing and transferring medical reports.

medical services as the caregiver gain more accurate and up-to-date medical records in the course of their work.

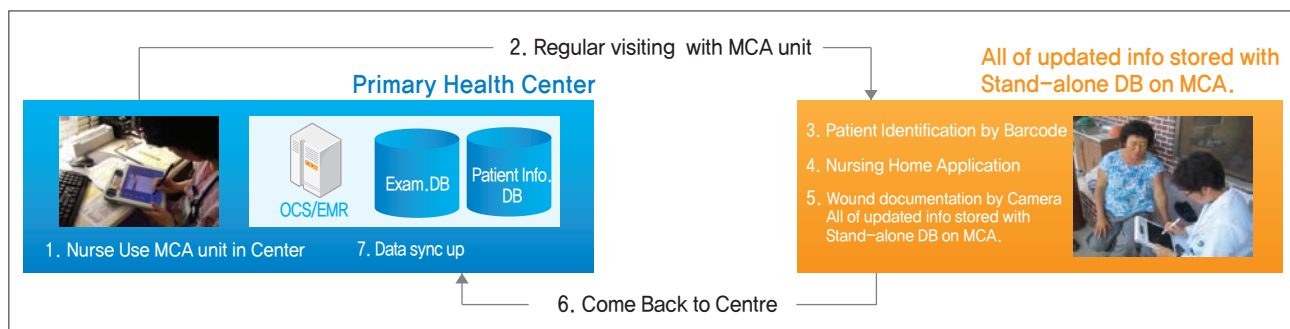
As a result of the successful pilot and the needs of MPHIC, about 2,000 public health centers across the country are planning to deploy the MCA in future.

**Find a business solution that is right for your hospital or healthcare system. Contact your local Intel representative or visit the Intel Digital Health Web site at**

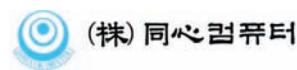
[www.intel.com/healthcare](http://www.intel.com/healthcare).

### Return on Investment

- By employing the MCA, based on Intel® Health technology, MPHIC provides more efficient visiting nurse services through improved mobility.
- With MCA featured with remarkable integrated functions MPHIC could improve productivity by reducing medical examination process time by ½ and work efficiency by automatically transferring patient information to the main EMR sever.
- MPHIC improves patients' trust by providing more accurate medical information based on point-of-care access to patients' past medical and prescription records with the MCA.



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