

TECHNOLOGY & MEDIA

WSJ.com/Tech

Elder Care in Japan Propels Innovation

Startups' monitors keep track of patients' vital signs and assess the chances of a fall

By SURYATAPA BHATTACHARYA

TOKYO—Takahiro Taniguchi is walking down the hall at the home for senior citizens where he works when his wireless earbuds signaled him: A resident was ready to be escorted to the bathroom.

The alert came from the ultrasonic bladder sensor taped to the resident's abdomen.

"We've cut down on incontinence in some patients," says the 28-year-old Mr. Taniguchi.

In a country with one of the world's fastest-growing elderly populations and a tight labor market, the demand for senior care is driving innovation and spawning startups. Like other gadgets that got their start in Japan—from the Walkman to the email-displaying cellphone—the resulting devices might go global over the next few years.

Atsushi Nakanishi, an entrepreneur educated at the University of California, Berkeley, initially intended the DFree (for "diaper-free") for users to monitor their own bladders. Then he realized it could help caregivers.

"They just need to know if they take someone to the bathroom, whether it will happen or not," he says.

The device is used in 150 nursing homes in Japan, and Mr. Nakanishi is preparing to take it to the U.S. He has



A volunteer singer at a nursing home in Japan last week. Information-technology advances are reducing the burden on caregivers.

raised \$15 million, including \$10 million in equity from venture capitalists.

With public health insurance and other programs providing most of Japan's health-care spending—which equals about 11% of gross domestic product, according to the Organization for Economic Cooperation and Development—the government is looking to hold down costs. That includes the cost of health care for the elderly, which the government forecasts will reach \$298 billion in 2025, as people older

than 65 grow to nearly one-third of the country's population of roughly 127 million. Those over age 90 are expected to increase to more than three million over the same period.

"This has spurred some inventions," says Kazumi Nishikawa, director of the industry ministry's health-care division. "The government is trying to bridge the gap between doctors and IT." The goal is to keep the elderly in their homes longer, with information technology reducing

the burden on caregivers.

In the U.S., where health-care spending equals 17% of GDP, people over 65 will outnumber those under 18 by 2035, according to the Census Bureau.

Of the 92 Japanese startups seeking to be valued at \$1 billion or more, 25 are focused on health care, according to the government. Much of the backing doesn't come from venture capital—which sank just ¥3.5 billion (\$32 million) into medical equipment and health-care services in the

third quarter of 2018, according to the Tokyo-based Venture Enterprise Center—but from large companies looking for growth businesses.

Tatsuya Takahashi received support from Sharp Corp. and medical-equipment maker Canon Inc. when he co-founded Z-Works in 2015, seeking to improve patient monitoring after he missed being present when his grandmother and father died. Two years later he formed a partnership with a unit of insurance company Sampo Hold-

ings Inc. to put his gear into more than 100 nursing homes in Japan.

At the Sawayaka-en nursing home outside Tokyo, whose residents average 86 years old, 48 rooms have been equipped with four devices that monitor the occupants and stream data to the nurses' station using software designed by Z-Works. Under the bed, a palm-size Doppler radar sensor, developed with Sharp, monitors heartbeat and breathing. Other devices track whether people are at risk of falling out of bed or are taking too long to return from the toilet. "If there's an irregular reading, a caregiver can go check to prevent a fall," says Mr. Takahashi.

Cardiologist Masahiko Hara, a videogame fan in his youth, developed a system for stroke rehabilitation that takes a cue from augmented-reality games such as "Pokémon Go," in which players chase animated monsters superimposed on the real-world images captured by a smartphone's camera. Stroke patients wearing virtual-reality goggles catch balls or move objects that appear to pop up in front of them.

Clinical trials are under way. Dr. Hara hopes to sell goggles with his software to hospitals, which could then rent them to patients. He says they might be especially useful for patients in remote areas where therapists are in short supply.

"Repetitive rehab is time-consuming," he says. "With this, doctors and therapists can focus on the treatment."

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