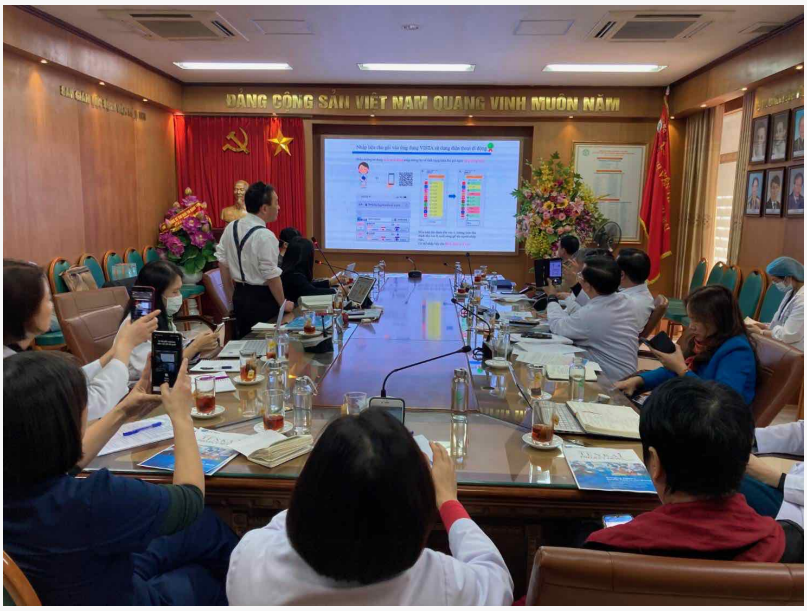
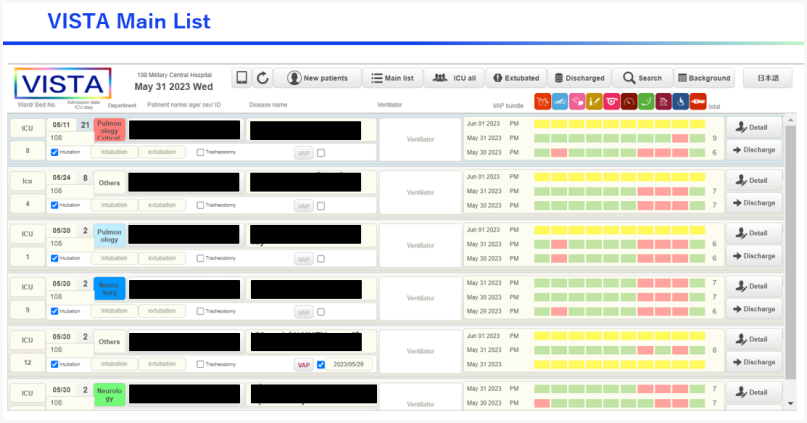
# Tackling to Reduce the Incidence of Ventilator-Associated Pneumonia in Vietnam with an ICU System Made in Japan

TOKYO, JAPAN, August 10, 2023 /EINPresswire.com/ -- Vietnam has the highest mortality rate for ventilator-associated pneumonia (VAP). In order to prevent VAP, it is crucial to implement the VAP bundle. The National Center for Global Health and Medicine (Shinjuku-ku, Tokyo; President: Norihiro Kokudo; hereinafter NCGM) and TXP Medical Co. Ltd. (hereinafter TXP Medical) jointly developed a system to improve compliance with the VAP bundle and implemented this system to Bach Mai Hospital and 108 Central Hospital in Vietnam.



Dr. Okamoto (NCGM) explains about VISTA at the hospital in Vietnam.



VISTA (VAP bundle's Ideal System To Aid patients)

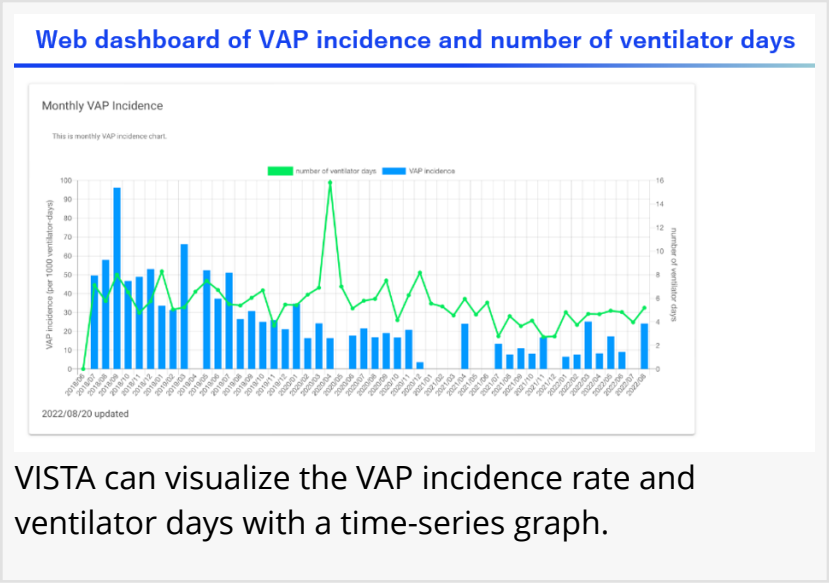
NCGM and TXP Medical are moving forward with this project with the grant program “Projects for the Growth of Medical Technologies” supported by the Ministry of Health, Labour and Welfare.

Background

VAP is a type of pneumonia that occurs within 48 hours of being put under mechanical ventilation onwards in patients under tracheal intubation. In Intensive Care Units (hereafter ICU) in Japan, VAP occurs in 3-4% of all hospitalized patients *1), and the overall infection rate for VAP is 12.6 cases per 1000 ventilator-days *2) The incidence rate of VAP increases by 3% during the first five days from the initiation of mechanical ventilation, 2% from five to ten days, and 1% thereafter day by day. *3) Therefore, it is critical to

take appropriate measures to prevent ICU patients from having VAP.

Ventilator days： It's calculated with the number of patients on mechanical ventilation per day in that ICU e.g.：The case of 2 patients on mechanical ventilation for 2 days is calculated as "4".



VISTA can visualize the VAP incidence rate and ventilator days with a time-series graph.

Differences between Vietnam and Japan
The characteristics of the ICU in hospitals differ in both countries, such as the number of ICU beds. An ICU generally has 10-30 beds in high-level hospitals in Japan. On the other hand, it has 50-100 ones in the ones in Vietnam. According to the ICU physician in Vietnam, the proportion of intubated patients is much higher in Vietnam compared to the one in Japan.

Comparing the incidence rate of VAP in Japan and Vietnam, it is reported that 5-10 cases per 1,000 ventilator days in Japan and 10-20 cases per 1,000 ventilator days in Vietnam, which means twice as much as one in Japan. However, we assume it's much higher in reality as the precise number of VAP cases in Vietnam is unknown yet, as the reporting system for VAP itself has not been well established.

The mortality rate of VAP is reported as 40%4) in Vietnam, which is incredibly higher than the one in Japan as VAP can rarely be a direct cause of death in Japan.

VAP prevention bundle *5)
The Japanese Society of Intensive Care Medicine recommends implementing the bundle to prevent VAP.
(1) Ensure hand hygiene
(2) Avoid frequent ventilator circuit exchanges
(3) Ensure appropriate sedation and pain relief, oversedation
(4) Evaluate the patient's condition for weaning from the ventilator daily
(5) Avoid keeping mechanically ventilated patients in a supine position

Challenges to prevent VAP
A large number of ICUs in Vietnam are currently not fully complying with the VAP bundle. Before, NCGM has been tackling to improve the compliance of VAP bundles in ICUs in Vietnam. However, it has not always been successful as the paper-based solution was not enough to change the operation on the ground as well as maintain it on a daily basis.

Therefore, Dr. Tatsuya Okamoto, Chief of the Department of Intensive Care in NCGM, and TXP Medical developed VISTA (VAP bundle's Ideal System To Aid patients) and have begun implementing it in Bach Mai Hospital and 108 Military Central Hospital.

VISTA Overview
VISTA is a system where medical staff in the ICU can check the bundle items daily, visualizing and sharing the compliance status of the bundle items by the patient and by the department in real-time to prevent VAP in intubated patients in an ICU. Through the usage of the system, we aim that hospitals can improve the compliance rate of the bundle itself and reduce the mortality due to VAP. Users can browse the daily bundle compliance status and input the data via desktops as well as mobile devices. The bundle compliance status can also be visualized cumulatively and monthly. The dashboard can visualize the VAP incidence rate and ventilator days with a time-series graph.

Future vision with VISTA
We expect that hospitals will be able to manage patients with VAP independently, reducing the number of cases eventually with VISTA. We are going to move forward to develop better ICU solutions with the insights we got from the experience where we developed VISTA to further contribute to healthcare in Vietnam.

Reference
1)Takezawa J: Study of clinical indicators of hospital infections in intensive care units. Study on the Network of Outbreak Trends of Drug-Resistant Bacteria. Ministry of Health, Labour and Welfare, 2002
2)Suka M, Yoshida K, Uno H, et al.: Incidence and outcomes of ventilator-associated pneumonia in Japanese intensive care units; the Japanese nosocomial Infect Control Hosp Epidemiol 2007, 28: 307-313.
3)Cook DJ, Walter SD, Cook RJ, et al.: Incidence and risk factors for ventilator-associated pneumonia in critically ill patients. Ann Intern Med 1998, 129: 129 440
4)ncbi.nlm.nih.gov/pmc/articles/PMC5631117/pdf/ofx163.1679.pdf
5)jsicm.org/pdf/VAPbundle2010kaitei_ENGLISH.pdf
6) minds.jcqhc.or.jp/docs/minds/ICUIP/04_Ch4_ICUIP.pdf

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