Easier data access: Charité working with SDC

Dräger devices in intensive care units communicate with the hospital HIS based on the ISO/IEEE-11073 SDC\(^1\) standard

- Transfer vital signs and ventilation data from medical devices directly to the PDMS
- Interoperability standard overcomes system limits and paves the way for digital medicine

Lübeck – The Charité – Universitätsmedizin Berlin has been working together with Dräger to significantly improve the communication between medical devices and the hospital’s central information system (HIS). The solution, which is based on the SDC standard, was implemented in an area of the hospital responsible for providing critical care to coronavirus patients. The exchange of interoperable and standardized data is a key factor for the successful digitalization of medicine in hospitals.\(^2\) The optimized data exchange in the Charité hospital is based on interoperability standard ISO/IEEE-11073-SDC: This makes it possible for medical devices to exchange data, such as analysis results or findings, with each other and with hospital-wide information systems independent of the manufacturer. There is no longer any need for manufacturer-specific codes or to program additional interfaces.

The recently launched intensive care ventilators from the V family (Evita V600 and Evita V800) by Dräger can now be connected directly to the hospital’s HL7 communication system. SDC corresponds with existing hospital communication standards, such as HL7 2.0 and in the future FHIR. The Dräger intensive care ventilators transmit measured data, curves, set values, and alarms to a central gateway, which connects to the hospital’s PDMS.

“SDC helps us process the medical-grade therapy information provided by medical devices directly in Charité’s data processing systems, among other things. The reduction in the number of interfaces also reduces the administrative effort for setting up new intensive care stations,” says Prof. Dr. Lehne M. et al.: Why digital medicine depends on interoperability, npj Digital Medicine (2019)2:79; https://doi.org/10.1038/s41746-019-0158-1

\(^1\) Service-Oriented Device Connectivity

Sylvia Thun, Director of eHealth and Interoperability at the Berlin Institute of Health (BIH). The BIH is involved in a research collaboration with the Charité – Universitätsmedizin Berlin.

Secure in both directions
In contrast to existing communication architecture, SDC significantly improves the availability and processing of data by medical devices, and increases security. Time synchronization is one main benefit of the direct connection to the central server capacities: the timestamp of determined examination values or medical events complies with the time signal from the central NTP (Network Time Protocol) server. Thus these data can be reflected and correctly evaluated in the PDMS/HIS. This reduces the documentation work for medical interventions for Charité employees and improves the legal compliance of the files. The mutual authentication also ensures that only approved devices and systems can exchange information. During transmission, data is protected by state-of-the-art encryption (end-to-end) based on certificates. This enables tamper-proof communication and protects the system from hacker attacks.

The Evita V600 and Evita V800 ventilators are manufactured by Drägerwerk AG & Co. KGaA.

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Images:

Picture 1:

SDC (Service-Oriented Device Connectivity) enables direct data exchange between medical devices and the hospital PDMS at the Charité, Berlin (© Drägerwerk AG & Co. KGaA).

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Contact

Communications:
Melanie Kamann
Tel +49 451 882-3998
melanie.kamann@draeger.com

Press contact:
Markus Henkel
Tel. +49 451 882-4598
markus.henkel@draeger.com

Investor Relations:
Thomas Fischler
Tel +49 451 882-2685
thomas.fischler@draeger.com

Drägerwerk AG & Co. KGaA
Moislinger Allee 53-55
23558 Lübeck, Germany
www.draeger.com

www.twitter.com/DraegerNews
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