

Wireless Remote Sensing of Changes in Fluid Filled Containers

Tech ID: 24673 / UC Case 2014-499-0

SUMMARY

UCLA researchers have developed a novel device and method for continuous and dynamic monitoring of patient fluids that can be used to quickly detect discrepancies suggestive of complications before or after surgery.

BACKGROUND

Fluid management is a critical aspect of patient care, particularly for elderly patients and patients pre- and post-surgery. The UK's Care Quality Commission has described fluid management at many hospitals as "appalling", with over 1,100 patient deaths in the past ten years due to poor fluid management. Hospitals attribute this poor care due to issues such as inadequate staffing, lack of time, and lack of training. Since fluid management is sensitive and time-intensive, a major challenge is the difficulty to monitor every patient's fluids to a sufficient level of attention with a finite staff. Trials of remote sensing of patient metrics, such as blood pressure, have been successful in reducing hospital visits and medical costs by increasing accuracy and amount of data, while lowering amount of staff time necessary to take the data. However, for accurate fluid management, staff must measure and analyze the fluids, their flow rates, and their compositions in order to ensure quality care. The development of a technology which can remotely monitor these metrics will reduce the costs, complications, and deaths related to fluid management.

INNOVATION

Prof. William Kaiser, Dr. Dieter Enzmann, Dr. Jay Moon Lee and colleagues have developed a novel device and methods for continuous and dynamic monitoring of patient fluids, which can monitor and quantify patient conditions. This technology can be used to quickly detect discrepancies which may be signs of complications before or after surgery. The data collected can be viewed or analyzed on a number of devices, including computers or mobile devices, and would decrease the necessary time for staff to attend patients and measure the necessary data.

APPLICATIONS

- ▶ Remote monitoring of patients and fluids without the need for in-person checks
- ▶ Monitoring of patients before and post-surgery for early complication identification

ADVANTAGES

- ▶ Remote sensing requires fewer staff-hours per patient compared to in-person fluid management
- ▶ Collected data, including fluid rates and composition, allow for early identification of problems which may be missed by sensors which do not measure composition

STATE OF DEVELOPMENT

Complete system design is accomplished, consisting of elements which have individually proven to be operational.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	2019-017869	06/13/2019	2014-499

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INVENTORS

- ▶ Enzmann, Dieter R.

OTHER INFORMATION

KEYWORDS

Biosensor, therapeutics, remote monitoring, remote sensing, surgery, complications, early identification, fluid management, fluid monitor, composition sensor

CATEGORIZED AS

- ▶ **Biotechnology**
 - ▶ Bioinformatics
 - ▶ Health
- ▶ **Medical**
 - ▶ Devices
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 - ▶ Software
 - ▶ Therapeutics
- ▶ **Sensors & Instrumentation**
 - ▶ Biosensors
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