**WE CLAIM:**

1. A system to detect impending cardiac decompensation of a patient, the system comprising:

circuitry (130, 134, 136, 138, 152) to measure an impedance associated with the patient and a temperature of a skin of the patient; and

a processor system (100, 102, 106, or 146) comprising a tangible medium in communication with the circuitry (130, 134, 136, 138, 152), the processor system (100, 102, 106, or 146) configured to calculate a hydration measurement based on the measured impedance and corrects the calculated hydration measurements based on the measured skin temperature of the patient, wherein the processor system utilizes the corrected hydration measurement to detect the impending cardiac decompensation of the patient.

2. The system as claimed in claim 1, wherein the processor system (100, 102, 106, or 146) comprises a least one processor a location remote from the patient configured to detect the decompensation.

3. The system as claimed in claim 1, wherein the processor system (100, 102, 106, or 146), supported with the patient, receives instructions transmitted from a remote site and calculates the hydration measurement in response to the instructions to detect the impending cardiac decompensation.

4. The system as claimed in claim 1, wherein the circuity (130, 134, 136, 138, 152) measures one or more of an electrocardiogram signal of the patient, a respiration signal, and an activity signal and combines the one or more measured signals with the corrected hydration measurement to detect the impending cardiac decompensation.

5. The system as claimed in claim 4, wherein two or more of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal are measured and combined with the corrected hydration measurement to detect the impending cardiac decompensation.

6. The system as claimed in claim 4, wherein the processor system (100, 102, 106, or 146) simultaneously uses the one or more of the electrocardiogram signal, the respiration signal or the activity signal in combination with the corrected hydration measurement to determine impending cardiac decompensation.

7. The system as claimed in claim 4, wherein the processor system (100, 102, 106, or 146) combines the one or more of the electrocardiogram signal, the respiration signal or the activity signal with the corrected hydration measurement in response to a time of day.

8. The system as claimed in claim 4, wherein the activity signal comprises an accelerometer signal to determine a posture of the patient.

9 The system as claimed in claim 8, wherein the accelerometer signal comprises a three-dimensional inclination signal to determine a three dimensional orientation of the patient.

10. The system as claimed in claim 4, wherein the processor transmits the one or more of the electrocardiogram signal, the respiration signal or the activity signal to a remote site where the one or more of the electrocardiogram signal, the respiration signal or the activity signal are combined with the corrected hydration signal_to detect the impending cardiac decompensation.

11. The system as claimed in claim 4, comprising transmitting instructions from a remote site to a processor supported with the patient, and wherein the processor combines the one or more of the electrocardiogram signal, the hydration signal, the respiration signal or the activity signal with the corrected hydration signal in response to the instructions to detect the impending cardiac decompensation.

12. The system as claimed in claim 1, wherein the circuitry (130, 134, 136, 138, 152) places a voltage and/or current at one or more of electrodes connected to the circuitry (130, 134, 136, 138, 152) having a frequency between 0.5 kHz and about 20 kHz such that the hydration measurement corresponds to the extracellular fluid of the patient.

13.The system as claimed in claim 1, wherein the processor system (100, 102, 106, or 146) corrects the calculated hydration measurement by lowering the hydration measurement in response to an increase in measured skin temperature.

14. The system as claimed in claim 1, wherein the processor system (100, 102, 106, or 146) corrects the calculated hydration measurement by increasing the hydration measurement in response to a decrease in the measured skin temperature.

15. The system as claimed in claim 1, wherein the processor system (100, 102, 106, or 146) corrects the calculated hydration measurement such that the hydration measurement remains substantially unchanged when the measured impedance decreases and the skin temperature increases.

Dated this 26th day of April, 2017

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