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## **Respiration rate V&V - DIGIPREDICT Physiopatch**

DIGIPREDICT

#### Introduction

The **Digipredict Physiopatch** is a wearable research tool capable of measuring respiratory rate, skin temperature, SpO2 and heart rate. This poster reflects the activities performed for



pre-validation verification the and of Physiopatch's respiratory signals from the chest.



#### **Step 1. fixed resistors Step 2. Patient simulator Step 3. Human tests**

#### **Increasing complexity**

### Results

### Verification (Step 1): Static raw Z

- Controlled set of static impedances
- **Benchtop characterization**



#### **Pre-validation Step 3: Controlled** respiration

- First in human tests \_
- Internal ethical procedures (INMEC)

No patch (flying leads)

### Verification (Step 2): Dynamic Z

- Patient simulator (resp signals)
- RR's 10 to 35 breaths per minute
- **Benchtop characterization**
- Benchmark with and without patch



**Performance at different** 

- Controlled RR's 10 to 35 breaths per min
- N=10 subjects \_
- With patch



*impedance changes* 

Raw Signals with patch and lead wires

under controlled respiration

## Conclusions

- The Digipredict Physiopatch is capable of recording physiological baseline impedances (500-1000 ohm)
- The Digipredict Physiopatch can record respiratory rates between 10-35 BPM.
- The **Digipredict Physiopatch error in respiratory rate is less than 1 BPM** (provided that change in impedance > 0.05 ohm)
- The Digipredict Physiopatch can differentiate respiratory rates with a resolution lower than 1 BPM



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Roberto Garcia van der Westen, Gabriela Yordanova, John Morales, Willemijn Groenendaal, Carlos Agell (IMEC-NL)