

### **How measurements can contribute to improved healthcare?**

In preparation for the call 'Metrology for Health' that is issued in the European Metrology Programme for Innovation and Research (EMPIR), VSL organized a workshop and networking meeting on the 29<sup>th</sup> of November 2017, which brought together more than 20 participants from medical industry, universities and academic hospitals. The aim of the workshop was to exchange knowledge and to explore collaboration opportunities in future research projects.

During the workshop, two presentations were given and a variety of topics in which improved measurements can contribute to healthcare were proposed and discussed. The presentations, Radiation dosimetry for MR linacs by Bas Raaymakers (UMCU) and breath analysis using VOC's by Hugo Knobel (Philips), were examples of health subjects which have shown to benefit from accurate measurements and metrology. The discussed topics were driven by current clinical and technological developments and were categorized in the following way:

- From subjective to objective measures.  
E.g. image quality of mammography images in the screening for breast cancer, which is nowadays assessed by human observers
- Measurement data from medical devices needed as input for physical and mathematical models used in clinical practice.  
E.g.: Measurements for treatment planning software in radiotherapy and radionuclidetherapy
- Measurements for personalized medicine:  
E.g. Drug release from microbubbles activated by ultrasound
- Improvement accuracy for measurements underpinning medical decisions.  
E.g. flow rate measurements in by-pass operations
- New detection methods for diagnostics  
E.g. use of (magnetic) particles  
Key element in all topics was how to bring measurements under lab conditions to a clinical setting.

### **More information**

During this meeting, several consortia were formed. Please contact Jacob Jan de Boer if you would like to learn more about the EMPIR programme, the topics discussed during the workshop, or when you would like to collaborate within future projects.

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