

Newsletter

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EMPIR



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Welcome

It is a great pleasure to welcome you to the first newsletter of the project “Metrology for drug delivery”.

We greatly appreciate the opportunity to make contact with potential users of the knowledge generated and disseminated by this project, and we will endeavour to provide regular updates on news and events of interest.

After the successful completion of the first project, which became known as MeDD, in summer 2015, many new ideas, problems, and questions are on the agenda of this follow-on project – MeDD II. The overall aim of this project is to improve dosing accuracy and to enable the traceable measurement of volume, flow and pressure in existing drug delivery devices and in-line sensors operating at very low flow rates. This will be achieved through the development of new calibration methods and by expanding the existing metrological infrastructure. This project will also investigate fast changing flow rates, which are step changes between two flow rates within a second, the physical properties of mixtures of liquids and occlusion phenomena in multi-infusion systems in order to prevent inaccurate measurement results and thus to improve patient safety.

The project is funded by the European Metrology Programme for Innovation and Research (EMPIR). It brings together various partners working in metrology from National Metrology Institutes (NMI), industry, and academia to create innovative solutions to identified drug metrology challenges within European and exploitable globally.

I hope you will find valuable information in the newsletter. We are interested to keep in contact with you as stakeholders, users, or interested persons, and we are looking forward welcoming you in our project community.

Elsa Batista

Coordinator

News and facts

- MeDD II project was launched on 1 June 2019 and will be active for 36 months. It has an investment of €1.6 million from the EMPIR Programme. The full title of this European project is “Metrology for Drug Delivery II”.
- The first meeting was held at IPQ, the National Metrology Institute for Portugal, from 1 to 2 of July 2019.



- The website of MeDD II is www.drugmetrology.com
- The consortium has 15 partners from 11 countries including: 9 National and Designated Metrology Institutes (IPQ – Portugal, CETIAT – France, CMI – Czech Republic, DTI – Denmark, METAS – Switzerland, NEL – United Kingdom, NQIS – Greece, RISE – Sweden and KRISS – Korea), four companies (DNV GL – The Netherlands, Hahn-Schickard – Germany, INESC MN – Portugal, BHT – The Netherlands) and two University Hospitals (THL – Germany, UMCU – The Netherlands).

Highlights from the work packages

The project is divided into four technical work pages with the following specific objectives:

- 1- To develop new traceable techniques for generating and measuring the response or delay time of drug delivery devices regarding changes in flow rate, from 5 nL/min to 100 nL/min, using Newtonian liquids (WP1).
- 2- To upgrade the existing flow facilities and knowledge of the partner NMIs in order to enable the traceable in-line measurement of the dynamic viscosity of Newtonian liquids, as a function of the flow rate and pressure difference, with a target uncertainty value of 2 % (k=2) (WP2).
- 3- To develop and validate novel calibration procedures for existing medical flow devices (e.g. infusion pumps, pain controllers and infusion pump analysers) with traceability to a primary standard and with a target uncertainty value of 2 % (k=2) for a range of 5 nL/min up to 600 ml/min and also to develop a proof-of-concept on-chip microfluidic pump used as a transfer standard in drug discovery and organ-on-a-chip applications for flow rates lower than 100 nL/min (WP3).

- 4- To design and develop a multi-infusion system containing check valves, with several options for testing how liquids, with different viscosities mix and flow and how this affects drug concentration (WP4).

Dissemination of work

One of the first tasks is to collect information within the stakeholder community regarding the use of drug delivery devices so in the framework of work package 4 "Design and characterization of a multi-infusion system", the consortium of the project asks clinical users multi-infusion setups for information on current clinical practice. The questionnaire can be found [here](#).

MeDDII experts are actively engaged with the impact on standardization, therefore comments to ISO 7668-2 and IEC60601-24 were sent to the respective ISO TC committees.

The project was presented at two conferences, namely FLOMEKO 2019 and CIM 2019, the presentations and paper are available on our webpage.

One publication is now available in the Journal of Diabetes and Treatment - Calibration of insulin pumps, the complete paper can be found [here](#).

Also IPQ presented a paper on MeMea2019, the document can be found [here](#).

How to contact us

MeDD II project coordination

Elsa Batista from IPQ

Email: ebatista@ipq.pt

Scientific leader

Hugo Bissig from METAS

Email: Hugo.bissig@metas.ch

Project website: www.drugmetrology.com