Background

Individuals with diabetes are at a substantial increased risk for chronic kidney and cardiovascular complications. Both kidney and cardiovascular disease place a heavy burden on patients as well as on health care systems and society. The current interventions to slow progressive kidney and cardiovascular function loss are to some extent effective, although they do not adequately prevent organ function loss. This leaves a substantial part of the population at high risk. One of the major reasons for the lack of treatment efficacy appears to be the large variation between individuals in response to these interventions.

Precision or personalized medicine, meaning identifying and then appropriately treating each patient with a specific drug, that will actually slow the progression of organ function loss, will be a huge step forward in treatment of chronic diseases. Currently, drugs are developed, tested, registered and applied (through guidelines) as if the targeted disease can be 'cured' with one and the same drug. It appears however that approximately half of the patients do not benefit (or can even be harmed) from a new registered drug, and within the group that responds to the drug, a wide variety in degree of organ protection can be detected. In current practice however, drugs are registered for a disease and not for a patient. This approach needs to change with an increased attention for more individual and dedicated approach of care. For a successful implementation and to achieve a radical change in the society, drug development for diabetes should be an integrated undertaking of healthcare providers, the academic community, the pharmaceutical industry, trial designers, health policy makers, regulatory authorities, insurance companies, doctors, patients and the general public.

To implement personalized medicine in the treatment chronic diabetic organ failure all of the above stakeholders will have to change their current practice. For example, academia should investigate the underlying mechanisms of treatment response (and treatment resistance); pharmaceutical industry should change their business models and focus on more targeted patients groups; regulatory agencies should develop models to assess efficacy and safety and market drugs for specific targeted patient populations and health care provides have to develop new guidelines and implement precision medicine in clinical practice. Above all, patient organizations should be involved in all of these processes.

The current symposium will discuss the state of the art in precision medicine in diabetes and kidney disease (what it is and how to apply it), and the need to align these new treatment algorithms to the trial design for new drug/intervention registrations.