Workshop on Diabetes Type I- Collaborate to solve Diabetes 1"- Sponsored by The Swedish Association of Medical Informatics and the Swedish Innovation Agency.

August 24, 2022, 11:05-13:00 (EU); 17:05-19:00 (CN)

Overview

It's been 100 years since insulin was invented – preventing people with type 1 diabetes from dying. Today, these people still have to make up to 100 decisions daily to achieve the most balanced blood sugar (time in range) based on eaten carbs, physical activity, sleep, hormones, insulin injections, and much more. Can technical solutions feed with data bridging the gap – so people with type 1 diabetes can get a healthier life and future? The workshop will give a State of research in Sweden and China, addressing how competitions can be a way to solve wicked problems based on experience from the Swedish Innovation Agency and how Champions to be better trained to have a win-win-win-win situation (Academy, Industry, Healthcare, and citizens).

Speakers








Co-chairs:

- **Lars LIDSKOLD,** Secretary, SFMI, Sweden, IM Officer EFMI
- **Meihua JI**, associate professor, School of Nursing, Capital Medical University

Keynotes:

- **Fredrik Lindén,** Co-founder & Coordinator of MyData Sweden, Digital Government Transformation and eGov Consultant: *"When you enable the patient to control and share their data for purposes chosen by the patient, will interoperability increase?"*
- **Mingzi Li,** MD, RN, Professor, School of Nursing, Peking University: *"The effect of psychological resilience intervention in adolescents with type 1 diabetes: a comparative analysis based on traditional and remote interventions"*

Speakers:

- **Cassandra Marshall,** Program manager Winter Project, Vinnova the Swedish Innovation Agency," How competition and collaboration can achieve novel insights on how change can occur by the use of data access?"
- **Malin Gavlefors M.Sc.** Beat Diabetes, patient advocate, and entrepreneur. *Why do I need more tools to master my diabetes- and what type of services would di like to see in the future? BEAT Diabetes Foundation and #IHackForDiabetes*
- **Yi Wu,** MSc Student, School of Nursing, Peking University, "*Application of hypoglycemia prediction model in digital blood glucose management of diabetes."*
- **Shasha Yuan,** Beijing Key Laboratory of Diabetes Research and Care, Center for Endocrine Metabolism and Immune Diseases, Beijing Luhe Hospital, Capital Medical University, *" Maturity-onset diabetes of the young caused by loss-of-function variants of the glucokinase gene."*

Preliminary Program

11:05 (CET)/17:05 (EU/CN) Welcome and introduction to the workshop

Lars Lindsköld, PhD, RN, SFMI & VINNOVA / Sweden and Meihua Ji, PhD, RN, associate professor at the School of Nursing, Capital Medical University/ China

11:10 (CET)/17:10 (CN) KeyNote: When you enable the patient to control and share their data for purposes chosen by the patient, will interoperability increase?

Fredrik Lindén, Co-founder & Coordinator of MyData Sweden and Digital Government Transformation and eGov Consultant, Sweden

11:35 (CET)/17:35 (CN) The effect of psychological resilience intervention in adolescents with type 1 diabetes: a comparative analysis based on traditional and remote interventions

Mingzi Li, Prof. School of Nursing, Peking University

Abstract: In reported work, we analyzed the efficacy of the resilience-promoting interventions among adolescents with diabetes, and compared the difference of traditional and remote interventions. The work of the analysis is performed based on a systematic review and meta-analysis of RCTs. 18 articles met the eligible criteria. When analyzing the effectiveness of resilience-promoting interventions, HbA1c at 6-month (MD=-0.39,95%CI: -0.75 to -0.03, P=0.03) after intervention were improved. However, long-term (⩾12 months) improvement in HbA1C was not significant. The remote resilience intervention (only 3 studies) had no significant effect on HbA1c (Z=0.15, P=0.88), while the face-to-face resilience intervention had a significant effect on HbA1c (MD=-0.42, 95%CI: -0.83 to -0.01, P=0.04). We concluded that, for adolescents with type 1 diabetes, resilience training can improve the short-term HbA1c, but the long-term effect is unstable. Due to the lack of available evidence, remote resilience training cannot demonstrate the effectiveness of glycemic control. Future research should consider that validating the effect of remote resilience training in adolescents with diabetes.

12:00 (CET)/18:00 (CN) How competition and collaboration can achieve novel insights on how change can occur by the use of data access?

Cassandra Marshall,PhD The Swedish Innovation Agency

12:10 (CET)/18:10 (CN) Why do I need more tools to master my diabetes- and what type of services would i like to see in the future?

Malin Gavlefors, M.Sc. Beat Diabetes, patient advocate, and entrepreneur.

12:20 (CET)/18:20 (CN) Application of hypoglycemia prediction model in digital blood glucose management of diabetes

Yi Wu, MSc Student, School of Nursing, Peking University

Abstract. Objective: To systematically review the reported prediction models of hypoglycemia in patients with diabetes, compare their performance, evaluate their clinical applicability, discuss their application in digital diabetes management. Methods: We selected studies according to the PRISMA, appraised studies according to the PROBAST, and extracted and synthesized the data according to the CHARMS. The databases of PubMed, Web of Science, Embase, and Cochrane Library were searched from the inception to October 31, 2021 using a systematic review approach to capture all eligible studies developing and/or validating a prognostic prediction model for hypoglycemia in patients with diabetes. The risk bias and clinical applicability were assessed using The Prediction model Risk of Bias Assessment Tool (PROBAST). The meta-analysis of the performance of the prediction models were also conducted. Results: Sixteen studies with 22 models met the eligible criteria. The frequently mentioned predictors among all models were age, HbA1c, history of hypoglycemia, and insulin use. A meta-analysis of the C-statistic was performed for 21 prediction models, and the summary C-statistic and its 95% confidence interval and prediction interval were 0.7699 (0.7299 to 0.8098), 0.7699 (0.5862 to 0.9536), respectively. Heterogeneity exists between different hypoglycemia prediction models (τ^2 was 0.00734≠0). Conclusions: Any existing predictive models are not recommended for widespread clinical use. High-quality hypoglycemia screening tool should be developed in future studies.

12:30 (CET)/18:30 (CN) Maturity-onset diabetes of the young caused by loss-of-function variants of the glucokinase gene.

Dr Shasha Yuan, PhD, MD, Beijing Luhe Hospital, Capital Medical University

Abstract: Maturity-onset diabetes of the young (MODY) is a monogenic diabetes mellitus group currently divided into 14 subtypes. Among them, MODY2 is caused by heterozygous loss-of-function variants of the glucokinase gene (GCK), also known as GCK-MODY. It is characterized by mild, persistent and high fasting blood glucose. Patients are asymptomatic and do not require treatment due to insidious onset and no serious complications. However, for some special cases, such as during pregnancy of GCK-MODY women, reasonable blood glucose control strategies should be formulated according to whether the fetus carries GCK gene mutation to avoid adverse pregnancy outcomes. This report will introduce the diagnosis and treatment process and follow-up experience of two different GCK-MODY families, which is helpful to improve the screening awareness of MODY in patients with gestational diabetes mellitus in clinical work.

12:40 (CET)/18:40 (CN) PANEL: Europe-China Collaboration on Diabetes type 1, moderator Lars Lindsköld and Meihua Ji with the previous speakers.

13:00 (CET)/ 19:00 (CN) End of Workshop

Speakers Biography

Lars Lindsköld, SFMI & VINNOVA / Sweden: Regional developer, Department of digitalisation Region Västra Götaland, Senior adviser AI Innovation of Sweden, Board member RAI Umeå University, Health Data expert Swedish Innovation Agency, Sweden and Secretary Swedish Association of Medical Informatics and Institution member Officer, EFMI:

Meihua Ji, is an associate professor at the School of Nursing, Capital Medical University. She acquired her PhD education from the School of Nursing, University of Pittsburgh (2015-2018), as well as obtained a master's degree and bachelorettes degree in nursing programs from the USA. Her main research area includes chronic disease management (cardiovascular disease, diabetes, etc.), delirium assessment, nursing informatics, etc. Over the years, among her colleagues, she has been doing research on the management of chronic disease and engaged in works related to the development and usability testing of various clinical decision support systems, such as the system for delirium assessment (iCAM-ICU) and the management of coronary heart disease (iCARE). Her work has been published in various SCI journals, including the International Journal of Nursing Studies, JMIR mHealth and uHealth, Diabetes Educator (Now called the Science of Diabetes Self-Management and Care), and Nursing Research.

Fredric Lindén, Co-founder & Coordinator of MyData Sweden and Consultan:. I have extensive domestic and international experience in eHealth and the healthcare industry, and I understand its key business drivers. This has given me a diversity of skills in eHealth and recognition as a distinguished global leader in a multi-disciplinary environment. I can analyse and synthesise information, problem-solve, plan, and follow through on commitments.

Mingzi Li, MD, RN, Professor, School of Nursing, Peking University: Prof Li has been committed to the management of chronic diseases (mainly diabetes) for about 30 years. She is the director of Medical & Surgical Nursing, School of Nursing Peking University, ICN-NP APNN Education Sub-Group Co-chair, Vice President, Chinese Medical Education Association Division of Diabetology, Member, IDF Consultative Section on Diabetes Education (DECS). She is a principle investigator for several governmental funding supported projects including the application and promotion of lifestyle

intervention technology for people with high blood glucose in primary care and analysis needs of diabetes control in Beijing.

Cassandra Marshall, Vinnova the Swedish Innovation Agency; Program manager Winter project. (We Win with Interoperability) in the department of Innovation management. Has here PhD from the School of Economics, Innovation and inter-organisational collaboration. I have been working with the Swedish Innovation Agency since 2009, focusing on how to get innovation to implementation.

Malin Gavlefors. Finished her M.Sc. within Strategic Entrepreneurship summer 2022 and working extra as a project manager at BEAT Diabetes Foundation, Project manager for #IHackForDiabetes - #IHackForDiabetes (beatdiabetes.se). The purpose of this Hackathon was to make all that data available for technical innovation from the user's needs and perspective – so people with type 1 diabetes can get a healthier life and future. Malin has Diabetes 1 and acts as a patient advocate for people with diabetes in Sweden.

Yi Wu is a master student at the School of Nursing, Peking University. His tutor is Prof. Mingzi Li. His recent work appeared in Wu Y, Li R, Zhang Y, Long T, Zhang Q, Li M. Prediction Models for Prognosis of Hypoglycemia in Patients with Diabetes: A Systematic Review and Meta-Analysis. Biol Res Nurs. 2022:10998004221115856.10.1177/10998004221115856.

Shasha Yuan, MD, Beijing Key Laboratory of Diabetes Research and Care, Center for Endocrine Metabolism and Immune Diseases, Beijing Luhe Hospital, Capital Medical University. Attending Physician whose research interests include the pathogenesis of diabetes mellitus and its complications. Areas of expertise: Monogenic diabetes mellitus; Gestational diabetes mellitus; obesity metabolic disease, etc. A total of 6 SCI articles related to endocrinology have been published, among which the representative work on monogenic diabetes was published in Cell Report. As a significant participant, who has participated in 2 projects of the National Natural Science Foundation and one project on Reproductive health of the National Health Commission.