

Advancements in diabetes Care in Poland

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Abstract

Background: The aging population and increasing prevalence of diabetes are placing significant strain on health-care systems globally, including in Poland. In recent years, notable progress has been made in establishing patient care systems and improving access to treatment, with significant changes in the reimbursement of innovative therapies. However, as the impact of diabetes on the healthcare system continues to grow and advancements are introduced in patient care, there is a pressing need, to continually search for the most optimal solutions to further enhance diabetes care.

Objectives: This paper summarize developments of diabetes care in Poland with a special focus on reimbursement of novel therapies introduced in recent 5 years.

Methods: We conducted a review of published sources and publications on the management of diabetes care in Poland. This included an analysis of the latest advancements in coordinated care, the collaborative efforts between general practice physicians and specialists, as well as changes in reimbursement policies and other notable progressions in patient-centric care. Furthermore, we analyzed published reports from the National Fund and assessed reimbursement expenditures.

Conclusion: The landscape of diabetes treatment in Poland has undergone significant changes in recent years driven by advancements in pharmacological therapies, technological innovations, and healthcare policies. While challenges remain, these changes offer opportunities for further progress in diabetes care in Poland. Continuous efforts to improve patient centered care along with embracing emerging technologies, will contribute to more effective diabetes management and improved quality of life for individuals with diabetes in the country.

Introduction:

Diabetes is a chronic, metabolic disease that affect about 557 million adults worldwide. Diabetes can lead to wide range of health complications including heart disease, kidney damage, nerve damage and blindness. It is one of major public health concerns due to growing incidence and prevalence levels.^[1] The same trend has been observed in Poland. In 2018 2,9 million adults were treated for diabetes in Poland, increasing from 2,5 million in just five years. The incidence among adult population is on the level of ~300 k patients yearly, slightly increasing mainly due to demographic structure.^[2]

Diabetes is frequently referred to as a non-communicable pandemic. Over the years, various initiatives have been implemented to address the increasing incidence of diabetes and simultaneously improve health outcomes for patients. Managing diabetes through achieving early and sustained glycemic control has implications on individual patients' health through lowering risk of micro and macrovascular complication but also on large scale having impact on population health and both direct and indirect costs.^[3] Diabetes treatment guidelines stress the benefits of patient centered approach to treatment, starting from lifestyle measures notably exercise, body weight control and healthy diet. As diabetes is a progressive disease when lifestyle interventions are no longer effective in sustaining desired glycemic control pharmacological therapies are introduced.^[4,5] There are glucose-lowering agents with multiple mode of actions available that can better target individual patients' needs and improve glycemic control.^[6-7] In recent years we have seen advancement in the use of telemedicine that can help with education and monitoring in both life-style interventions and pharmacologic treatment.

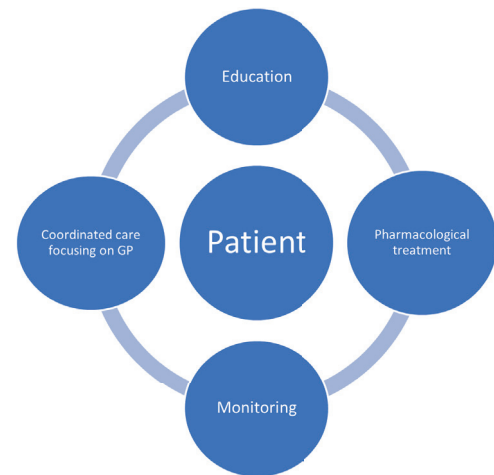
In this work we analyze advancement in diabetes care in Poland introduced in the last five years focusing on type 2 diabetes, the most prevalent form of diabetes in adult population. We have started this analysis from the overview of epidemiology, in the next step we have reviewed evolution of diabetes care in Poland focusing on introduction of coordinated care including education, telemedicine and monitoring. Lastly, we have reviewed advancements in reimbursement of innovative pharmacological intervention.

Epidemiology

In the past epidemiology estimations were based on prevalence data and extrapolations to general population.^[3] Advancements in electronic health records have allowed for more precise estimations and publications based on National Health Fund (NHF) data have presented actual number of diabetes patients treated.^[8] In the most recent report published by NHF it has been reported that more than 2,9 million adults (9,1% of adult population) were treated for diabetes in Poland. This number only includes patients that have used NHF services related to diabetes treatment, what means that this number includes only diagnosed patients. Diabetes prevalence has increased by 13,7% between 2013 and 2018 and only half of this growth can be explained by demographic factors. Additionally, there is a group of patients that doesn't receive required interventions, as in estimations from 2013 based on NHF and NATPOL data it has been reported that around ~20% of diabetes patients are not diagnosed. Diabetes prevalence and incidence is clearly linked with an aging society. Females aged 65-74 are the largest group of diabetes patients (more than 500 thousands). Prevalence of diabetes increased with the age group until the age of 85, reaching 30% for women.^[2]

Organization of diabetes care

Diabetes care in Poland is delivered primarily in three types of health care settings – primary care physicians (POZ), specialist care (AOS), and hospital setting.^[5] In recent years Polish decision makers have recognized the importance of patient-centered care and the involvement of multidisciplinary healthcare teams in diabetes management. Efforts have been made to enhance a collaboration between diabetologists, endocrinologists, primary care physicians, diabetes educators, dieticians, and psychologists to provide comprehensive care to individuals with diabetes. This multidisciplinary approach should ensure a holistic management strategy that addresses not only glycemic control but also the prevention and management of diabetes-related complications, psychosocial support, and lifestyle modifications.^[4]



Graph 1. Patient in the center of health care system

Majority of adult diabetes patients in Poland are treated in POZ. In 2018 1,8 million of diabetes patients have been treated in primary care setting, specialized diabetes care (AOS) has served 0,9 million patients and treatment in hospital setting has been used at least once by 0,3 million patients in 2018 year.^[2] The NHS has introduced numerous initiatives to encourage management of type 2 diabetes on POZ level. In 2022 new coordinated diabetes care program has been introduced.^[9] The coordinated care aim to raise the standard of patient care not only by equipping primary health care with new diagnostic tools, but above all by comprehensive education and both pharmaceutical and non-pharmacological interventions. In the guidance of diabetes care in POZ it is explicitly mentioned that the goal is to manage diabetes by general practitioners (GP).^[10] There are exceptions where referral to AOS is recommended: treatment of type 1 diabetes; other specific types of diabetes; difficulty in determining the type of diabetes; diabetes in pregnancy and in women planning to become pregnant; any type of diabetes in children and adolescents. Indications for a diabetes consultation as part of coordinated primary health care are: failure to achieve therapeutic goals (consultation primarily to intensify insulin treatment); occurrence of complications of pharmacotherapy; occurrence of comorbidities that make treatment difficult; the occurrence of diabetes complications; other special situations. After the consultation, it is determined whether the patient is to be further treated by a primary care physician or should be under the care of a diabetologist. In coordinated care, consultations may take the form of discussions between a general practitioner (GP) and a diabetologist, or between a patient and a diabetologist. These consultations can also be conducted through telemedicine. Patients, supported by care coordinators are responsible for Individual Medical Care Plan (IPOM). IPOM is set up by GP and should include the following recommendations: control visits, control tests, educational advice (up to 6 a year),

dietary consultations (up to 3 per year); specialist consultations. Tailoring treatment plans on GP level based on individual patient characteristics, individual preferences, and comorbidities has a potential for optimal diabetes management both from outcomes and cost perspectives. Coordinated diabetes care has a potential to significantly improve the quality of care for patients with diabetes. In the same time, by shifting well controlled patients from outpatient clinics to POZ, it can facilitate access to diabetologists for patients who require specialized care to better manage their disease. Successful implementation depends on project execution and funding. Training should be provided to all service providers: GP's, nurses, educators and coordinators from both medical and technical perspectives.

Education programs

Therapeutic education in diabetes allows patients to be active participants in their own treatment with the aim of improving their quality of life and therapeutic compliance, resulting in reducing potential complications.^[11] In recent years there has been an increased emphasis on empowering individuals with diabetes through education, enabling them to actively participate in their own care and make informed decisions regarding their lifestyle and treatment. Diabetes self-management education programs have been promoted to provide individuals with the knowledge and skills necessary to effectively manage their diabetes. These programs cover various aspects, including understanding the condition, monitoring blood glucose levels, medication management, healthy eating, physical activity, and coping with the psychosocial aspects of living with diabetes. Diabetes education programs are often conducted by certified diabetes educators and delivered through group classes or individual counseling sessions. Concept of therapeutic education has been included in the coordinated care, there are also initiatives organized by individual hospitals, patient organizations and local governments focusing on different aspects of treatment including life-style management.

Dietary modifications are a cornerstone of diabetes management. Patient education initiatives in Poland have focused on providing comprehensive nutritional guidance to individuals with diabetes. This includes educating patients about carbohydrate counting, portion control, meal planning, and making healthier food choices. Dietitians and nutritionists play a vital role in delivering personalized dietary counseling and helping patients understand the impact of different foods on blood glucose levels. There are multiple options that have been introduced, from on-line diet plans available on NHF site to telemedicine consultation organized by national center of nutrition education.^[12]

Physical Activity Promotion: Regular physical activity is essential for managing diabetes and maintaining overall health. Patient education efforts have emphasized the benefits of exercise and provided guidance on incorporating physical activity into daily routines. Education sessions may cover the types of exercises suitable for individuals with diabetes, the recommended duration and intensity of activity, and strategies for overcoming barriers to physical activity. Additionally, patients are encouraged to consult with healthcare professionals to develop personalized exercise plans based on their fitness level and any associated complications.

Medication Management: Patient education initiatives aim to improve medication adherence and optimize medication use. Individuals with diabetes receive education on the importance of taking prescribed medications as directed, understanding the action and side effects of their medications, and adhering to the prescribed treatment regimen. Education also includes instructions on insulin administration techniques, including insulin pens, syringes, and insulin pump usage, if applicable.

Blood Glucose Monitoring: Patient education focuses on teaching individuals with diabetes how to monitor their blood glucose levels effectively. This includes instructions on using glucose meters, interpreting results, and understanding target ranges. Patients are educated about the significance of regular monitoring, the impact of food, exercise, and medications on blood glucose levels, and how to respond to hypo- and hyperglycemic episodes.^[4] In recent years, significant advancements have been observed in this area, specifically with the reimbursement of continuous glucose monitoring (CGM) and flash glucose monitoring (FGM) in Poland since 2019. Initially, reimbursement was limited to patients with type 1 diabetes. However, as of January 2023, the reimbursement criteria have been significantly expanded to include other types of diabetes that require intensive insulin treatment.^[13]

All the mentioned above areas of medical education can be further enhanced by availability of dedicated apps.^[14] There are multiple areas of patients' education in diabetes, hence diabetes apps are especially popular accounting for 15% of the total number of disease-specific apps in 2021.^[15]

Pharmacotherapy

In recent years, Poland has experienced the introduction of several new pharmacological therapies for managing diabetes. Notably, new classes of antidiabetic medications, including sodium-glucose co-transporter 2 (SGLT2) inhibitors and glucagon-like peptide-1 receptor agonists (GLP-1 RAs), have been approved and made available through reimbursement schemes in open pharmacies

since 2019. These medications have demonstrated significant efficacy in lowering blood glucose levels and reducing cardiovascular risks among patients with type 2 diabetes. Moreover, both SGLT2 inhibitors and GLP-1 RAs have shown positive effects on weight loss and pose a low risk of hypoglycemia.^[6] The availability of these therapies has expanded the treatment options and improved the management of diabetes in Poland. Together with other available therapy options: metformin, sulfonylureas, DPP-4 and insulin allowed for truly patient centric pharmacotherapy, as physician has now broad array of treatment options that can tailor to individual patients needs considering for example patient weight or/and cardiovascular risk factors. Diabetes treatment guidance provide clear recommendations and treatment algorithms that should be considered taking into consideration glucose control and various risk factors.

Despite the expanded reimbursement of innovative therapies and the growing prevalence of type 2 diabetes, the expenditure on diabetes reimbursement has increased at a comparable rate to other therapeutic areas. Particularly noteworthy is the significant growth observed in 2022, as depicted in Figure 2, where spending rose by 13%. Insulins contribute the most to the reimbursement costs, with spending exceeding 600 million PLN since 2018. Surprisingly, despite the availability of modern insulins, the budget allocated to insulin reimbursement only experienced a slight increase in 2022, reaching 651 million PLN compared to 648 million PLN the previous year (Figure 2).

The primary drivers behind the increased reimbursement expenditures in the last three years were the costs associated with SGLT-2 inhibitors and GLP-1 receptor agonists, with 152 million PLN and 75 million PLN spent on reimbursement in 2022, respectively (Figure 3). However, these figures still represent relatively small proportions of the total budget allocated for diabetes reimbursement.

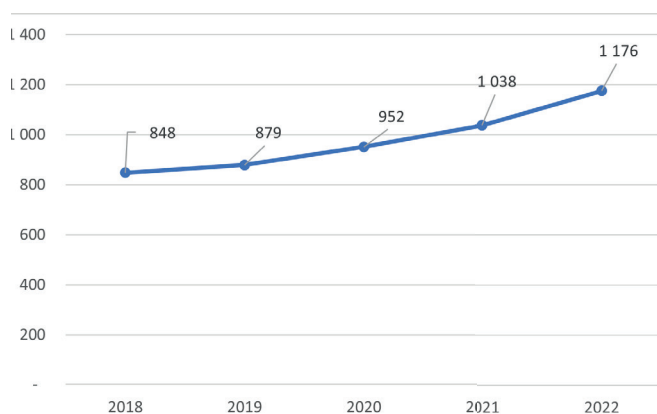


Figure 1. Reimbursement expenditures for diabetes treatment (million PLN) Source: Calculation based on NHF data

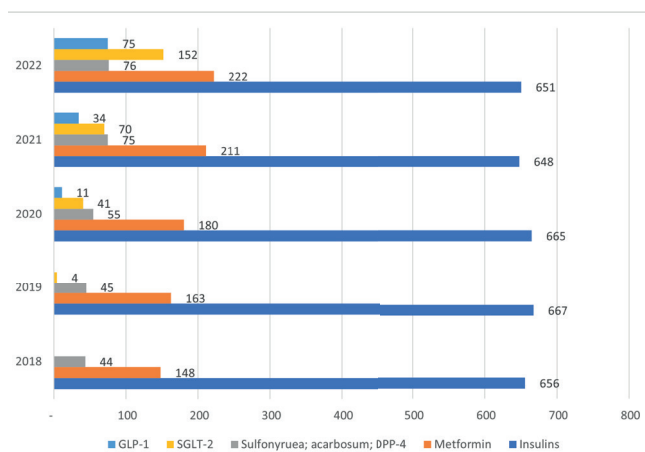


Figure 2. Reimbursement expenditures on diabetes treatment by treatment class in 2018-2022 (million PLN) Source: Calculation based on NHF data

Diabetes care – improvements areas

Despite many advancements in diabetes care described above, there are still several challenges that affect patients and healthcare providers alike. One of the biggest challenges in diabetes care is the waiting time for visit in the AOS setting. Diabetes patient had to wait on average 7,4 months for a specialist visit what is 3 months longer than average waiting time for specialist visit and almost 5 months increase vs previous year.^[16] The shortage of diabetologists and the high demand for their services contribute to these long waiting times, making it difficult for patients to receive timely and specialized care. As discussed before decisions makers plan to shift care to POZ setting to limit queues in AOS.

Another challenge is the absence monitoring of well-defined quality care indicators for diabetes management. Without proper monitoring and evaluation of quality care indicators, it becomes challenging to assess the effectiveness of diabetes care and identify areas for improvement. Digitalization of health care and electronic health records especially on the POZ level could enable better validation of quality of patients' care. In patient centric health care patient education is well emphasized, unfortunately despite introduction of coordinated care there is a lack dedicated funding for diabetes nurses/educators. These healthcare professionals play a crucial role in diabetes care by providing education, support, and self-management training to patients.

Furthermore, there are still limitations in the reimbursement of novel drugs for diabetes treatment compared the approved indications and recommendations of diabetes

associations. We have observed major progress in recent years, however Poland is still one of the countries with highest access gap described both by time to reimbursement and level of reimbursement. Patients wait from the time of EMA approval, on average more than 800 days for reimbursement. Additionally, only 35% of medicines registered between 2018 and 2021 have received reimbursement in Poland and only 8% have full access without limitations.^[17] Delayed and limited access can create barriers to accessing the most effective and up-to-date treatments for patients with diabetes. This discrepancy between guidelines and reimbursement can lead to sub-optimal treatment outcomes and hinder the progress of diabetes management.

By addressing these challenges, the healthcare system can better meet the needs of individuals with diabetes and improve their overall health outcomes.

Conclusions

The landscape of diabetes treatment in Poland has undergone significant changes in recent years, driven by advancements in pharmacological therapies, technological innovations, and healthcare policies. The integration of personalized medicine approaches, patient-centered care, and multidisciplinary healthcare teams has improved the management of diabetes. While challenges remain, these changes offer opportunities for further progress in diabetes care in Poland. Continuous efforts to improve patient centered care and well managed adoption of recently introduced coordinated care in POZ, along with embracing emerging technologies, will contribute to more effective diabetes management and improved quality of life for individuals with diabetes in Poland.

Notes:

All authors declare that there are no conflicts of interest. All authors declare that this research did not receive any funding for the research.

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