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Commentary

Poland takes a lead in effective lipid disorders management healthcare programmes in Europe

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ABSTRACT

In the last decade, Poland has introduced various healthcare programs and initiatives aimed at effectively managing and preventing lipid disorders, a leading risk factor for cardiovascular disease (CVD) affecting as many as 70 % of the population. Education plays a vital role, with the "Health Education" subject introduced in schools, patient education integrated into primary and secondary prevention programs, and lipidology certification available for healthcare professionals. Screening programs like "My Health" offer comprehensive health assessments, including lipid profiles and the first universal lipoprotein(a) screening for individuals aged 20 and older. A universal screening program for familial hypercholesterolemia (FH) has also been implemented for children at the age of 6. The KOS-Zawał program provides comprehensive, highly effective cardiology care for post-myocardial infarction patients. Additionally, recent results from the B101 drug program demonstrate unprecedented effectiveness of combination lipid-lowering therapy with PCSK9 inhibitors for patients with lipid disorders. These programs aim to improve early diagnosis, enhance therapy adherence, and ensure access to innovative treatments, ultimately reducing cardiovascular mortality. They may also serve as a valuable example for other countries looking to effectively prevent and combat this prevalent CVD risk factor.

To mark the 15th anniversary of the Polish Lipid Association (PoLA) and the 10th Anniversary of the International Lipid Expert Panel (ILEP), for which PoLA was a founding society, it is pertinent to present the current status of healthcare programmes and initiatives for the effective diagnosis, management, and prevention of lipid disorders in Poland, the 5th largest country in Europe by population size (36.55 million in 2024). Over the past decade, and especially in recent years, Poland has emerged as a leader not only in Central and Eastern Europe (CEE), but across the continent, serving as a benchmark for other nations. This is particularly salient, as Poland, like many CEE countries, faces a high cardiovascular disease (CVD) risk, with lipid disorders being the leading CVD risk factor, affecting an estimated 21 million individuals in Poland (60–70 % of the population) [1]. Alarmingly, only approximately 25–30 % of patients achieve the recommended LDL-C therapeutic targets [2]. It is also noteworthy that the prevalence of elevated lipoprotein(a) is 20 % (6 million individuals – the 5th most common risk factor), with only around 5 % of those with indications undergoing measurement [3,4].

1. Education

Education is critical for early diagnosis, effective prevention, and appropriate management, thereby effectively improving therapy adherence and leading to significantly lower discontinuation rates – a particularly important consideration for statin therapy [1,5]. Since September 2025, *Health Education* has been introduced as a new subject in all Polish primary and comprehensive schools, replacing family life education. Classes are held in years 4–8 of primary schools and years 1–3 of secondary schools (high schools, technical schools, and vocational schools). Although originally intended to be mandatory, health education is optional (the most recent data [30th Sept.] indicate that 37 % of pupils attend the subject). The aim of the course is to develop students' competencies related to lifelong health maintenance and to build

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individual and community health potential, including detailed knowledge on the diagnosis and understanding of lipid disorders and atherosclerosis as a cause of atherosclerotic cardiovascular disease (ASCVD), on how to monitor lipid profiles, how to prevent with effective lifestyle changes (regular exercise, diet, preventing underweight and obesity) and why therapy adherence is of critical importance for effective treatment [6] Obviously, all other important health-related issues are also covered, including the role of screening programs for chronic diseases, teaching self-assessment, and women's health (Fig. 1). We strongly believe that after one or two years the program's results will provide the strongest argument for making it mandatory.

Effective education on lipid disorders also requires well-trained physicians from various specialities in the field of lipidology. Although there is no recognised subspeciality in Poland, the Polish Lipid Association (PoLA) introduced lipidology certification in 2014, initially for physicians, and since 2023, also for nurses, pharmacists, dietitians, and diagnosticians, involving extensive training (4 meetings, including participation in the PoLA Congress, totalling 24 h, concluding with a written examination). The 6th Edition is currently underway with almost 300 participants, and after five editions, Poland boasts over 600 certified experts in lipidology, forming a network for effective diagnosis and management of lipid disorders [7]. Building on this certification, a network of certified lipid clinics has been established, which is now being extended to paediatric lipid centres following the introduction of universal FH screening at the age of 6 in Poland. Many of these clinics are also part of the European Atherosclerosis Society's Lipid Clinic Network [8].

The practical national lipid guidelines, prepared in collaboration with many other invited Societies (the close cooperation in this area with the Polish Cardiac Society, the College of Family Physicians in Poland and the Polish Society of Laboratory Diagnostics deserves special emphasis), that were released in the last decade also played a critical role in the ongoing education process. The PoLA was one of the first to present recommendations on upfront combination lipid-lowering therapy [1,9], on the application of bempedoic acid or inclisiran [1], or pitavastatin [10], and also released one of the first national recommendations on elevated lipoprotein(a) diagnosis and management [4].

It is also worth mentioning that in June 2025, the PoLA together with numerous stakeholders – experts, scientific societies, patient organisations, media partners, politicians and decision-makers, founded the Coalition – Ligue of Fight against Cholesterol [11], with the main aim of effective education and increasing public awareness (lipid disorders awareness is only 15 % in Poland), improving patients' access to early, effective diagnostics, innovative therapies (to increase access to PCSK9 inhibitors and inclisiran) and supporting systemic solutions in this area that effectively preserve health and life, which will consequently translate into a reduction in the number of cardiovascular deaths in Poles (over 160,000 per year) [12].

Cardiovascular education, including lipid disorder management, is also integrated into the coordinated care programme in primary care, established in October 2022 (according to data from April 2025, approximately 40 % of primary healthcare clinics have already entered into agreements to provide coordinated care) [13], the National Cardiovascular Disease Programme for 2022–2032 (with a budget of almost 3 billion Polish zlotys (0.72 billion Euros)) - a comprehensive cardiology strategy that focuses activities on investments in education, prevention and lifestyle (with the aim, among others, to reduce the incidence and mortality of CVD, and the level of classic CVD risk factors in the population, such as hypertension, smoking, lipid disorders, obesity, and diabetes), better access to screening tests (with the involvement of primary care physicians and occupational medicine physicians), and investments in science and innovation, including improved access to innovative therapies in cardiology [14]. Finally, it is required to mention the recently implemented National Cardiology Network [KSK] – a novel

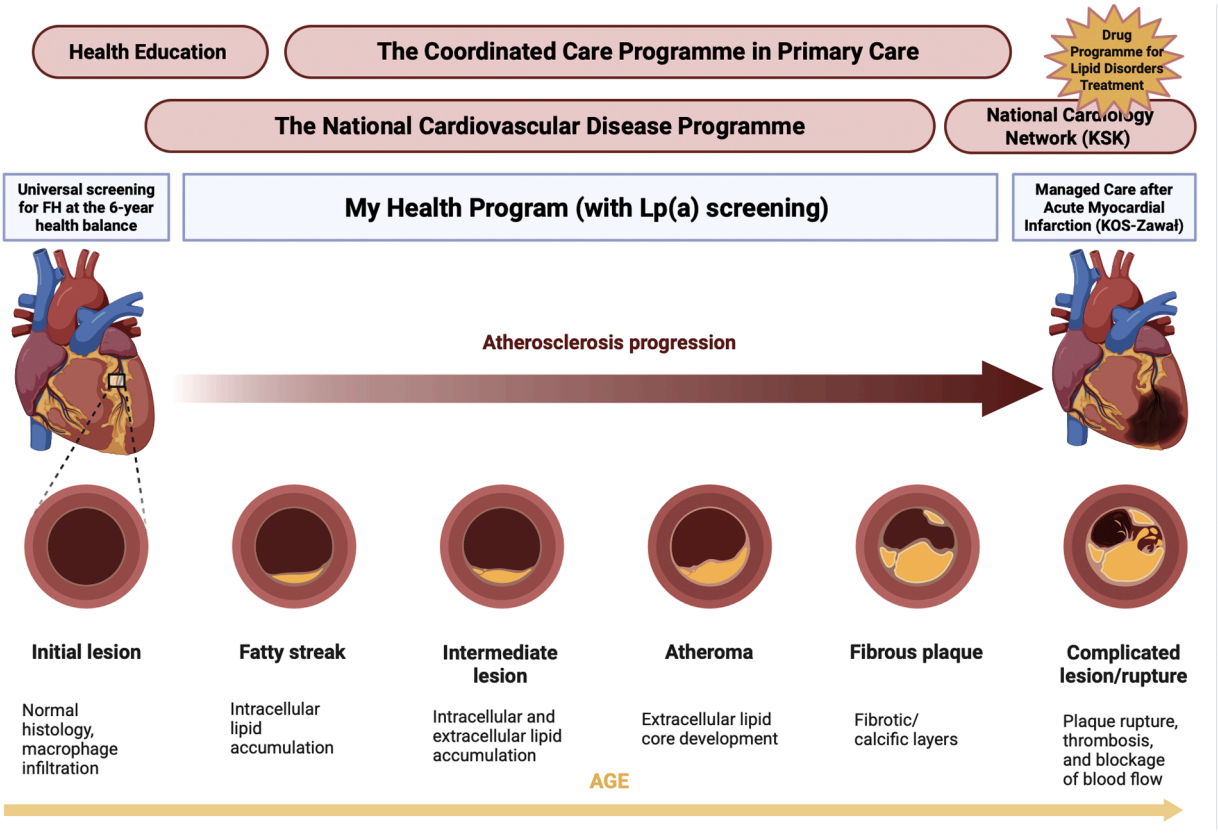

Fig. 1. Summary of existing programs in the Polish healthcare system enabling optimal management of lipid disorders for primary and secondary prevention in relation to age and the progression of atherosclerosis.

organisational structure and model for managing cardiac care in secondary prevention based on three levels, patient coordination within this system, and the same high-quality standards in all selected centres [15] (Fig. 1).

2. (Lipid) screening programmes

My Health – a comprehensive preventive programme of the National Health Fund / Ministry of Health (free for the patient) in primary healthcare facilities that replaced the programme "Prevention 40+" (introduced in June 2021), commenced on 5th May 2025. Patients aged 20–49 years undergo preventive health assessments once every 5 years, while those aged >49 years are assessed once every 3 years. The basis for the assessments is a questionnaire, and based on the answers, the patient receives a set of diagnostic tests within an Individual Health Plan. After the tests, the patient meets with healthcare personnel and discusses the results. They receive recommendations regarding: a healthy lifestyle, diet and physical activity, preventive examinations, individual recommendations resulting from identified risk factors, a schedule of recommended vaccinations, and other recommended health interventions. All test results are reported to the individual patient account (Individual Patient Account [IKP] application) and - with the patient's consent - other physicians have access to them. For people aged 60+, an additional test for the diagnosis of dementia is also available. Available laboratory tests in the programme – within the basic scope of diagnostic tests include: blood count, glucose, creatinine (with eGFR), lipid profile (total cholesterol, LDL, HDL, triglycerides), thyroid-stimulating hormone (TSH), and within the extended scope of diagnostic tests (conditionally, depending on age and survey result): alanine aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transpeptidase (GGT), total PSA in men, anti-HCV, lipoprotein(a) (Lp(a)) (performed once in a lifetime) [16]. Thus, it represents the first worldwide universal screening of adult patients (non-mandatory) for lipoprotein(a), a major healthcare concern, and one of the most important genetically predisposed risk factors for premature ASCVD, heart failure, aortic aneurysm or aortic valve stenosis [17]. It is worth noting that from May to mid-October 2025, 1.5 million Poles have already filled out the questionnaires under the "My Health" program. More than half of the program participants are women aged 20–59, while men over 60 are the least likely to use the screenings (Fig. 2).

Under the program regulation of My Health, after many years of efforts by experts, scientific societies, and patient organizations, we have finally introduced universal screening for familial hypercholesterolemia (FH) at the 6-year health check in Poland, following Slovenia and Croatia. The target population are children aged 5 to 7 years, presenting for a health assessment performed during the annual compulsory preschool preparation. It is anticipated that approximately 75 % of the child population each year (around 300,000 patients) will undergo the assessment. The diagnosis of FH is based on the Simon Broome Register Group criteria. Patients with diagnosed hypercholesterolaemia are referred to the Children's Lipid Clinic (the network is currently being established) following a repeat lipid profile test. In the pediatric population covered within the program, double measurements of venous blood showing total cholesterol (TC) levels ≥240 mg/dL (6.21 mmol/L) and LDL cholesterol (LDL-C) levels >130 mg/dL (3.36 mmol/L) with normal triglycerides (TG) and HDL cholesterol (HDL-C) levels prompt physicians to refer the patient to a pediatric lipidology centre for FH assessment. During the diagnostic evaluation of lipid disorders, it is essential to rule out secondary dyslipidemia, which may include hypothyroidism, nephrotic syndrome, diabetes, Cushing's syndrome, porphyria, anorexia celiac disease and long-term therapy with certain medications (thiazide and loop diuretics, corticosteroids, cyclosporine (Cyclosporine capsules), estrogens, progestins, retinoids, protease inhibitors, as well as certain psychiatric medications, such as tricyclic antidepressants and selected antipsychotics). Qualification for genetic testing requires an individual evaluation by a specialist within the lipid

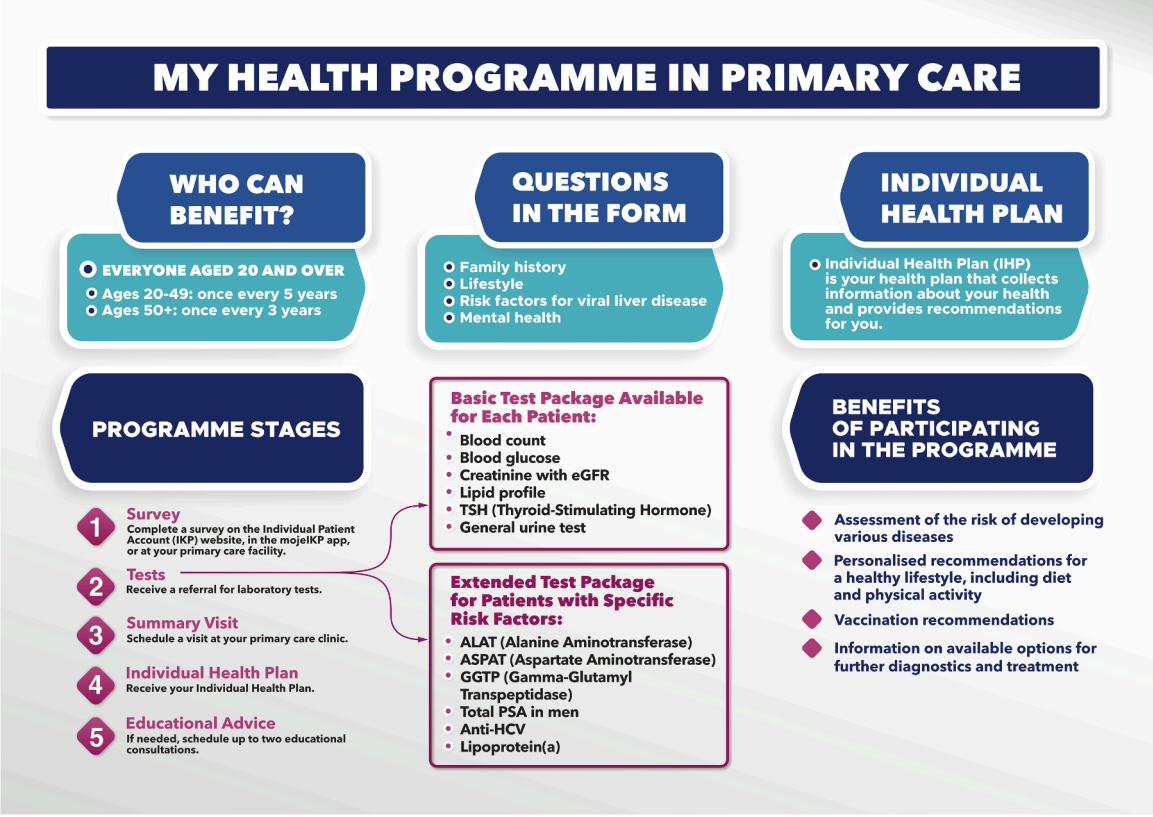

Fig. 2. My Health program in primary care in Poland – key information, structure, and patient pathways.

clinic or day care unit, following the exclusion of other conditions that may affect elevated LDL cholesterol levels. It is assumed that universal screening will enable the identification of approximately 17,500 to 27,000 suspected cases of FH, with around 1400 new FH diagnoses in children annually (approximately 4500 FH cases taking into account cascade screening in the lipid clinics for adults – based among others on PoLA certified lipid clinics) [18,19] (Fig. 3). Based on initial October 2025 data, as many as 3000 children from the program have already been referred to Children's Lipid Clinics.

3. Managed care after acute myocardial infarction (KOS-Zawał)

KOS-Zawał, initiated in October 2017, is a programme of annual, comprehensive specialist cardiology care encompassing hospital management, outpatient treatment, and rehabilitation for patients following myocardial infarction [20]. The coordination of the patient's treatment pathway is managed by a dedicated coordinator, who supports the patient throughout the programme. The programme consists of three stages: stage 1 - hospital management including diagnostics and treatment of the acute phase of myocardial infarction (MI), stage 2 - cardiac rehabilitation, inpatient or outpatient, and stage 3 - outpatient cardiology care, within which cardiology consultations take place (4 visits) together with detailed diagnostic tests. The third stage concludes with a health assessment, i.e., summary advice including laboratory tests and a summary of the patient's clinical condition. During the programme, patients receive an individualised treatment plan, extensive education on lifestyle, risk factors, cardiovascular diseases, and regular supervision of the treatment of lipid disorders (since Sept. 2023 there is a success fee for centres in the programme achieving at least 40 % of patients at the LDL-C goal). As of July 2024, 112 contracts have been signed for the implementation of KOS-Zawał (in 2024 about 40 % of patients with MI in Poland were covered by the programme). Based on the most recent data from the participating centres, the success fee has resulted in as many as 70 % of post-MI patients achieving the LDL-C goal at 3 months [21] with still over 60 % at month 12 (data unpublished). Moreover, according to the National Health Fund report (Oct. 2023), cardiac rehabilitation started during hospitalisation or within 60 days after hospitalisation due to MI reduced the risk of death by 57 %. A person who had 1 cardiology consultation within 60 days had a 30 % lower risk of death than a person who was not given such advice, and the risk decreased by 37 % – if two or more consultations were provided [22]. Two recognised limitations of this unique programme are: (1) that as many as 60 % of MI patients are not covered by the programme (it is not obligatory for the centres), and (2) the programme lasts only 12 months, and considering the risk to patients after MI, it should be extended to 24–36 months (Fig. 1). Thus, together with key decision-makers, we are now discussing whether it would be possible to make this program mandatory and extend its duration, as well as integrate it with other prevention initiatives to avoid siloing - particularly with the program enabling treatment with PCSK9 modulators. This is especially important now, as we await amendments to the Reimbursement Act that would create a semi-open reimbursement pathway for non-oncological drugs, similar to the scheme currently used for chemotherapy.

4. B101 drug programme for the treatment of patients with lipid disorders

The B101 reimbursement drug programme for the treatment of patients with lipid disorders (ICD-10: E78.01, I21, I22, I25) with PCSK9 inhibitors was launched in November 2018 for patients with heterozygous FH (heFH), and since November 2020, a post-ACS arm has also been included. Inclisiran was added in September 2022 [23], lomitapide was introduced for homozygous FH patients in September 2023, and evolocumab has been available for children with heFH aged >10 years since April 2024. The inclusion criteria have evolved over the past >6 years, with recent criteria allowing the inclusion of heFH patients

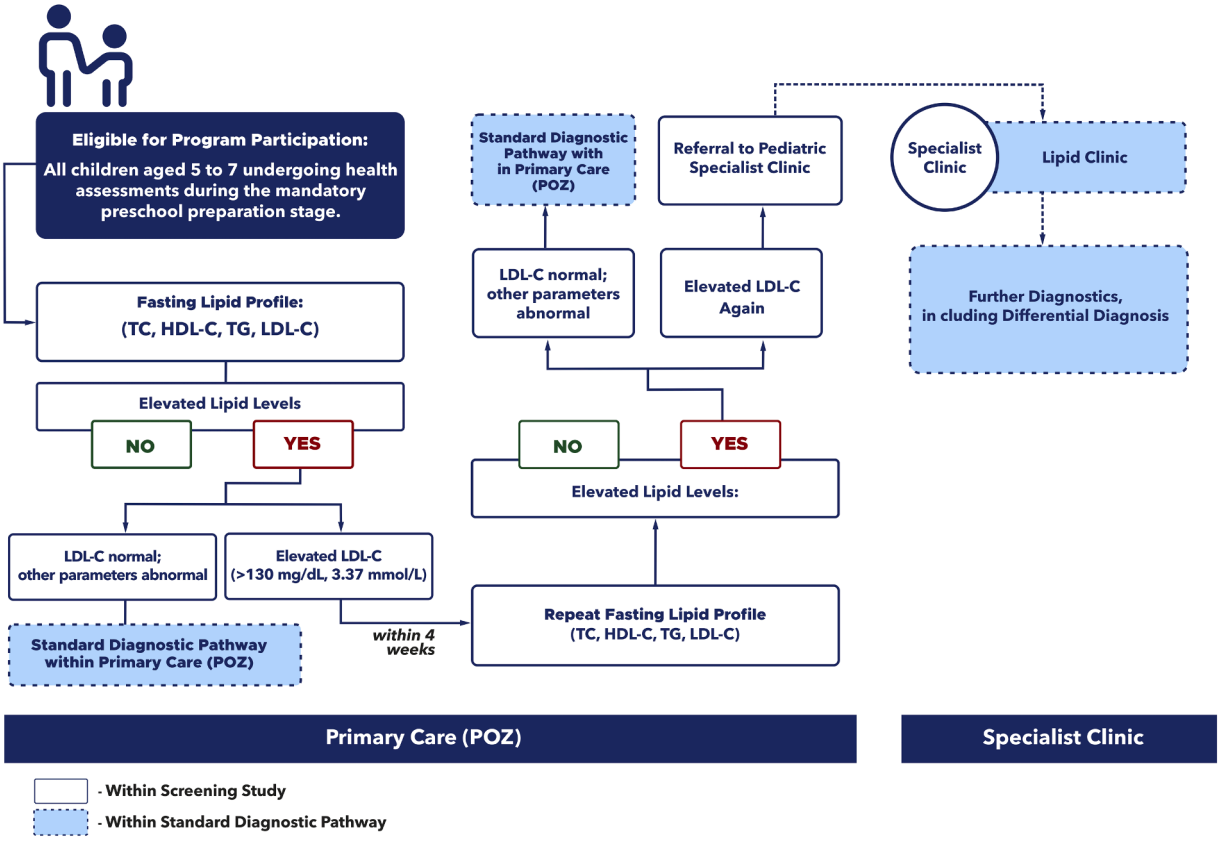

Fig. 3. Universal screening program for familial hypercholesterolemia (FH) in the assessment of 6-year-olds.

optimally treated with statins and ezetimibe (for ≥3 months) with LDL-*C* ≥ 100 mg/dL (2.5 mmol/L), and post-MI patients (within the past 24 months) with additional CVD risk factors, treated optimally with statins and ezetimibe for ≥3 months and LDL-*C* ≥ 70 mg/dL (1.8 mmol/L). The drug programme is currently being implemented in 146 centres in Poland. The most recent results of the drug programme have been presented at the ESC Congress in Madrid [24]. The analysis was based on data from 2844 patients (1650 heFH and 1194 ACS patients; mean age 61.3 years) who were included in the drug programme by the end of June 2025. 38.4 % commenced the programme with alirocumab, 27.3 % with evolocumab, and 34.5 % with inclisiran. The mean LDL-C reduction for FH patients within at least 2.5 years of follow-up was 65.6 % for alirocumab, 60.4 % for evolocumab, and 57.9 % for inclisiran. At the end of follow-up, 41.8 % of heFH patients achieved an LDL-C goal <55 mg/dL (<1.4 mmol/L), and 53.5 % achieved an LDL-C goal <70 mg/dL (<1.8 mmol/L). In ACS patients, the LDL-C reduction was 65.3 % for alirocumab, 66.1 % for evolocumab, and 48 % for inclisiran, and at the end of follow-up, 48 % of ACS patients achieved an LDL-C goal <55 mg/dL (<1.4 mmol/L), and 65 % achieved an LDL-C goal <70 mg/dL (<1.8 mmol/L). This resulted in an estimated cumulative death rate for heFH patients within the follow-up of 6.3 years of 6.3 % and for the ACS patients (at 4.6 years) – 4.8 % [24]. Comparing these results of very high and extremely high-risk patients with, for example, those from the Polish ACS and TERCET Registries, where even 20–25 % mortality is observed after 3 years [25,26], it suggests that intensive combination lipid-lowering therapy with optimal statin and ezetimibe therapy, supplemented with innovative drugs like PCSK9 inhibitors or inclisiran, may significantly reduce the risk of death and prolong life in these individuals. Therefore, experts and scientific societies have been working with the Ministry of Health in Poland to extend this programme to more at-risk patients to significantly reduce the CVD risk burden for the population [27]. Based on this, a new version of the B101 program, covering all the changes mentioned above - including treatment of heFH patients with PCSK9 modulators (LDL-*C* > 70 mg/dL [>1,8 mmol/L], or >55 mg/dL [>1.4 mmol/L] with additional risk factors or ASCVD) and post-MI patients (LDL-*C* > 70 mg/dL [>1.8 mmol/L] within the last 24 months with no other risk factors, or LDL-*C* > 55 mg/dL [>1.4 mmol/L] within 60 months with additional risk factors) - has been in effect since October 1st

5. Conclusions and perspectives

Within this concise paper, we have been able to highlight only the most important improvements in the Polish healthcare system that facilitate, and will continue to facilitate, optimal and early diagnosis within existing screening programmes and effective therapy of lipid disorders. The introduction of the European Program for Prevention (EPP; www.epprevention.eu) in June 2025 extends these efforts to all risk factors and all CEE countries. These solutions, with appropriate long-term validation (for those already introduced) could serve as a valuable example for other countries, not necessarily only in CEE and Asian ones. Obviously, we still need to monitor and improve these programmes (learning curve), educate (within hopefully soon obligatory *Health Education* subject) on them and convince people to invest in their health as early as possible (prevention), continue education on lifestyle changes, including regular exercises and a healthy diet, increase awareness of lipid disorders, too often taken much less seriously than obesity, diabetes or hypertension, and increase the number patients that may benefit from new and innovative lipid-lowering therapies [5,28].

Naturally, we still need to advocate for further changes and improvements, especially in relation to rare diseases, awaiting the commencement of the National Programme for Rare Diseases [29] with dedicated additional funding for genetic examinations, networking, registries, early diagnosis, management, and research. Without this, even with extensive education, lipidology certification, and the best guidelines, we may not be as effective as we could be, as is currently the case, with only about 5–6 % of patients with FH diagnosed, only 12 diagnosed cases of homozygous FH, an unknown number of patients with FCS (the registry under the umbrella of PoLA is now being funded), and other genetic disorders associated with the synthesis or cholesterol metabolism [30].

CRediT authorship contribution statement

Maciej Banach: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Methodology, Conceptualization. **Agnieszka Mastalerz-Migas:** Writing – review & editing. **Krystian Wita:** Writing – review & editing. **Malgorzata Myśliwiec:** Writing – review & editing.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

Medical University of Lodz reports a relationship with Maciej Banach that includes: board membership, consulting or advisory, funding grants, and speaking and lecture fees. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

[1] Banach M, Burchardt P, Chlebus K, Dobrowolski P, Dudek D, Dyrbuś K, Gąsior M, Jankowski P, Jóźwiak J, Kłosiewicz-Latoszek L, Kowalska I, Małecki M, Prejbisz A, Rakowski M, Rysz J, Solnica B, Sitkiewicz D, Sygitowicz G, Sypniewska G, Tomasik T, Windak A, Zozulińska-Ziółkiewicz D, Cybulska B. PoLA/CFPiP/PCS/PSLD/PSD/PSH guidelines on diagnosis and therapy of lipid disorders in Poland 2021. Arch Med Sci 2021;17(6):1447–547.

[2] Nowowiejska-Wiewióra A, Wita K, Mędrala Z, Tomkiewicz-Pająk L, Bujak K, Mizia-Stec K, Brzychczy P, Gąsior M, Gąsior Z, Kulbat A, Kalarus Z, Wojakowski W, Trzeciak P, Witkowski A, Banach M, Legutko J. Dyslipidemia treatment and attainment of LDL-cholesterol treatment goals in patients participating in the Managed Care for Acute Myocardial Infarction Survivors program. Kardiol Pol 2023;81(4):359–65.

[3] Sosnowska B, Lewek J, Adach W, Mierczak K, Bielecka-Dąbrowa A, Szosland K, Zygmunt A, Dąbrowski J, Banach M. The prevalence, patients' characteristics, and hyper-Lp(a)-emia risk factors in the Polish population. The first results from the PMMHRI-Lp(a) Registry. Prog Cardiovasc Dis 2024;86:54–61.

[4] Sosnowska B, Stepinska J, Mitkowski P, Bielecka-Dabrowa A, Bobrowska B, Budzianowski J, Burchardt P, Chlebus K, Dobrowolski P, Gasior M, Jankowski P, Kubica J, Mickiewicz A, Mysliwiec M, Osadnik T, Prejbisz A, Rajtar-Salwa R, Wita K, Witkowski A, Gil R, Banach M. Recommendations of the Experts of the Polish Cardiac Society (PCS) and the Polish Lipid Association (PoLA) on the diagnosis and management of elevated lipoprotein(a) levels. Arch Med Sci 2024;20(1):8–27.

[5] Banach M, Fogacci F, Atanasov AG, Stoian AP, Jóźwiak J, Bytyçi I, Pećin I, Katsiki N, Mazidi M, Gouni-Berthold I, Penson PE, Gaita D, Cicero AFG. International Lipid Expert Panel (ILEP). A 360° perspective on cardiovascular prevention: the International Lipid Expert Panel SiMple tIps for the heaLthy hEart (ILEP-SMILE). Arch Med Sci. 2025;21(3):711–8.

[6] Split in Polish government over new health education subject in schools. https://notesfrompoland.com/2025/01/13/split-in-polish-government-over-new-health-education-subject-in-schools/.

[7] Certified lipidologists of the Polish Lipid Association. https://ptlipid.pl/certyfikowani-lipidolodzy/.

[8] Catapano AL, Tokgözoğlu L, Banach M, Gazzotti M, Olmastroni E, Casula M, Ray KK. Lipid Clinics Network Group. Evaluation of lipoprotein(a) in the prevention and management of atherosclerotic cardiovascular disease: a survey among the Lipid Clinics Network. Atherosclerosis 2023;370:5–11.

[9] Banach M, Surma S, Bielecka-Dąbrowa A, Gierlotka M, Główczynska R, Jankowski P, Jóźwiak J, Kubica J, Streb W, Szymanski FM, Tomasik T, Gil R. Rosuvastatin-based combination treatment with acetylsalicylic acid or ezetimibe in the management of patients at high and very high cardiovascular risk. Expert opinion paper of the Polish Lipid Association 2025. Arch Med Sci 2025;21(1):1–15.

[10] Banach M, Surma S, Kapłon-Cieślicka A, Mitkowski P, Dzida G, Tomasik T, Mastalerz-Migas A. Position paper of the Polish Expert Group on the use of pitavastatin in the treatment of lipid disorders in Poland endorsed by the Polish Lipid Association. Arch Med Sci 2023;20(1):28–42.

[11] In Warsaw, they'll be fighting cholesterol. The goal is to reduce the risk of cardiovascular disease by 50 percent. https://www.medonet.pl/zdrowie/wiadomosci,w-warszawie-beda-walczyc-z-cholesterolem–cel-to-zmniejszenie-ryzyka-chorob-sercowo-naczyniowych-o-50-proc-,artykul,88776263.html.

[12] Solnica B, Sygitowicz G, Sitkiewicz D, Jóźwiak J, Kasperczyk S, Broncel M, Wolska A, Odrowąż-Sypniewska G, Banach M. 2024 Guidelines of the Polish Society of Laboratory Diagnostics and the Polish Lipid Association on laboratory diagnostics of lipid metabolism disorders. Arch Med Sci 2024;20(2):357–74.
[13] Coordinated care programme in primary care: https://ptmr.info.pl/opieka-koordynowana-w-poz/.
[14] The National Cardiovascular Disease Programme for years 2022–32: https://www.ikard.pl/narodowy-program-chorob-ukladu-krazenia/informacje.html.
[15] National Cardiology Network – better care for patients with cardiovascular diseases: https://www.gov.pl/web/zdrowie/krajowa-siec-kardiologiczna–lepsza-opieka-dla-pacjentow-z-chorobami-ukladu-krazenia.
[16] My Health program: http://pacjent.gov.pl/program-moje-zdrowie.
[17] Sosnowska B, Toth PP, Razavi AC, Remaley AT, Blumenthal RS, Banach M. The year in cardiovascular disease - the year of lipoprotein(a). Research advances and new findings. Arch Med Sci 2024;21(2):355–73. 2025 Feb 22.
[18] Lipid profile - balance of a 6-year-old: https://ptmr.info.pl/materialy-edukacyjne/lipidogram-bilans-6-latka/.
[19] Myśliwiec M, Bandura M, Wołoszyn-Durkiewicz A, Hennig M, Walczak M, Peregud-Pogorzelski J, Sykut-Cegielska J, Miszczak-Knecht M, Chlebus K, Wasąg B, Zmysłowska A, Banach M. 2024 Polish recommendations for the management of familial hypercholesterolemia in children and adolescents. Arch Med Sci 2024;20(6):1741–53.
[20] Jankowski P, Topór-Mądry R, Gąsior M, Cegłowska U, Eysymontt Z, Gierlotka M, Wita K, Legutko J, Dudek D, Sierpiński R, Pinkas J, Kaźmierczak J, Witkowski A, Szumowski Ł. Innovative managed care may Be related to improved prognosis for acute myocardial infarction survivors. Circ Cardiovasc Qual Outcomes 2021;14(8):e007800.
[21] Kułach A, Wieczorek P, Urbańczyk-Świć D, Turski M, Wita M, Grabarczyk M, Wita K. Aggressive lipid-lowering treatment in Managed Care after Acute myocardial infarction (MC-AMI) patients: results better but still not satisfactory. A single-center prospective analysis. Kardiol Pol 2024;82(2):203–5.
[22] KOS-Zawał is a success for cardiology, but not everyone will benefit. How can we improve access to the program in the counties? https://www.rynekzdrowia.pl/Serwis-Kardiologia/KOS-zawal-to-sukces-kardiologii-ale-nie-wszyscy-skorzystaja-Jak-poprawic-dostepnosc-do-programu-w-powiatach,261472,1014.html.
[23] Banach M, Kruk M, Kon B, Lewek J, Bielecka-Dabrowa A, Galazka-Sobotka M. Long-term survival of heFH or ACS patients on PCSK9 targeted therapy based on the real-life data from Poland. Eur Heart J 2025;46(Suppl. 1):ehaf784.4299.
[24] Banach M, Kruk M, Koń B, Lewek J, Bielecka-Dąbrowa A, Gałązka-Sobotka M. Long-term survival of heFH or ACS patients on PCSK9 targeted therapy based on the real-life data from Poland. In: Presentation at the ESC Congress 2025 in Madrid, 30th August; 2025.
[25] Fojt A, Kowalik R, Gierlotka M, Gąsior M, Smeding C, Opolski G. Three-year mortality after acute myocardial infarction in patients with different diabetic status. Pol Arch Intern Med 2021;131(11):16095.
[26] Dyrbuś K, Gąsior M, Desperak P, Trzeciak P, Nowak J, Penson PE, Osadnik T, Banach M. Risk-factors associated with extremely high cardiovascular risk of mid- and long-term mortality following myocardial infarction: analysis of the Hyperlipidaemia Therapy in tERtiary Cardiological cEnTer (TERCET) registry. Atherosclerosis 2021;333:16–23.
[27] Dyrbuś K, Banach M, Gil R, Gąsior M, Broncel M, Gellert R, Stompór T, Jankowski P, Gierlotka M, Gruchała M, Dzida G, Mitkowski P, Kowalska I, Szymański FM, Słowik A, Sławek J, Lasek-Bal A, Kułakowska A, Kobayashi A, Rejdak K, Strojek K, Małecki M, Naumnik B, Krajewska M, Kuczmik W, Wiewióra M, Witkowski A. Interdisciplinary expert team statement on the treatment of multi-bed atherosclerotic disease - endorsed by Polish Cardiac Society, Polish Lipid Association, Polish Society of Diabetology, Polish Neurological Society, Polish Society of Nephrology. Kardiol Pol 2025;83(4):531–9.
[28] Banach M, Surma S, Guzik TJ, Penson PE, Blaha MJ, Pinto FJ, Sperling LS. Upfront lipid-lowering combination therapy in high cardiovascular risk patients: a route to effective atherosclerotic cardiovascular disease prevention. Cardiovasc Res 2025;121(6):851–9.
[29] National Programme for Rare Diseases. https://rzadkiechoroby.org/plan-dla-chorob-rzadkich/.
[30] Lewek J, Sosnowska B, Starostecka E, Konopka A, Gach A, Rutkowska L, Adach W, Mierczak K, Bielecka-Dąbrowa A, Banach M. Clinical reality and challenges with familial hypercholesterolemia patients' management. 2024 results from the Regional Center for Rare Diseases (RCRD) Registry in Poland. Int J Cardiol 2025;419:132667.