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INTEGRATED COORDINATED CARE IN POLISH PRIMARY HEALTH CARE: AN INNOVATIVE DIAGNOSTIC MODEL BRIDGING PRIMARY AND SPECIALIST SERVICES

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ABSTRACT

Primary health care (PHC) serves as the fundamental point of contact between patients and the healthcare system, playing a critical role in the prevention, diagnosis, and management of chronic diseases. This paper analyzes the Coordinated Care model in PHC (OK-POZ), introduced in Poland after 2022, as an innovative systemic solution that enables general practitioners to order diagnostic tests previously available exclusively at the specialist outpatient care level (AOS). The model encompasses five clinical pathways — cardiology, diabetology, endocrinology, pulmonology/allergology, and nephrology — and is anchored by the Individual Medical Care Plan (IPOM). The implementation of OK-POZ reduces the time from first consultation to diagnosis, decreases unnecessary specialist referrals, and lowers long-term hospitalization costs. However, significant challenges persist, including geographic inequalities in access to services, physician workforce shortages, and the lack of unified health information systems. Properly designed diagnostic algorithms within PHC substantially improve early detection of conditions such as diabetes, chronic kidney disease, and cardiovascular disorders.

KEYWORDS

Primary Health Care, Coordinated Care, Diagnostics, NFZ, Chronic Diseases, Poland

CITATION

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I. Introduction

Population screening is defined as the systematic application of a diagnostic test to asymptomatic individuals from a defined population or a specific age-stratified subgroup, with the aim of detecting early stages of disease and enabling prompt initiation of treatment. [1] Active case-finding involves identifying patients at elevated risk of a given condition who present for care within the healthcare system. [2]

The primary care physician (PCP) serves as the patient's first point of contact with the healthcare system. Their scope of competence encompasses diagnostics, disease prevention, treatment, referrals for vaccinations and follow-up examinations, and, when necessary, referrals to medical specialists or hospital care. The range of diagnostic tests available at the primary care level is broad, including laboratory investigations (hematological, biochemical and immunochemical, and microbiological), imaging studies (ultrasound and X-ray), and resting electrocardiography - making primary care the optimal setting for conducting both organized population screening and active case-finding. [3,4]

A key advantage of primary care over other levels of the healthcare system is continuity of care. The long-term physician–patient relationship enables repeated monitoring of test results over time, early detection of deviations from normal values, and prompt initiation of diagnostic and therapeutic management.

Within primary care, a coordinated care model operates that substantially expands the diagnostic capabilities of the general practitioner. Under this framework, an Individual Medical Care Plan (IPOM) can be developed for the patient, with ongoing oversight of the diagnostic and therapeutic process. [5] Coordinated care encompasses five specialty domains: cardiology, diabetology, endocrinology, pulmonology, and nephrology. Within the pulmonology pathway, consultations are available with, among others, a pulmonologist and allergist. The physician has access to a delegated budget enabling them to order tests previously available only through specialist referral, including transthoracic echocardiography, Holter ECG monitoring, exercise stress ECG, Doppler ultrasound of the lower limb vessels and carotid arteries, spirometry, urine albumin-to-creatinine ratio (UACR), and a thyroid antibody panel comprising anti-thyroid peroxidase antibodies (anti-TPO), TSH receptor autoantibodies (anti-TSHR), and anti-thyroglobulin antibodies (anti-TG).

It should be emphasized, however, that the primary care physician determines the necessity of diagnostic investigations based on clinical indications, not at the patient's request. [4,5]

II. Coordinated Care in Primary Care

The coordinated care model in primary care enables the general practitioner to order diagnostic investigations previously available only at the level of outpatient specialist care (AOS), which - as noted in the introduction - substantially expands the scope of diagnostic and therapeutic management conducted within the primary care setting. This model encompasses the following pathways: cardiology, diabetology, endocrinology, pulmonology-allergology, and nephrology, and its practical foundation is the Individual Medical Care Plan (IPOM) developed during a comprehensive visit. Depending on the patient's needs, the general practitioner may issue referrals for a range of available services. Implementing these investigations within primary care shortens the time from initial consultation to diagnosis and reduces the number of unnecessary referrals to specialist outpatient care, translating into a tangible benefit for the patient. It should be noted, however, that the availability of specific diagnostic services depends on the coordinated care contracts with the National Health Fund (NFZ) held by a given practice.

Table 1. Diagnostic investigations available under coordinated care — overview by specialty pathway

Specialty Pathway	Conditions	Investigations Available under Coordinated Primary Care
Cardiology	HT, HF, CAD, AF	Exercise stress ECG; Holter ECG (24/48/72 h); ambulatory blood pressure monitoring (ABPM); transthoracic echocardiography; Doppler ultrasound of the carotid arteries and lower limb vessels; BNP (NT-proBNP); albuminuria; coronary CT angiography
Diabetology	DM, prediabetes	HbA1c; lipid profile; UACR (depending on implementation, also within the nephrology pathway); albuminuria; Doppler ultrasound of the lower limb vessels
Pulmonology–Allergology	COPD, bronchial asthma	Spirometry; spirometry with bronchodilator reversibility testing
Endocrinology	Thyroid disorders	Anti-TPO; anti-TSHR; anti-TG; targeted fine-needle aspiration biopsy of the thyroid
Nephrology	CKD	UACR; eGFR (based on creatinine and/or cystatin C)

Abbreviations: ABPM — ambulatory blood pressure monitoring; anti-TG — anti-thyroglobulin antibodies; anti-TPO — anti-thyroid peroxidase antibodies; anti-TSHR — TSH receptor autoantibodies; CAD — coronary artery disease; CKD — chronic kidney disease; COPD — chronic obstructive pulmonary disease; DM — diabetes mellitus; eGFR — estimated glomerular filtration rate; HF — heart failure; HT — hypertension; AF — atrial fibrillation; UACR — urine albumin-to-creatinine ratio

III. Cost-Effectiveness and Accessibility of Coordinated Care in Primary Care — A Systemic Perspective

The implementation of coordinated care in primary care following 2022 represents part of a broader reform of the Polish healthcare system, aimed at relieving pressure on specialist outpatient care and reducing costs generated by late diagnosis of chronic diseases. Data from the National Health Fund (NFZ), however, indicate significant geographical inequalities in access to coordinated primary care services. The proportion of practices holding an NFZ contract remains markedly varied across voivodeships, resulting in uneven availability of the model for patients in different regions of the country.[6,7] The economic rationale for early diagnostics at the primary care level is supported by WHO data and the scientific literature: early detection of chronic kidney disease, diabetes mellitus, and cardiovascular disease substantially reduces hospitalization costs and the need for specialist interventions in the long term. [2,12] The delegated budget mechanism, which constitutes the financial cornerstone of coordinated primary care, incentivizes practices to manage diagnostics more efficiently. It does, however, carry the risk of so-called underdiagnosis - an insufficiency of diagnoses in high-cost patients - a phenomenon that has been documented in the context of unadjusted capitation systems. [6,13] Implementation barriers include staffing shortages - Poland has 3.4 physicians per 1,000 inhabitants compared to the EU average of 4.1 - as well as infrastructural limitations of small rural practices and the absence of unified health information systems enabling full coordination of clinical data. [5,6,11] In a comparative context, it is worth referring to integrated primary care models operating in the Netherlands, Denmark, and Finland, where years of experience indicate that the success of similar reforms depends equally on funding and on investment in digital infrastructure and medical workforce development. [10,14,15]

IV. Mini-Algorithms

In primary care, the effectiveness of preventive medicine does not end with access to tests alone. Its cornerstone is accurate interpretation of results and prompt initiation of therapeutic steps, with the physician's diagnostic capacity strictly defined by current regulations and the benefits basket framework. [4,5]

The coordinated care model expands the range of available services to include selected investigations previously reserved primarily for specialist outpatient care, carried out within the delegated budget and the Individual Medical Care Plan (IPOM). [6,7,8]

The following section presents practical clinical algorithms that the general practitioner can readily apply in their day-to-day clinical practice.

Diabetes and Prediabetes Screening in Primary Care

Diabetes screening in the primary care setting most commonly takes the form of active case-finding, targeting individuals with overweight or obesity, hypertension, dyslipidemia, a positive family history, previous gestational diabetes, or other cardiometabolic risk factors.

First-line investigations remain HbA1c and fasting plasma glucose, both available within the guaranteed primary care benefits package. [4,5] In the case of a borderline result, repeat testing or an oral glucose tolerance test (OGTT) is warranted when clinical indications are present.

A diagnosis of diabetes mellitus or prediabetes should prompt immediate initiation of non-pharmacological interventions, along with assessment and modification of cardiovascular risk factors. Evaluation for complications and establishment of a primary care follow-up schedule are also required. In practices operating under coordinated care, this process is supported by the diabetology pathway within the IPOM, which guarantees the patient access to broader diagnostics and specialist consultations. [6,7,9]

Screening Algorithm for Diabetes Mellitus and Prediabetes in Primary Care (PHC)

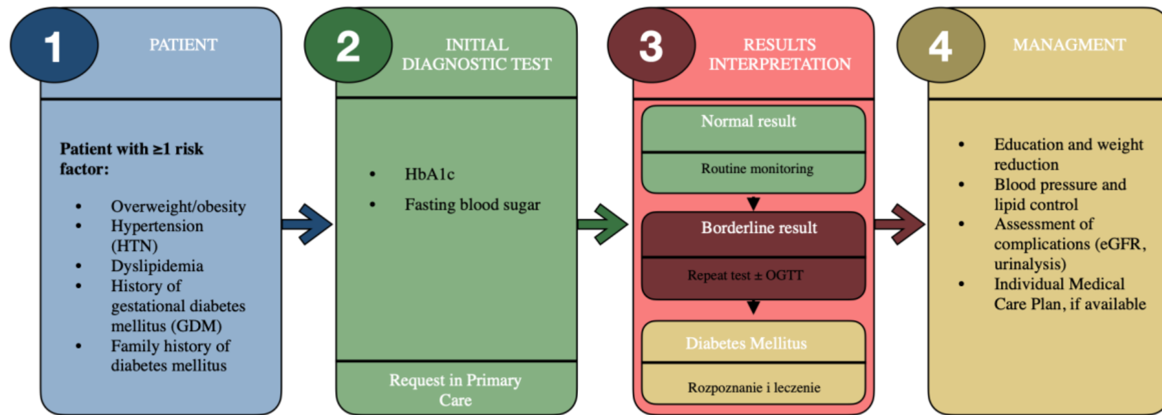

Fig. 1. Algorithm for diabetes and prediabetes screening in primary care

Early Detection of Chronic Kidney Disease in Patients with Hypertension or Diabetes Mellitus

Routine monitoring for chronic kidney disease is essential in all patients with diabetes mellitus, hypertension, and cardiovascular disease. The core diagnostic workup in this context must include serum creatinine measurement with calculation of the estimated glomerular filtration rate (eGFR) and urinalysis. [4,5]

The introduction of the coordinated care model allows for the extension of diagnostics to include the urine albumin-to-creatinine ratio (UACR), providing the physician with a tool for more precise monitoring of disease progression rate. [6]

When persistent abnormalities are detected, intensification of glycemic and blood pressure control is required. The physician should then review the patient's medications for nephrotoxicity, provide patient education, and consider nephrology referral. [6,7]

Algorithm for Early Detection of Chronic Kidney Disease (CKD)

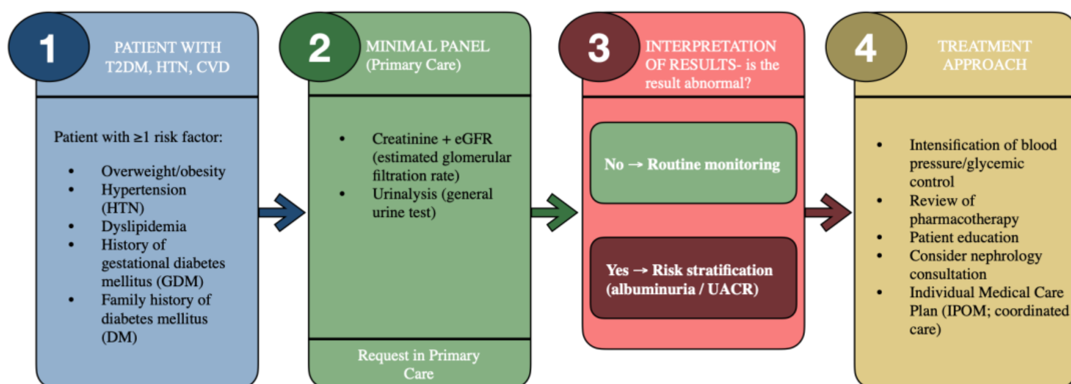

Fig. 2. Early detection of chronic kidney disease (CKD)

Cardiac Risk Stratification ("Gating") in Primary Care

The presence of exertional dyspnoea, palpitations, syncope, or lower limb oedema requires the patient to be assessed according to a structured diagnostic protocol. An identical approach should be applied to patients with a high cardiovascular risk profile in order to ensure comprehensive care. The foundation of this assessment remains physical examination, resting ECG, and laboratory investigations in accordance with the primary care benefits package. [4,5]

Practices operating under the coordinated care model offer an extended panel of cardiac investigations, including echocardiography, exercise stress ECG, and Holter ECG monitoring. In the process of differentiating the causes of heart failure, the physician may additionally order BNP or NT-proBNP measurement, and in vascular diagnostics, Doppler ultrasound of the carotid arteries and lower limb vessels. [6,8,9]

Where significant abnormalities or red flag symptoms are identified, urgent referral to specialist outpatient care or the emergency department is required. [9]

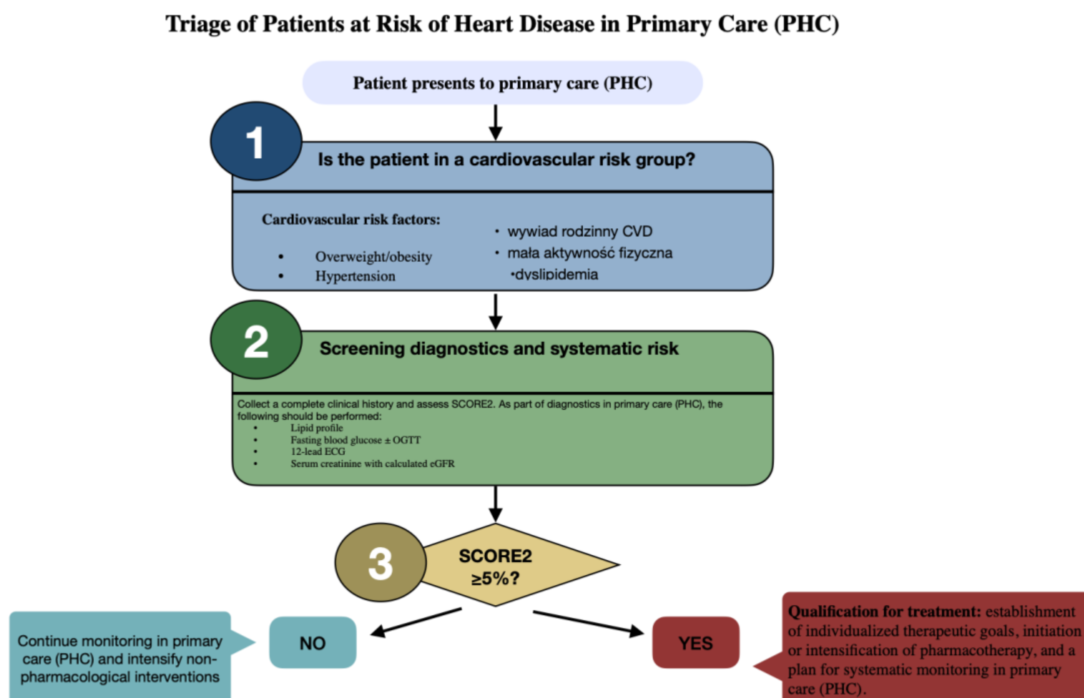

Fig. 3. *Cardiac risk stratification ("gating") in primary care*

V. Conclusions

Primary care constitutes the first and key point of patient contact with the healthcare system, playing a fundamental role in prevention, early diagnosis, and management of chronic diseases. The broad range of available diagnostic investigations, combined with continuity of care, makes primary care the optimal setting for conducting both organized population screening and active case-finding.

The implementation of the Coordinated Integrated Care model in primary care has improved patient access to services previously available only at the specialist outpatient level, while simultaneously reducing unnecessary referrals and shortening the time from initial consultation to diagnosis. This model thus represents an innovative tool for integrating primary and specialist diagnostics, improving early detection of chronic conditions including diabetes mellitus, chronic kidney disease, cardiovascular disease, thyroid disorders, and respiratory diseases.

The clinical algorithms presented in this paper confirm that appropriately planned and conducted primary care activities - grounded in rigorous interpretation of investigation results and prompt therapeutic decision-making - significantly improve early disease detection and enhance patient prognosis. For the system to function efficiently, however, adherence to its core clinical and organisational principles remains essential.

Effective nationwide implementation of the Coordinated Integrated Care model requires addressing significant geographical inequalities in access to services, increasing primary care workforce capacity - given a physician density of 3.4 per 1,000 inhabitants against the EU average of 4.1 - and investing in digital infrastructure and unified health information systems. The experience of integrated primary care systems in the Netherlands, Denmark, and Finland indicates that the lasting success of similar reforms depends equally on funding and on investment in technology and medical workforce development.

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