Post-print of Standards for Integrated Diabetes Prevention and Treatment Services in Primary Care

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Abstract

In recent years, the prevalence of diabetes among adults in China has exhibited a continuous upward trajectory, reaching 11.9%, with type 2 diabetes constituting over 90% of cases. Simultaneously, the affected population is becoming increasingly younger. China has now entered the phase of comprehensively constructing a "Healthy China," and the exploration and construction of chronic disease management pathways centered on the integration of medical treatment and prevention has become a significant trend. This standard is developed based on existing service content and processes for the integrated medical-preventive management of type 2 diabetes, formulating a standardized service and clinical protocol for type 2 diabetes. The standard primarily encompasses fundamental requirements for service delivery, service content, and service processes, with the objective of optimizing health management and clinical workflows for type 2 diabetes at the primary care level. Through early detection and comprehensive management, it aims to control the incidence and mortality of type 2 diabetes, reduce and delay the onset of complications, thereby effectively establishing a frontline defense for chronic disease management and prevention at the primary care level.

Full Text

Specification for the Integration of Healthcare and Prevention Services in Diabetes at the Primary Level

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Abstract

In recent years, the prevalence of diabetes among adults in China has continued to rise, reaching as high as 11.9%, with type 2 diabetes mellitus (T2DM) accounting for more than 90% of cases and the onset age becoming increasingly younger. China has now entered the stage of comprehensively building a "Healthy China," making the exploration of chronic disease management pathways centered on healthcare-prevention integration a critical trend. This specification formulates standardized diagnostic and treatment protocols for T2DM healthcare-prevention integration based on existing service content and processes. The specification primarily covers basic service provision requirements, service content, and service workflows, aiming to optimize primary-level health management and clinical processes for T2DM. Through early detection and comprehensive management, it seeks to control T2DM incidence and mortality while reducing and delaying complications, thereby effectively establishing a frontline defense for chronic disease management at the primary level.

Keywords: Diabetes Mellitus; Integration of Healthcare and Prevention; Specification; Group Standards

1 Scope

This document specifies the standard terminology, definitions, basic requirements, healthcare-prevention integration service content and processes, and service evaluation and improvement mechanisms for diabetes management in medical institutions. The primary audience includes primary-level medical and health institutions that provide medical services and essential public health services to key populations requiring diabetes prevention, control, and treatment, as well as other institutions offering integrated diabetes healthcare-prevention services. The target population primarily comprises residents aged 18 years and older within the service area, particularly diagnosed T2DM patients and high-risk individuals.

2 Normative References

The following documents contain provisions that constitute essential requirements of this specification:
* *Service Specification for Chronic Disease Management Centers in Primary-Level Medical and Health Institutions* (DB32/T4383-2022)
* *Hospital Public Health Work Specification: Guidelines for Healthcare-Prevention Integration in Disease Control Institutions* (DB32/T 4659.2-2024)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Healthcare-Prevention Integration

Healthcare-prevention integration refers to the combination of disease prevention and treatment. Beyond providing medical services to target populations, it integrates preventive services, referral services, follow-up services, and health education with medical care, ensuring effective linkage, orderly delivery, and mutual coordination. This approach enhances the continuity and efficiency of preventive, diagnostic, rehabilitative, and follow-up services, improves disease awareness, early diagnosis rates, and standardized management throughout the entire process, and reduces the incidence, disability, and mortality rates of diabetes in the target population.

3.2 Diabetes Mellitus

Diabetes mellitus is a group of metabolic disorders characterized by carbohydrate, protein, and fat metabolism abnormalities resulting from insufficient insulin secretion or impaired insulin utilization, with elevated blood glucose as the primary manifestation[1]. Major types include type 1 diabetes, type 2 diabetes, special types of diabetes, and gestational diabetes[2].

3.3 Type 2 Diabetes Mellitus (T2DM)

T2DM is the most common form of diabetes, characterized by metabolic disorders with elevated blood glucose as the main feature due to the body' s inability to effectively utilize insulin.

4 Basic Requirements

4.1 Institutional Setup

4.1.1 Institutions providing diabetes health management services should be established, including township health centers, community health service centers (stations), village clinics, integrated medical and elderly care institutions, and other relevant organizations offering diabetes healthcare-prevention integration services.

4.1.2 Relying on the family doctor system[3], primary-level medical and health institutions should form professional teams comprising physicians, nurses, and public health personnel, with specialist physicians from higher-level hospitals invited to provide professional guidance. Under institutional leadership, these teams deliver standardized services to diabetes patients through contracted care. All team physicians must complete national unified training and be qualified, with performance-based assessment and incentive mechanisms established to continuously improve service quality and efficiency[4].

4.2 Equipment Configuration

4.2.1 Community health service stations and village clinics should be equipped with at minimum a vision chart, height and weight scale, flexible measuring tape, portable blood glucose meter, and sphygmomanometer.

4.2.2 In addition to the basic equipment mentioned above, community health service centers and township health centers should be equipped with a 128 Hz tuning fork, 10 g monofilament, percussion hammer, blood biochemistry analyzer, urine analyzer, blood cell analyzer, and portable electrocardiograph. Institutions with appropriate conditions may also be equipped with glycated hemoglobin A1c (HbA1c) detectors, ophthalmoscopes, continuous glucose monitors, insulin pumps for insulin therapy, non-mydriatic retinal cameras, limb Doppler flow detectors, sensory threshold monitors, and are encouraged to equip devices capable of data upload[4].

4.2.3 Blood glucose measurement methods may include venous plasma glucose testing, capillary blood glucose testing, HbA1c testing, and urine glucose testing. Blood glucose meters should comply with national standards (GB/T 19634-2005)[5] and be calibrated at least every six months. Blood glucose testing methods should follow health industry standards (WS/T 350-2011)[6]. Blood glucose testing instruments and usage methods should comply with health industry standards (WS/T 461-2015)[7].

4.3 Drug Configuration

4.3.1 Primary-level medical and health institutions should be equipped with the following five major categories of essential hypoglycemic drugs[4]:

4.3.1.1 Metformin (e.g., metformin hydrochloride tablets, metformin hydrochloride extended-release tablets)
4.3.1.2 Insulin secretagogues (sulfonylureas, glinides). Common sulfonylureas include glimepiride; common glinides include repaglinide, mitiglinide, and nateglinide.
4.3.1.3 α-glucosidase inhibitors, such as acarbose, miglitol, and voglibose.
4.3.1.4 Thiazolidinediones (TZDs), mainly including rosiglitazone and pioglitazone.
4.3.1.5 Insulin.

4.3.2 Institutions with appropriate conditions may also equip the following drug categories:

4.3.2.1 Dipeptidyl peptidase-4 inhibitors (DPP-4i), such as sitagliptin and vildagliptin.
4.3.2.2 Sodium-glucose cotransporter 2 inhibitors (SGLT-2i), such as dapagliflozin and empagliflozin[8].
4.3.2.3 Glucagon-like peptide-1 receptor agonists (GLP-1RA)[8]. Short-acting agents include exenatide (Byetta) and beinaglutide; long-acting agents include loxenatide (Fulaimei), exenatide microspheres (Baidayang), and semaglutide.
4.3.2.4 Institutions with appropriate conditions may also configure traditional Chinese medicine decoctions and patent medicines.

4.3.3 Institutions with appropriate conditions should equip drugs for common T2DM complications, including calcium dobesilate, methylcobalamin, statins, and aldose reductase inhibitors (such as epalrestat).

4.4 Collaboration Mechanisms

4.4.1 Establish vertical and horizontal communication mechanisms, with community health service centers and township health centers as the core, communicating upward with county-level medical institutions and providing guidance downward to rural medical institutions. Strengthen horizontal linkages and vertical stepwise communication, with inter-institutional coordination. Establish and improve specific implementation details for tiered diagnosis and treatment, clarifying referral service processes to ensure smooth referral channels.

4.4.2 Timely update patient health records, documenting detailed information from screening and treatment processes. Institutions with appropriate conditions should establish comprehensive information management systems to achieve electronic management of patient information and improve medical service efficiency[9–10].

4.4.3 Actively develop traditional Chinese medicine characteristic services, conduct health management services for diabetes patients, such as rehabilitation therapy and complication prevention, to improve clinical symptoms.

5 Service Content

5.1 Screening and Assessment Services

5.1.1 Screening Services Township health centers, village clinics, and community health service centers should actively conduct both active and passive screening services to identify and diagnose diabetes patients early.

5.1.1.1 High BMI, unhealthy lifestyle and dietary habits (smoking, alcohol consumption, excessive intake of red meat such as beef, pork, and mutton, insuf-

ficient vegetable and fruit intake, and lack of exercise) are important diabetes risk factors among Chinese residents[11]. Individuals with these characteristics should be the focus of diabetes screening.

5.1.1.2 Conduct free blood glucose testing annually for high-risk populations within the service area. In regions with adequate resources, all adults aged 18 years and older may receive annual blood glucose testing, with results recorded in residents' electronic health records. Simultaneously, implement a first-visit blood glucose measurement system within primary-level medical and health institutions. Where conditions permit, all adults aged 18 years and older should receive blood glucose measurement at their first visit. Screening methods include fasting (8 hours without food) blood glucose testing or 2-hour blood glucose testing after a 75 g oral glucose tolerance test (OGTT)[11].

(1) If fasting blood glucose is between 3.9-<6.1 mmol/L and 2-hour OGTT is <7.8 mmol/L with no other abnormal factors, the individual may be preliminarily determined to have normal blood glucose, with annual screening recommended[13].

(2) If fasting blood glucose is between 6.1-<7.0 mmol/L, this indicates impaired fasting glucose (IFG); if 2-hour OGTT is between 7.8-<11.1 mmol/L, this indicates impaired glucose tolerance (IGT). Both are collectively termed dysglycemia, also known as pre-diabetes. Individuals should be advised to immediately adopt effective lifestyle interventions to prevent disease progression and have blood glucose rechecked within two weeks to confirm[8].

(3) When individuals exhibit symptoms such as extreme thirst, frequent urination, increased appetite, and unexplained weight loss, with random blood glucose $ $11.1 mmol/L, or fasting blood glucose $ $7.0 mmol/L, or 2-hour plasma glucose $ $11.1 mmol/L after OGTT^{14}$, diabetes may be preliminarily diagnosed and referral to higher-level hospitals for further examination is recommended to determine diabetes type and implement appropriate interventions.

5.1.2 Initial Assessment Services Township health centers and community health service centers (stations) should promptly conduct etiological differential diagnosis and detailed assessment for diabetes patients at their first visit, with annual assessment recommended thereafter. Assessment content includes:

5.1.2.1 Medical History Inquiry: Inquire about clinical symptoms of diabetes, complications, and comorbidities (such as hypertension, cardiovascular and cerebrovascular diseases, and dyslipidemia); previous treatment regimens and blood glucose control status; family history of diabetes; lifestyle factors (smoking, alcohol consumption, exercise, diet); education level, occupation, and economic status.

5.1.2.2 Physical Examination: Measure blood pressure, heart rate, height, weight, and waist circumference; calculate BMI; conduct 128 Hz tuning fork

vibration sensation test, 10 g monofilament pressure sensation test, ankle reflex, foot appearance inspection, dorsalis pedis pulse palpation, and vision examination[1]. For obese diabetic patients, particularly adolescents, screening for acanthosis nigricans should be conducted[8].

5.1.2.3 Additional Tests: Include fasting blood glucose and 2-hour postprandial (or 2-hour OGTT) blood glucose, triglycerides, total cholesterol, low-density lipoprotein cholesterol (LDL-C), high-density lipoprotein cholesterol, liver and kidney function, urinalysis, electrocardiogram, and neuropathy-related examinations. Where available, HbA1c, glycated albumin, urinary albumin-to-creatinine ratio (UACR), and fundus examination are recommended, with additional tests determined based on specific conditions[14].

5.1.2.4 Identify other risk factors, target organ damage, and related clinical conditions.

5.1.3 Follow-up Assessment Services **5.1.3.1** Measure patient blood pressure, heart rate, and blood glucose status; examine lower limb and foot skin; clarify metabolic control status, complications, and comorbidities; and assess treatment regimen satisfaction. Inquire about dietary status, weight changes, diabetes symptoms, hypoglycemia symptoms, complications and comorbidities symptoms, and satisfaction with current treatment regimens since the last follow-up[8].

5.1.3.2 Patients should regularly self-monitor blood glucose levels under physician guidance and provide recent blood glucose data during follow-up visits. If abnormalities occur, referral to higher-level hospitals is recommended.

5.1.4 Health Record Establishment Services Health records should be established for residents within the service area according to the *Resident Health Record Management Service Specification*[8].

5.1.4.1 Primary-level medical and health institutions must provide integrated healthcare-prevention services based on residents' health records. For residents receiving services for the first time, health records must be established documenting major health issues and treatment status, with resident health record information cards completed and issued.

5.1.4.2 In regions implementing resident electronic health record information systems, primary-level medical and health institutions should establish electronic health records and update health information in a timely manner according to standard specifications.

5.1.4.3 Follow voluntary and confidential principles. On the basis of respecting residents' personal wishes, guide and encourage residents to establish health records. During health record usage, emphasize protection of record information and personal privacy to ensure data security.

5.2 Treatment Services

5.2.1 Non-Pharmacological Treatment Services For diagnosed diabetes patients, non-pharmacological treatment should be initiated immediately and maintained. Specific methods refer to the *China Diabetes Health Management Specification (2020).*

5.2.1.1 Nutritional Guidance: Control total caloric intake to maintain energy balance and ensure balanced nutrition to meet patients' nutritional needs. Reduce intake of refined carbohydrates (such as white rice, noodles, desserts) and sugar-sweetened beverages; increase proportion of whole grains and legumes. Encourage selection of foods with low glycemic load. Limit salt intake to within 5 g per day.

5.2.1.2 Exercise Guidance: Adults with T2DM should maintain appropriate exercise[16]. Engage in at least 150 minutes of moderate-intensity aerobic exercise weekly (such as brisk walking, cycling, tai chi); increase daily physical activity and appropriately reduce sedentary time. Resistance training is recommended 2–3 times weekly (with $ $48 hours between sessions). Patients with acute complications or severe chronic complications should not exercise.

5.2.1.3 Psychological Support: Provide psychological counseling and support to alleviate patient stress and anxiety, enhance self-confidence, and improve disease self-efficacy.

5.2.1.4 Health Management: Encourage diabetes patients and high-risk populations to improve health awareness and develop healthy lifestyle habits. Patients should control weight, quit smoking, and limit alcohol consumption[17]. For overweight (24.0 $kg/m^2 \leq$ BMI $<$ 28.0 kg/m^2) or obese (BMI $\geq$ 28.0 kg/m^2) patients, the weight loss target should be 5%–10% within 3–6 months[18]. For underweight patients (BMI $<$ 18.5 kg/m^2), reasonable nutrition plans should be recommended to achieve and maintain ideal weight[19–20].

5.2.2 Pharmacological Treatment Services If blood glucose control targets cannot be achieved through non-pharmacological treatment alone, pharmacological treatment should be initiated. Commonly used drugs include metformin, insulin secretagogues, α-glucosidase inhibitors, TZDs, DPP-4i, SGLT-2i, GLP-1RA, and insulin[4].

5.2.2.1 Monotherapy: Metformin is the first-line treatment for T2DM. Without contraindications and with good patient tolerance, metformin should continue as part of the diabetes management regimen. If metformin is contraindicated or not tolerated, insulin secretagogues, α-glucosidase inhibitors, TZDs, DPP-4i, SGLT-2i, or GLP-1RA may be selected.

5.2.2.2 Dual Therapy: If glycemic control targets are not achieved with metformin monotherapy, consider adding oral or injectable hypoglycemic agents with different mechanisms of action to implement dual therapy.

5.2.2.3 Triple Therapy: When glycemic control does not reach predetermined targets after 3 months of dual therapy, consider implementing triple therapy by adding a third hypoglycemic agent with a different mechanism of action.

5.2.2.4 Insulin Therapy: If glycemic levels remain uncontrolled after triple therapy without insulin, consider adding insulin therapy. For patients already receiving insulin as part of triple therapy, if glycemic control remains suboptimal, treatment regimens should be re-evaluated and adjusted, including adding prandial insulin to basal insulin therapy or implementing multiple daily premixed insulin injection regimens[8].

5.2.3 Comprehensive Intervention Treatment While controlling blood glucose, T2DM patients should also comprehensively manage blood pressure and lipids and implement antiplatelet aggregation measures.

5.2.3.1 Antihypertensive Treatment: For diabetic patients with blood pressure $ $140/90 mmHg, pharmacological treatment may be considered to lower blood pressure. When blood pressure $ $160/100 mmHg or exceeds target values by 20/10 mmHg, antihypertensive drug therapy should be initiated immediately, with combination therapy considered. The five classes of antihypertensive drugs available are angiotensin-converting enzyme inhibitors (ACEI), angiotensin II receptor blockers (ARB), diuretics, calcium channel blockers (CCB), and β-blockers. ACEI or ARB are preferred for diabetic patients with albuminuria or chronic kidney disease.

5.2.3.2 Lipid-Lowering Treatment: When implementing lipid-lowering drug therapy, for patients with documented atherosclerotic cardiovascular disease (ASCVD) history, LDL-C target should be set below 1.8 mmol/L; for diabetic patients without ASCVD history, LDL-C target should be controlled below 2.6 mmol/L. Statins are the first choice for lipid-lowering treatment in clinical practice. Initial treatment recommends moderate-intensity statins, with dose adjustments based on patient lipid response and drug tolerance. If LDL-C levels fail to reach treatment targets, consider combining statins with other lipid-lowering drugs (such as ezetimibe).

5.2.3.3 Antiplatelet Treatment: For diabetic patients with ASCVD, aspirin antiplatelet therapy is recommended. Bleeding risk should be fully assessed during application; contraindicated in patients with active gastric ulcers or gastrointestinal bleeding, or allergies. For ASCVD patients allergic to aspirin, clopidogrel may be used. The recommended dose for aspirin is 75–150 mg/d, and for clopidogrel is 75 mg/d.

5.3 Referral Services

Patients meeting any of the following referral criteria should be referred.

5.3.1 Upward Referral Criteria **5.3.1.1 Diagnostic Difficulties and Special Populations:** (1) Individuals with newly detected abnormal blood

glucose and undetermined clinical type; (2) Women with abnormal blood glucose during pregnancy or lactation[4].

5.3.1.2 Treatment Difficulties: (1) Unexplained or recurrent hypoglycemia despite treatment by primary healthcare personnel; (2) Failure to achieve glycemic, blood pressure, or lipid treatment targets over the long term; (3) Severe blood glucose fluctuations that are difficult to control at the primary level; (4) Severe adverse reactions to hypoglycemic drugs that are difficult to manage properly[4].

5.3.1.3 Severe Complications: (1) Acute complications: severe hypoglycemia or hyperglycemia with or without consciousness disturbance (diabetic ketosis, suspected diabetic ketoacidosis (DKA), hyperosmolar hyperglycemic syndrome (HHS), or lactic acidosis (LA)); (2) Chronic complications: difficulties in screening, treatment planning, and efficacy assessment for nephropathy, retinopathy, neuropathy, diabetic foot, or peripheral vascular disease at the community level[4]; (3) Severe target organ damage requiring emergency treatment: acute cardiovascular and cerebrovascular events; renal insufficiency due to diabetic nephropathy [estimated glomerular filtration rate (eGFR) $<60\ \mathrm{ml \cdot min^{-1} \cdot (1.73\ m^2)^{-1}}$] or massive proteinuria; severe vision loss due to diabetic retinopathy; intermittent claudication and ischemic pain due to diabetic peripheral vascular disease[4]; (4) Diabetic foot emergencies: including rapid changes in skin color, worsening local pain, redness and swelling, new or deteriorating ulcers, soft tissue and bone infections, cellulitis, and signs of systemic infection[4].

5.3.2 Downward Referral Criteria **5.3.2.1** Newly detected abnormal blood glucose with completed diagnosis and confirmed treatment plan, with stable glycemic control.
5.3.2.2 Acute complications stabilized after treatment.
5.3.2.3 Chronic complication patients with established and implemented treatment plans and stable conditions.
5.3.2.4 Patients assessed by higher-level medical institution physicians as suitable for continued treatment and management at primary-level medical and health institutions[4].

5.3.3 Emergency Referral **5.3.3.1** Severe complication situations.
5.3.3.2 Conditions requiring management by higher-level hospitals as determined by physicians[4].

Primary healthcare personnel should track patients referred emergently to ensure treatment progress is understood within two weeks after referral.

5.4 Long-Term Follow-Up Services

Long-term follow-up management should be implemented for patients within the service area, with particular focus on those with unsatisfactory glycemic control.

Emphasize the regular follow-up function of family doctors. For patients who do not follow health management regulations for regular follow-up, primary-level medical and health institutions should proactively contact them to inquire about actual conditions and reasons for non-participation, adopting reasonable solutions to ensure continuous health management services[15].

5.4.1 Follow-Up Objectives The short-term goal is to alleviate diabetes symptoms and prevent acute complications through management of hyperglycemia and metabolic problems. The long-term goal is to effectively control blood glucose in the target population over the long term, ensuring patients prevent chronic diabetes complications through optimized glycemic management, improve quality of life, and promote longevity[21].

5.4.2 Follow-Up Frequency Patients with controlled blood glucose should be followed up at least once every 3 months; patients with uncontrolled blood glucose should be followed up within 2 weeks. If glycemic control remains unsatisfactory during two consecutive follow-ups, referral is recommended.

5.4.3 Follow-Up Content Each follow-up should include: physical examination (e.g., blood pressure, heart rate measurement), with special attention to weight and waist circumference monitoring for overweight or obese patients; lifestyle assessment for all patients with improvement recommendations provided as needed; and understanding of medication adherence and adverse drug reactions.

5.4.4 Complication Assessment During follow-up, patients should be examined and questioned to confirm whether new chronic complications have been diagnosed or whether complication-related symptoms have appeared without diagnosis since the last follow-up[4].

5.4.4.1 Diabetic Kidney Disease: Random urine UACR measurement is recommended. Institutions unable to conduct UACR testing should refer patients to higher-level hospitals. Annual serum creatinine (Scr) level testing is recommended to calculate eGFR.

5.4.4.2 Diabetic Lower Extremity Arterial Disease and Foot Disease: Inquire about foot ulcer or amputation history. Conduct foot examinations to observe deformities (such as calluses, hallux valgus), fissures, skin color and temperature changes, and signs of fungal infection. Assess peripheral vascular status by checking dorsalis pedis pulse; where conditions permit, conduct ankle-brachial index (ABI) examination or ultrasound Doppler vascular examination.

5.4.4.3 Diabetic Retinopathy: Primary-level medical and health institutions with appropriate conditions are recommended to screen T2DM patients for retinopathy at least annually, including vision and fundus examinations.

5.4.4.4 Neuropathy: Inquire about signs of nerve damage, such as pain, numbness, or abnormal sensations. Conduct five neurological function tests including ankle reflex, vibration sensation, touch-pressure sensation, temperature sensation, and pinprick sensation to check for abnormalities. Even without obvious symptoms, if two or more test results are abnormal, nerve damage may be diagnosed. If initial examination results are inconclusive, patients should be referred to higher-level medical institutions for neuroelectrophysiological examination for further diagnosis.

5.4.5 Personalized Guidance Based on patients' economic status, glycemic control, and other specific conditions, provide personalized medication guidance. After each service completion, patient health records should be updated immediately to ensure information accuracy and completeness.

5.5 Health Education Services

Regular health lectures and training courses should be conducted using media platforms including radio, television, social networks, and video platforms to disseminate knowledge about diabetes and its complications to different populations. Regions with adequate resources may establish specialized health education centers providing health consultation, physical examination, and disease prevention services[22]. Health education content for different groups includes:

5.5.1 General Population: Definition of diabetes; harms of diabetes to the human body; healthy lifestyle measures for glycemic control and health maintenance; risk factors for developing diabetes.

5.5.2 High-Risk Population: Definition of diabetes; harms of diabetes; healthy lifestyle measures; risk factors; targeted correction of individual behaviors and personalized lifestyle guidance for high-risk individuals.

5.5.3 Diagnosed Diabetes Patients: Definition of diabetes; harms of diabetes; healthy lifestyle measures; risk factors; targeted behavioral correction and personalized lifestyle guidance; importance of non-pharmacological treatment and long-term follow-up; efficacy and potential side effects of diabetes medications; diabetes self-management skills.

6 Service Process

The overall workflow for diabetes healthcare-prevention integration services is shown in Figure 1 [Figure 1: see original paper]. The screening and assessment workflow is shown in Figure 2 [Figure 2: see original paper]. The health record establishment workflow is shown in Figure 3 [Figure 3: see original paper]. The referral workflow is shown in Figure 4 [Figure 4: see original paper].

7 Service Evaluation and Improvement

7.1 Evaluation Indicators

7.1.1 Establish a scientific personnel and business evaluation mechanism. Evaluation content can be divided into three categories: organizational management, business management, and work effectiveness.

7.1.1.1 Organizational Management: Primarily evaluates the establishment of healthcare-prevention integration management organizations, including functional settings, organizational system construction, and personnel allocation.
7.1.1.2 Business Management: Primarily evaluates completion of healthcare-prevention integration work indicators and project implementation status.
7.1.1.3 Work Effectiveness: Primarily evaluates business guidance, personnel training effectiveness, information system construction, and public health big data application.

7.1.2 Focus on outcome indicators after diabetes patients receive integrated services, including standardized diabetes management rate, blood glucose control rate in managed populations, and patient service satisfaction.

7.1.2.1 Standardized Diabetes Management Rate = (Number of diabetes patients managed according to specifications / Total number of diabetes patients managed within the year) × 100%
7.1.2.2 Blood Glucose Control Rate in Managed Population = (Number of patients with controlled blood glucose at most recent follow-up / Number of diabetes patients managed within the year) × 100%
7.1.2.3 Patient Service Satisfaction = (Number of diabetes patients satisfied with integrated services / Number of diabetes patients managed within the year) × 100%

7.2 Evaluation Methods

7.2.1 Evaluation working groups should use on-site inspections, face-to-face interviews, random sampling surveys, and targeted spot checks to assess and supervise implementation and completion of healthcare-prevention integration objectives, forming comprehensive evaluation reports with results reported to health departments at the same level.

7.2.2 Collect information through opinion solicitation (phone, mail, internet, questionnaires, interviews, etc.) and on-site inspections. Medical institutions should timely listen to suggestions and opinions from diabetes patients and relevant third parties.

7.2.4 Implement internal evaluation through irregular spot checks, forming inspection reports.

7.3 Evaluation Implementation

7.3.1 Based on local realities and fully soliciting opinions from disease control institutions, health supervision, medical institutions, and other departments, develop evaluation plans and indicator systems, compile evaluation manuals, and standardize evaluation processes and requirements.

7.3.2 Select experienced experts in public health, disease control, and health management to form performance evaluation teams. Conduct centralized training for evaluators before evaluation to unify evaluation methods and standards.

7.3.3 Evaluation experts should group themselves according to their professional fields to evaluate corresponding indicators, with quality control personnel established to proofread and summarize various issues. After evaluation, expert groups should conduct centralized scoring of all evaluation indicators.

This specification details the operational procedures for primary-level medical institutions to implement diabetes healthcare-prevention integration services, including screening, treatment, referral, and follow-up. It is recommended for use in conjunction with specific diagnostic and treatment specifications. Future research should strengthen psychological intervention protocols, special population guidelines, and big data technology applications to promote better implementation of primary-level healthcare-prevention integration.

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Note: Figure translations are in progress. See original paper for figures.