

Research Progress of Internet Hospital Diagnosis and Treatment Service

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Abstract: This study systematically reviews the current development, quality evaluation methods, and influencing factors of internet hospitals, aiming to provide a reference for improving internet diagnosis and treatment services and promoting the high-quality development of internet hospitals. Since 2014, China's internet hospitals have gone through exploratory, standardization, and rapid development phases. As of September 2025, the national total reached 3756, with an annual diagnosis and treatment volume exceeding 100 million visits. Although technological applications continue to innovate, problems such as insufficient standardization, poor service continuity, medical safety hazards, difficulties in quality supervision, and obvious regional disparities have become increasingly prominent. Regarding quality evaluation, existing methods include subjective evaluations such as patient satisfaction surveys and the SERVQUAL scale, as well as objective evaluations such as guideline-based quality assessment and the standardized patient method (regarded as the “gold standard” for objective evaluation). Research indicates that diagnosis and treatment quality is comprehensively influenced by multi-level factors, including physicians' professional competence, patients' basic characteristics, platform technology, hospital management, and the policy environment. Moving forward, it is necessary to establish a scientific quality evaluation and supervision system, improve diagnosis and treatment norms and intelligent support, strengthen talent cultivation and platform optimization, innovate chronic disease management models and promote the downward allocation of resources, and refine standards and payment policies, thereby driving the sustained and healthy development of internet hospitals in the direction of intelligence, integration and standardization.

Keywords: internet hospital; internet diagnosis and treatment; diagnosis and treatment; quality evaluation; current situation and development

Internet hospital refers to relying on physical medical institutions, the use of emerging information technology to provide patients with part of the common diseases, chronic disease follow-up and health consulting services for a new medical service [1,2]. In 2018, the General Office of the State Council issued the *Opinions on Promoting “Internet + Healthcare”*, and the National Health Commission successively issued the policy documents such as *Measures for the Management of Internet Diagnosis and Treatment (for Trial Implementation)* and *Measures for the Management of Internet Hospitals (for Trial Implementation)*, which provide policy protection for the standardization of Internet hospitals [3,4]. In particular, during the COVID-19 pandemic in 2020, Internet hospitals played an important role in limiting mass gatherings and ensuring the continuity of medical services, promoting the rapid development of Internet diagnosis and treatment [5]. As of September 2025, the number of Internet hospitals nationwide has reached 3756, with an annual consultation and treatment service volume of over 100 million visits.

However, at the same time as the rapid Internet hospitals, diagnosis and treatment problems are also increasingly prominent. Some Internet hospitals have problems such as non-standardized diagnosis and treatment

process, incomplete consultation by doctors, insufficient diagnostic basis, and unstrict prescription management, which triggered social concerns about Internet diagnosis and treatment and safety [6]. In 2022, the NHC issued *the Rules for the Regulation of Internet Diagnosis and Treatment (for Trial Implementation)* to further strengthen the regulation of Internet diagnosis and treatment and to ensure medical care and medical safety [7]. In 2025, the China Hospital Association released *the Expert Consensus on the Elements of Medical Management of Internet Hospitals (2025 Edition)*, which put forward systematic recommendations for the medical management of Internet hospitals. How to scientifically evaluate Internet diagnosis and treatment, identify the key factors, and formulate effective improvement strategies is an important issue that needs to be solved in the current Internet medical field. This paper systematically reviews the current situation, diagnosis and treatment evaluation methods and influencing factors of Internet hospitals, aiming to provide reference for improving Internet diagnosis and treatment services and promoting Internet hospitals high quality development.

1. Current Status of Internet Hospitals

1.1. Policy and History

China's Internet hospital's experienced three stages: exploration period (2014–2017), standardization period (2018–2019) and rapid period (2020 to present). In 2014, the Second Hospital of Guangdong Province cooperated with a third-party enterprise to establish the first Internet hospital in the country, opening the road of exploration of Internet hospitals [2]. Since 2018, a series of policy documents at the national level have clarified the access conditions, practice rules and regulatory requirements for internet hospitals, internet hospitals have officially entered the standardization stage. After the outbreak of the COVID-19 epidemic in 2020, the National Health and Health Commission issued several documents to encourage the development of Internet diagnosis and treatment services, and the number of Internet hospitals has grown rapidly and the scope of services has been expanding [8]

In recent years, the state support policy, vigorously support the construction of Internet hospitals with. In 2021, the National Health Insurance Bureau issued the *Guiding Opinions on Actively Promoting the Work of Medical Insurance Payment for Internet Plus" Medical Services,*" which clarified that Internet medical services are included in the scope of medical insurance payment [9]. In 2022, the *Rules for the Regulation of Internet Diagnosis and Treatment (for Trial Implementation)* further regulated the behavior of Internet diagnosis and treatment, and strengthened quality and safety supervision [10]. In 2023–2025, under the guidance of national policies, guidelines for the construction of multi-local Internet hospitals and management norms have been developed to promote the standardization and normalization of Internet hospitals.

1.2. Scale of Construction and Services

As of September 2025, the number of Internet hospitals nationwide has reached 3756, up 274.1% from 1004 in 2020. In terms of regional distribution, the eastern region has the largest number of Internet hospitals, accounting for about 75%, the central region accounts for about 15%, and the western region accounts for about 10% [11]. From the perspective of hospital type, public hospitals dominate the construction of Internet hospitals, accounting for more than 80%, of which grade A tertiary hospitals account for about 65%. From the construction point of view, it mainly includes three types of entity hospitals self-built, hospitals and enterprises cooperation and joint construction, enterprise-led relying on entity hospitals [12].

The current services of Internet hospitals mainly include online consultation, online follow-up, remote consultation, electronic prescription, drug delivery, health counseling, chronic disease management and so on. The service targets are mainly patients with common diseases and chronic diseases, of which the demand for follow-up consultation for chronic diseases such as hypertension, diabetes and coronary heart disease accounts for 68%. Services include video consultation, prescription issuance and graphic consultation, of which graphic consultation is the most common, accounting for about 70%.

1.3. Scale of Services and User Characteristics

According to the statistics of China Internet Information Center, the scale of China's Internet medical users reached 418 million in 2024, of which the penetration rate of users in first-tier cities is more than 60%, and there is great potential for growth in third-tier cities and the following cities [13]. In 2024, the number of diagnosis and treatment visits in Internet hospitals exceeded 130 million, with a year-on-year growth of 42%. In the past three years, Internet hospitals have carried out a total of 150 million diagnosis and treatment services, and 35.44 million consulting services.

In terms of user characteristics, Internet medical users are characterized by low age, high education level, and high income, etc. The proportion of users aged 18–29 years old is 33.12%; the proportion of users with college education or above is about 63.07%; and the proportion of users with monthly income of 5000–8000 yuan or more is about 31.22% [14]. The main reasons for users to use Internet healthcare include saving time (78%), avoiding queuing (72%), convenience (68%), and risk of cross-infection (52%).

1.4. Technology Application and Innovation

The technological foundation of Internet hospitals includes Internet platforms, electronic medical record systems, prescription flow systems, payment systems, and logistics and distribution systems. In recent years, new technologies such as artificial intelligence, big data, cloud computing, and 5G have been widely used in Internet hospitals. Artificial intelligence technology is applied to intelligent guidance, assisted diagnosis, recommendation and other scenarios, which improves the efficiency and accuracy of diagnosis and treatment [15]. Big data technology is used for patient health record management, disease risk prediction, and diagnosis and treatment monitoring to support precision medicine and management [16]. Cloud computing technology realizes the storage, sharing and analysis of medical data, and promotes the optimal allocation of medical resources [17]. 5G technology provides technical guarantee for high-definition real-time medical services such as tele-surgery, tele-ultrasound, and tele-consultations.

Some Internet hospitals have also explored the integration of smart wearable devices with Internet platforms to realize real-time monitoring and remote management of patients' health data. For example, through smart blood glucose meters, blood pressure monitors and other devices, the monitoring data of diabetic and hypertensive patients can be automatically uploaded to the Internet platform, so that doctors can remotely view and timely treatment programs.

2. Evaluation Methods for Internet Diagnosis and Treatment

2.1. Subjective Evaluation Methods

2.1.1. Patient Satisfaction Survey

Patient satisfaction is the most commonly used subjective indicator to evaluate healthcare services [18]. Internet consultation patient satisfaction surveys usually include evaluations of online consultation systems, online consultation services, providers, response wait times, communication styles, and payments, most notably response response times [19]. The study showed that the overall satisfaction of Internet consultation patients was high, with an average satisfaction between 75% and 85%. The main factors affecting patient satisfaction include the usability of the follow-up system, indication of abnormalities, convenient communication channels, and service attitude [20].

However, the evaluation of patient satisfaction has limitations such as strong subjectivity and susceptibility to non-medical factors. Some patients lack medical knowledge so find it difficult to accurately judge the level of diagnosis and treatment, and their satisfaction evaluation may not be fully consistent with the objective diagnosis and treatment. Therefore, there is an urgent need for objective indicators that can be combined with patient satisfaction to comprehensively evaluate Internet diagnosis and treatment.

2.1.2. SERVQUAL Service Evaluation

SERVQUAL scale is a service evaluation tool proposed by Parasuraman in 1988, which includes five dimensions: tangibility, reliability, responsiveness, assurance, and empathy [21]. The scale has been widely used in healthcare service evaluation [22]. In the field of Internet diagnosis and treatment, researchers have revised and improved the SERVQUAL scale according to the characteristics of Internet healthcare.

One study evaluated Internet hospital services based on the SERVQUAL model and found that the simplicity and clarity of the interface design and the timeliness of the diagnosis and treatment services were important factors affecting the services [23]. Another study found that the tangible nature of Internet hospital services had the greatest impact on patient satisfaction, and assurance most influenced patients' willingness to use. However, the SERVQUAL scale only systematically evaluates the services of Internet diagnosis and treatment, mainly focuses on service perception, and is relatively insufficient for the evaluation of clinical diagnosis and treatment, so it cannot be used as the only evaluation standard.

2.1.3. Evaluation of e-Services

Based on the SERVQUAL scale and the uniqueness of Internet services, three scholars, Parasuraman, Zeithaml, and Malhotra, formally proposed the Electronic Service (E-S-QUAL) evaluation model in 2005, which includes the dimensions of system usability, fulfillment, system availability, and security and privacy [24]. The model focuses more on the technical characteristics and user experience of the Internet platform. Studies have shown that system stability, information accuracy, and privacy protection are key factors affecting Internet healthcare services

2.2. Objective Evaluation Methods

2.2.1. Evaluation Based on Diagnosis and Treatment Guidelines

Evaluation based on clinical diagnosis and treatment guidelines is an important method to objectively evaluate diagnosis and treatment [25]. This method is based on the diagnosis and treatment guidelines issued by national or international authoritative organizations, and formulates the standard entries of inquiry, examination, diagnosis, treatment and other aspects, and evaluates the degree of conformity of doctors' diagnosis and treatment behaviors with the guidelines. This method can objectively reflect the standardization and accuracy of diagnosis and treatment, but it requires specialized personnel to conduct the evaluation, and the cost is high.

In the field of Internet diagnosis and treatment, researchers can evaluate diagnosis and treatment by analyzing data such as electronic medical records and diagnosis and treatment records, and evaluating the completeness of the doctor's questioning, the accuracy of the diagnosis, and the standardization of the treatment plan [26]. The study found that the correctness of the doctor's diagnosis quasi-results in the Internet hospital is high, 66.04%, but limited by the form of online consultation, the completeness of the diagnostic process is still insufficient, only 17.65%. The overall correctness of the treatment plan, which can reach 88.68%, in addition, online consultation also has a certain price advantage, but there are still shortcomings in the guidance and review arrangements [27].

2.2.2. Standardized Patient Approach

Standardized Patients (SPs) method refers to the method of objectively evaluating the actual diagnosis and treatment of doctors by training Standardized Patients to uniformly simulate patients' visits [28]. This method was first applied to medical education and then gradually applied to medical evaluation [29]. The standardized patient method can effectively avoid the Hawthorne effect and truly reflect the doctor's diagnosis and treatment level. It is considered to be the "gold standard" for medical evaluation [30]. In recent years, the standardized patient method has begun to be applied to Internet diagnosis and treatment evaluation. Researchers design case scripts based on the diagnosis and treatment guidelines for common diseases and chronic diseases, train standardized patients to see a doctor on the Internet platform, record doctors' behaviors such as consultation, diagnosis, and treatment, and evaluate diagnosis and treatment. The study found that the standardized patient method can objectively and accurately evaluate Internet diagnosis and treatment, and its evaluation results are consistent with patients' subjective evaluation [31]. However, the application of standardized patient methods in Internet diagnosis and treatment still faces some challenges. First of all, Internet diagnosis and treatment mainly uses graphics and communication, and lacks face-to-face communication and physical examination. Standardized patients need to adapt to this kind of communication. Secondly, the anonymity of Internet diagnosis and treatment is strong, and the risk of standardized patients being identified is relatively low, but careful script design and training are still required. Third, the standardized patient method is costly and difficult to apply on a large scale [32].

2.2.3. Clinical Scenario Simulation

Clinical Vignettes method refers to the design of standardized clinical scenarios, requiring doctors to make diagnosis and treatment decisions on cases in the scenario, and evaluating doctors' clinical knowledge and decision-making capabilities. This method is low-cost and easy to implement, but it mainly evaluates the theoretical knowledge of the doctor, and there may be a gap with the actual diagnosis and treatment behavior [33]. However, the performance of doctors in clinical scenario simulation is usually better than the actual diagnosis and treatment performance, and there is a "knowledge-action gap" between the two, which may be related to factors such as time pressure, workload, and communication barriers. Therefore, clinical scenario simulation method should not be used for diagnosis and treatment evaluation independently, but can be combined with actual diagnosis and treatment behavior evaluation to comprehensively evaluate doctors' diagnosis and treatment capabilities.

2.3. Process and Outcome Evaluation

According to Donabedian's medical evaluation theory, medical evaluation includes three dimensions: structure, process and outcome [34]. In Internet diagnosis and treatment, process evaluation focuses on the standardization of the diagnosis and treatment process, including the completeness of consultation, the rationality of inspection, the accuracy of diagnosis, and the standardization of treatment; Results Evaluation focuses on diagnosis and treatment outcomes, including symptom improvement, disease control, complication occurrence, and patient satisfaction. The study showed a significant positive correlation between process and outcome. Standardized diagnosis and treatment process can improve diagnostic accuracy, improve treatment effects, and medical errors. Therefore, Internet diagnosis and treatment evaluation should pay attention to the process and results at the same time, not only to evaluate the standardization of diagnosis and treatment behavior, but also to evaluate the effect of diagnosis and treatment.

3. Influencing Factors of Internet Diagnosis and Treatment

3.1. Physician-Level Factors

3.1.1. Professional Competence of Doctors

The professional ability of doctors is the core factor affecting diagnosis and treatment. Studies have shown that Internet diagnosis and treatment are significantly affected by factors such as doctors' professional titles, clinics, and professional knowledge. The diagnosis and treatment of doctors with senior professional titles is significantly better than that of middle and junior doctors. Clinically rich physicians are able to diagnose diseases more accurately and formulate reasonable treatment options [35]. At the same time, Internet diagnosis and treatment has put forward new ability requirements for doctors. Limited by the special form of online diagnosis and treatment, doctors need to make a diagnosis only based on the patient's main complaint and previous data in the absence of physical examination, which puts forward higher requirements for doctors' clinical reasoning ability. At the same time, doctors need the operating skills of the Internet platform to adapt to graphic, text, and other exchanges. Some doctors do not know enough about Internet diagnosis and treatment, and the consultation process is incomplete, which affects diagnosis and treatment.

3.1.2. Physician Communication Skills

Internet diagnosis and treatment mainly relies on communication such as text and video. Compared with offline medical treatment, it lacks the intuitiveness and interactivity of face-to-face communication. Therefore, it puts forward higher requirements for doctors' communication skills. Doctors need to explain the condition in easy-to-understand language, patiently answer patients' questions, and give patients emotional support. Studies have shown that good doctor-patient communication can enhance understanding and trust between doctors and patients, and improve patient satisfaction and compliance [36]. However, some doctors have insufficient communication skills in the process of implementing Internet diagnosis and treatment. The response is too brief and fails to adequately answer the patient's questions; The use of too many technical terms, patients' difficulty in understanding and slow response speed have significantly affected the patient's experience [36], so improving doctors' Internet communication skills is an important way to improve diagnosis and treatment.

3.1.3. Workload of Physicians

The workload of doctors also has an important impact on diagnosis and treatment. Studies have shown that excessive workload can lead to doctor fatigue, which in turn affects diagnosis and treatment. In Internet diagnosis and treatment, most doctors undertake both online and offline work, and the workload is relatively large. In particular, some surgeons have a heavy burden of offline diagnosis and treatment. In order to ensure that online and offline medical work is carried out simultaneously, it is necessary to simplify the consultation process and then Improve efficiency, which may lead to the omission of important information. Therefore, reasonably controlling the workload of doctors and arranging offline working hours or tasks for doctors participating in online diagnosis and treatment can avoid fatigue and ensure diagnosis and treatment [37].

3.2. Patient-Level Factors

3.2.1. Basic Information of Patients

The patient's personal basic situation will significantly affect the accuracy and completeness of the medical history information provided by the patient, which in turn affects the diagnosis and treatment. Patients who are younger, more educated, and have a better understanding of their own diseases can accurately describe symptoms and provide a detailed medical history, which is conducive to the doctor's diagnosis. Conversely, patients who are older, less educated, and have insufficient knowledge of their own diseases may not be able to accurately express symptoms, or provide incomplete information, which affects the doctor's judgment [38,39]. Studies have shown that the health literacy of Internet medical users is generally high, but some users still lack health literacy. Improving the health literacy of patients and guiding patients to accurately describe their conditions are important links in improving Internet diagnosis and treatment.

3.2.2. Patient Expectations and Trust

Patients' expectations and trust in Internet diagnosis and treatment have a greater impact on their use behavior and satisfaction. Patients with high expectations are more likely to be dissatisfied with the results of diagnosis and treatment; While patients with reasonable expectations had higher satisfaction. In addition, patients with high trust in doctors have good compliance and good treatment effects; Patients with low trust may not follow doctor's advice, thus affecting treatment effectiveness [40]. Overall, patients' trust in Internet diagnosis and treatment is generally high, but some patients still have doubts about the safety and effectiveness of Internet diagnosis and treatment. In the future, improving patients' trust in Internet diagnosis and treatment and reasonably guiding patients' expectations are important tasks in promoting Internet medical care.

3.3. Platform Technical Factors

3.3.1. Platform Functionality and Ease of Use

As the direct carrier for Internet hospitals to implement diagnosis and treatment, the functions and ease of use of Internet platforms can directly affect the efficiency of diagnosis and treatment and user experience. The fully functional platform can support various exchanges such as graphics, texts, and videos, and provide one-stop services such as electronic medical records, prescription management, and drug distribution [41]. A platform with good ease of use is simple to operate, has a clear interface, and has a good user experience, which helps to improve diagnosis and treatment services. Specifically, the stability of the platform, response speed, and interface design are important factors affecting user satisfaction. However, some platforms have problems such as unstable systems, complex operations, and imperfect functions, which seriously affect diagnosis and treatment and user experience. Optimizing platform functions and improving ease of use are the key technical guarantees for improving Internet diagnosis and treatment.

3.3.2. Information Security and Privacy Protection

Information security and privacy protection are important issues faced by Internet medicine. In the context of the information age, the policy orientation of medical information interconnection drives hospital information to be open and transparent. However, patients' health information is information, and once leaked, it may cause serious consequences. In recent years, citizens' awareness of privacy protection has gradually increased, which has led to differences between doctors and patients in information protection to a certain extent [42]. Strengthening information security management, adopting encryption technology, authority management, audit traceability and other measures to protect patient privacy is an important task in the construction of Internet hospitals. At the same time, relevant hospitals and institutions should also strengthen the training of medical staff and platform staff to improve information security awareness.

3.3.3. Intelligent Decision Assisted System

The intelligent auxiliary decision-making system can provide doctors with support such as diagnostic recommendations, recommendations, and risk warnings, and improve diagnosis, treatment and efficiency [43]. Studies have shown that the diagnostic accuracy of artificial intelligence-assisted diagnostic systems in some diseases is close to or exceeds that of human doctors. In Internet diagnosis and treatment, the intelligent auxiliary decision-making system can remind doctors to inquire about important medical history, recommend necessary examination items, provide diagnostic reference, medical errors and omissions. However, the application of intelligent decision-making systems in Internet hospitals is not popular enough, and the accuracy and practicability of some systems need to be improved. Strengthening the research and development and application of intelligent auxiliary decision-making systems is an important direction for improving Internet diagnosis and treatment.

3.4. Hospital Management Factors

3.4.1. Management System

A sound management system is an important basis for ensuring diagnosis and treatment. Hospitals should establish an Internet diagnosis and treatment management system, clarifying organizational construction, service items and scope, medical staff management, diagnosis and treatment process standardization, electronic medical record management, pharmaceutical affairs management, information technology application, patient rights protection, monitoring and improvement [44]. In actual clinical application, hospitals with a sound management system have significantly higher Internet diagnosis and treatment than hospitals with imperfect management systems. However, limited by the short period of time to carry out Internet medical services, the management of Internet diagnosis and treatment in many hospitals is not standardized enough, and there is a lack of systematic monitoring and evaluation mechanisms. Strengthening the construction of management system is an important guarantee for improving Internet diagnosis and treatment.

3.4.2. Training and Incentives for Physicians

Doctor training and incentive mechanisms affect doctors' Internet diagnosis and treatment capabilities and enthusiasm. Hospitals should regularly organize Internet diagnosis and treatment training to improve doctors' professional ability and communication, and should establish a reasonable incentive mechanism to incorporate Internet diagnosis and treatment into performance appraisal to improve doctors' enthusiasm [45]. In clinical applications, doctors who have received systematic training have significantly higher Internet diagnosis and treatment than doctors who have not received training. In addition, a reasonable incentive mechanism can significantly increase the enthusiasm of doctors to participate in Internet diagnosis and treatment, but the current incentive mechanism of many hospitals is not perfect enough to effectively mobilize clinicians to invest in online services. Therefore, strengthening doctor training and incentives is an important measure to improve Internet diagnosis and treatment.

3.5. Policy Factors

3.5.1. Regulatory Policies

From the perspective of macro-control, regulatory policies have an important impact on Internet diagnosis and treatment. Strict supervision can strictly regulate diagnosis and treatment behavior and ensure medical treatment and safety. The "Internet Diagnosis and Treatment Supervision Rules (Trial)" released in 2022 clarifies the regulatory requirements for Internet diagnosis and treatment, and strengthens the supervision of diagnosis and treatment behavior. The "Expert Consensus on Medical Management Elements of Internet Hospitals" released in 2025 also provides guidance for management. However, the supervision of Internet diagnosis and treatment also faces some challenges. The virtuality and cross-regional nature of Internet diagnosis and treatment make supervision difficult. In some areas where Internet hospitals started late, the supervision is insufficient, and there are blind spots in supervision. Strengthening the supervision of Internet diagnosis and treatment and improving the supervision mechanism are important guarantees for ensuring diagnosis and treatment.

3.5.2. Medical Insurance Payment Policy

Medical insurance payment policies affect the accessibility and accessibility of Internet medical care. In 2021, the state clarified that Internet medical services can be included in medical insurance payments, providing important support for Internet medical care. However, there are differences in medical insurance payment policies in various regions, and Internet diagnosis and treatment services in some areas have not yet been included in medical insurance, which affects patients' willingness to use them [46]. Studies have shown that medical insurance payment can significantly increase patients' willingness to use Internet diagnosis and treatment, and promote Internet medical care [47]. Improving the medical insurance payment policy and expanding the scope of medical insurance payment are important measures to promote Internet medical care.

4. Problems Existing in Internet Diagnosis and Treatment

4.1. Insufficient Standardization of Diagnosis and Treatment

At present, Internet diagnosis and treatment has the problem of insufficient standardization of diagnosis and treatment. Limited by the particularity of online diagnosis and treatment that cannot complete physical

examination and biochemical examination, consultation is the main basis for doctors to implement diagnosis and treatment behavior [31]. However, some doctors' consultations are not comprehensive enough, and they fail to fully inquire about medical history and relevant information. The completeness of doctors' consultations in Internet diagnosis and treatment is only about 60% on average, and there are also problems of insufficient inquiries in terms of family history, life, and allergy history. Some doctors do not have sufficient diagnostic basis, and give a diagnosis only based on the patient's main complaint, which has a greater risk of misdiagnosis. Some doctors' prescriptions are not standardized, and they fail to fully explain the methods and precautions.

4.2. Insufficient Continuity of Services

Chronic diseases need to be managed, but the current service continuity of Internet diagnosis and treatment is insufficient. Most Internet diagnosis and treatment are one-time consultations, lacking systematic health management and follow-up, which is not conducive to disease control and health management of patients with chronic diseases. At present, some have set up follow-up services for patients with chronic diseases in order to solve this pain point [48].

4.3. Hidden Dangers of Medical Safety

As an emerging form of diagnosis and treatment, Internet diagnosis and treatment has certain medical safety hazards. Due to the lack of physical examination, physicians may miss important signs, affecting diagnostic accuracy. The information provided by some patients is inaccurate or incomplete, which may lead to misdiagnosis. Some platforms do not strictly review the qualifications of doctors, and there is a risk of illegal medical practice. Prescription management on some platforms is not standardized, and there are unreasonable risks. These problems urgently need to be resolved by relevant institutions, so as to improve the security of Internet diagnosis and treatment.

4.4. Regulatory Difficulties

The virtuality and cross-regional nature of Internet diagnosis and treatment make supervision difficult. Supervision such as on-site inspections and spot checks of medical records is difficult to apply to Internet diagnosis and treatment [49]. Some areas lack an effective Internet diagnosis and treatment monitoring system, making it difficult to monitor diagnosis and treatment in real time. Some hospitals do not manage Internet diagnosis and treatment enough, and lack a systematic evaluation and improvement mechanism.

4.5. Significant Regional and Grade Differences

There are obvious regional and level differences in Internet diagnosis and treatment. On the whole, Internet medical resources are obviously more in the east and less in the west, and more in the south and less in the north. The Internet diagnosis and treatment in the eastern region and first-class hospitals is significantly higher than that in the central and western regions and primary hospitals [50]. This difference reflects the reality of uneven distribution of medical resources. Although Internet diagnosis and treatment has improved the accessibility of medical services to a certain extent, it has not fundamentally solved the problem of uneven distribution of medical resources.

5. Improvement Strategies and Trends of Internet Diagnosis and Treatment

5.1. Establish an Evaluation and Supervision System, Improve Diagnosis and Treatment Norms and Intelligent Support

Build a scientific and complete Internet diagnosis and treatment evaluation index system, and set clear standards around key links such as consultation, diagnosis, and treatment. Relying on the supervision platform to conduct real-time monitoring of diagnosis and treatment process data, regularly use standardized patients, medical record spot checks, etc. to carry out evaluations, and establish a closed-loop management mechanism for problem feedback, interview and rectification, and punishment and accountability. On this basis, detailed clinical pathways and operating specifications are formulated for common diseases and chronic diseases, and the consultation process, diagnostic criteria, treatment plans and follow-up arrangements are clarified, so that online diagnosis and treatment have rules to follow. Simultaneously establish a control mechanism, regularly spot check diagnosis and treatment records and provide comments and feedback. At the same time, the intelligent auxiliary decision-making

system [51] is applied to provide doctors with real-time support such as diagnostic suggestions, recommendations, and risk warnings, and improve the homogeneity of diagnosis and treatment [52].

5.2. Strengthen Talent Training and Platform Function Optimization, and Consolidate the Ability Foundation

Incorporate Internet diagnosis and treatment into the continuing education system for doctors [53], systematically carry out special training on laws and regulations, platform operations, communication, and diagnosis and treatment norms, and strengthen doctors' understanding of the characteristics and limitations of Internet diagnosis and treatment. Optimize the workload assessment and incentive mechanism of doctors, reasonably control the load of online consultations, and guarantee services. At the platform level, improve multiple communication such as graphics, text, and video, improve system stability and operation convenience, and strengthen information security protection; Introduce cutting-edge technologies such as artificial intelligence, big data, 5G, and the Internet of Things to promote the upgrading of the platform in the direction of intelligence and precision.

5.3. Innovate Chronic Disease Management, Promote the Integration of Resource Sinking and Online Integration

Establish dynamically updated electronic health records for patients with chronic diseases, formulate personalized management plans, carry out regular online follow-up, dynamically track disease changes and compliance, and timely treatment plans [54]. Use smart wearable devices to collect patient health data in real time, realize remote monitoring and abnormal early warning, promote closed-loop services of online consultation, offline examination and online follow-up consultation, and transform Internet diagnosis and treatment from simple disease diagnosis and treatment to coverage of prevention, treatment, and rehabilitation. Extended life cycle health management. At the same time, build an Internet medical consortium, promote cooperation between hospitals and grassroots medical institutions through remote consultation and guidance, increase financial, technical and talent support for the central and western regions and grassroots, and promote the sinking of high-quality medical resources [55]. Promote the deep integration of Internet hospitals and physical hospitals, realize the interconnection of health data such as electronic medical records, build an integrated service that seamlessly connects online and offline, and improve the efficiency of medical services and patients' medical experience.

5.4. Improve the Standard Specification System, Innovate Payment and Business

At the macro level, cooperate with the state to improve the standards, technical specifications and regulatory requirements of Internet diagnosis and treatment, and promote the construction of industry standardization; At the institutional level, establish and improve the internal management system, strengthen the standardized management of diagnosis and treatment behaviors, and ensure services and safety. In terms of payment, actively promote more Internet diagnosis and treatment services to be included in the scope of medical insurance payment, and promote diversified payments such as commercial health insurance and third-party payment [56]. Encourage Internet hospitals to explore diversified businesses extending from single diagnosis and treatment to health management, pharmaceutical e-commerce, health insurance, etc., to form a feasible Internet medical pattern.

6. Summary

Internet hospitals are an important practical form of "Internet medical health", and have played an active role in improving the accessibility of medical services, improving patients' medical experience, and promoting the sinking of high-quality medical resources. However, while Internet diagnosis and treatment is fast, it also faces problems such as insufficient diagnosis and treatment standardization, insufficient service continuity, hidden dangers in medical safety, and regulatory difficulties. Diagnosis and treatment are the core issues of Internet hospitals. Scientific evaluation is an important basis for improving diagnosis and treatment. The current evaluation methods of Internet diagnosis and treatment include subjective methods such as patient satisfaction survey and SERVQUAL scale evaluation, as well as objective methods such as evaluation based on diagnosis and treatment guidelines and standardized patient method. Among them, the standardized patient method is considered to be the "gold standard" for objective evaluation of diagnosis and treatment, but its application in Internet diagnosis and treatment is still in its infancy. In the future, we should strengthen the application research of standardized patient method in Internet diagnosis and treatment evaluation, improve the evaluation index system, and provide scientific basis for improvement. Internet diagnosis and treatment is affected by many factors such as doctor capabilities, patient characteristics, platform technology, hospital management, and policies. Improving diagnosis and treatment requires the concerted efforts of multiple parties. A scientific evaluation and supervision system should

be established, diagnosis and treatment norms and clinical pathways should be formulated, doctor training and capacity building should be strengthened, platform functions and technical support should be optimized, chronic disease management services should be established, and high-quality resources should be promoted to sink. In the future, with the advancement of technology and the improvement of policies, Internet hospitals will move towards intelligence, integration, and standardization. Technologies such as artificial intelligence, big data, 5G, and the Internet of Things will be deeply integrated to improve diagnosis and treatment and efficiency. Online and offline will be deeply integrated to form an integrated medical service. Chronic disease management and health management will become important services of Internet hospitals. Standardization and standardization construction will be continuously strengthened, and the management system will be more perfect. The improvement of medical insurance payment policies and business innovation will promote the availability of Internet medical care. In short, Internet hospitals have broad prospects, but they also face many challenges. Only by continuously improving diagnosis and treatment, strengthening standardized management, and improving the supervision mechanism can we promote the development of Internet hospitals and better serve health.

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