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Research Article

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The update mode study of residents electronic health records

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ABSTRACT

The popularization of residents electronic health records were accelerating at present, it will become essential items for the people like ID in the near future. But the update mode problem has not been solved properly. In this paper, according to the actual situation, the reasonable and effective residents electronic health records update mode were been put forward, advocate the build of electronic health data interconnection, which is divided by the unit of province. The study result provide a reference for related policy formulation departments.

Keywords: residents electronic health records; data exchange; update mode

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INTRODUCTION

Resident electronic health records can record the personal life of health professionally, really and dynamically. With the popularization of residents electronic health records, everyone's health can be included in health services management, Which greatly improved the efficiency and quality of health service. At present, various countries in the world were put a lot of effort in electronic health records construction, electronic health records will become essential items of people like ID in the near future. After losing ID, people will have no way to purchase house, purchas car, take train or plane, or accommodation; Without health records, people will not enjoy the health service, such as health examination, medical treatment, hospitalization and get medical insurance in the future, and personal health would have no guarantee.

2. electronic health records have problem of update

All countries have attached great importance to the construction and development of electronic health records, but even in developed countries, the development process of electronic health records where also slow, the function is limited, the population coverage where can realize the electronic health record information complete sharing is not extensive, especially the update problem has not been solved properly after the establishment of the records. Update the data information timelyis the key to play a normal role of healthy records, the records data have reference value only when it can reflect the current health situation and medical situation.

In fact, after health records were been established, there will be no check or update for a long time in genera. The health records of residents basically in a no update status as lack of continuous and effective updating mechanism and method, which lead to dead record and cannot reflect the health status of residents trully. With the passage of time, the auxiliary function of health records to basical medical institutions was more and more small, the significance and value of health records will lose if this situation sustained. To China as an example, the large-scale health records construction begins from 2009, health records will cover urban and rural people fully in 2020 according to the health sector plan.

But if the health record data update problem did not been solved, some of the health records will not been updated after the construction in 2009, and we can imagine the records value like this.

3.Explore reasonable and effective file update mode

How to guarantee the resident health records' information long-term update and utilization, and continuous invest and improve of resident health records information were the problem we must consider about. Many countries are trying to implement the real-time update of health records actively, but most of them were manual operation. The primary health workers visit each residents and add records to health records system by telephone and household interviews, which is time-consuming and laborious, added extra burden to basical medical workers. The research results showed that the efficient approach should be the solve the information isolated island problem of all health agency at first, and use existing health information data platforms, update the patient's health information to electronic health records automatically by easy to use and fast method, without any burden increase of basical medical workers, medical institutions and health management organizations. Connect the basic public health services and basic medical services, keep the resident health records content in up-to-date situation, and turn the "dead record" into "live record", provide accurate support data for the basic public health service.

As shown in figure 1, the basic data of electronic health records was obtained by community physical examination and questionnaire survey method, including name, gender, date of birth, identity card number, blood type, medical history, family history and other basic health information. The subsequent health data mainly includes the regular physical examination and hospital information record. The existing problems was, health records were constructed and managed by the community, while most residents went to second-class hospital for medical services, and medical information was usually kept in the electronic medical record in hospitals, which is not share for public, and community agencies unable to obtain these data, they can only update the files after the visits of community physician, which lead to file update not timely. In order to solve this problem, we must get through bilateral channels between hospital electronic medical record database and electronic health records database, construct close connection among resident health records module and public health, outpatient, hospital inspection system, enable real-time data exchange among them. When patients were in the inoculation, outpatient and hospital inspection process, the medical information will be automatically added into the records, and the records can be dynamic updated.

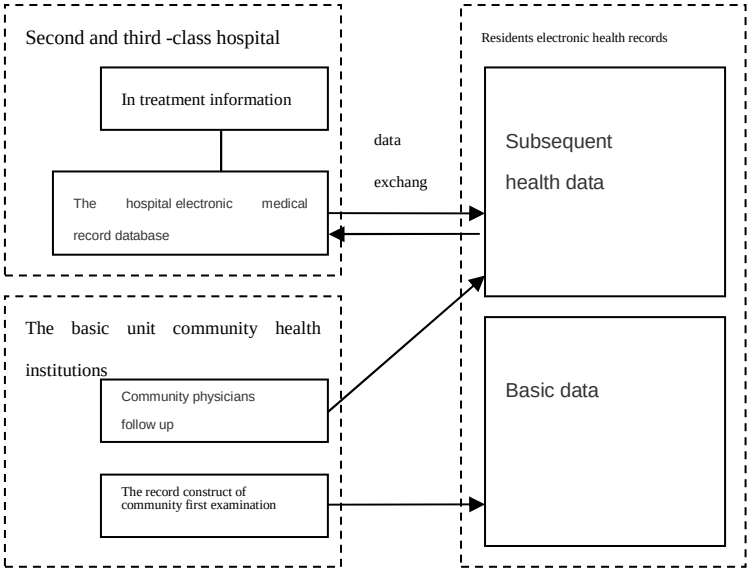

Fig 1 The reasonable update method of residents electronic health records

4.The realization of the data sharing by the construction of provincial and municipal cloud data center

4.1 provincial data center achieve provincial electronic health data interconnection

The local health data must realize interconnection in order for resident health records to play a role really. The reasonable approach is to use cloud computing solution, build the municipal health cloud data center at least, construct large-scale and distributed heterogeneous resources pool among information isolated island and information chimney, and design comprehensive and reasonable health information data interface for data sharing. By the reasons of hardware resource conservation and information resource application efficiency, the county and district level does not need to build data center.

Electronic health records data stored in the cloud data center, the higher level data center contained more extensive and valuable data. Admit of no doubt, the ultimate goal of the construction of health records is to achieve nationwide

information sharing. But in recent years, the establishment of national health data sharing center also has certain difficulty, therefore, the provincial data center should be established first according to the actual situation at present in order to construct and sharing the residents basic health information, medical information, insurance information and other information, etc. In fact, very few residents go to hospital out of the host province, most of the health records can realize dynamic update by the provincial residents health information and medical information sharing.

4.2 city level data center as the basic units of data storage

The construction of provincial data center are not equivalent to storage all the data in it, according to the current actual situation, the basic health records data should be distribute stored in each municipal data center. For the convenience of management, the community health records management agency was the most effective agency, the local community staff can operate the data more effective than leapfrog visit provincial municipalities hybrid data; from the perspective of medical service, most residents' medical behavior is in the city hospitals, the hospital gets the central data with high efficiency than reading remote cross region data. From the perspective of distinguish of household ownership, each resident's household registration beings to the city, there is no provincial residents; from the perspective of information technology, if the provincial data center storage of all data, its size must be too large, and it will also face the serious overload problem. From the perspective of put into effect, effect of the angle, there are various situations in different city residents, there will be many factors can not be control effectively if all the data were uploaded to the provincial data center.

Therefore, the best solution was construct the municipal data center in each city, collect and store all kinds of related information of resident's health, then provide to all levels of health services agency.

4.3 Data exchange between data center and all levels of health agency

The health system contains many institutions with different functions. After the establishment of the data center, the data access jurisdiction of different agencies limited accurately and reasonably, and it can meet all kinds of core applications, and ensure the information security of the whole system.

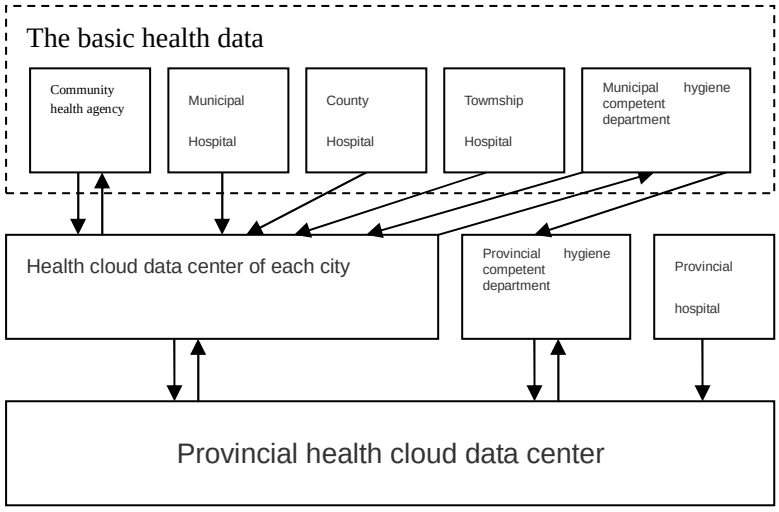

Fig2 The resident health records related health cloud data center data exchange model

As shown in figure 2, municipal health data center is the core component of the whole data system, it stored all the related health data which is supported for all the municipal health authorities and provincial data centers. Among them, data exchange, including writing, were existed among city center, community health institutions and municipal health departments. The community health institutions is the management institution of residents electronic health records to whom have the permissions of record modify; health authorities have the power of access to the full data, and also have the highest data management authority theorically. The data of all kinds of hospitals include examination, treatment and hospitalization information, these data were been classified and write into data center after the analysis of specific interface program to supplement and update health records. The hospital data transmitted to data center unidirectional, in order to guarentee the hospital's work not be disturbed, and protect the data security of medical information.

Provincial health data center mainly plays the role of management, do not take the memory task generally and only responsible for data transfer and exchange distribution. For example, the provincial center must classify the residents' medical data in provincial hospital into the municipal center and update the health records information

timely. In addition, the provincial health institutions read the medical data from the city center in directly after the second distribution according to the location.

4.4 health records data using process

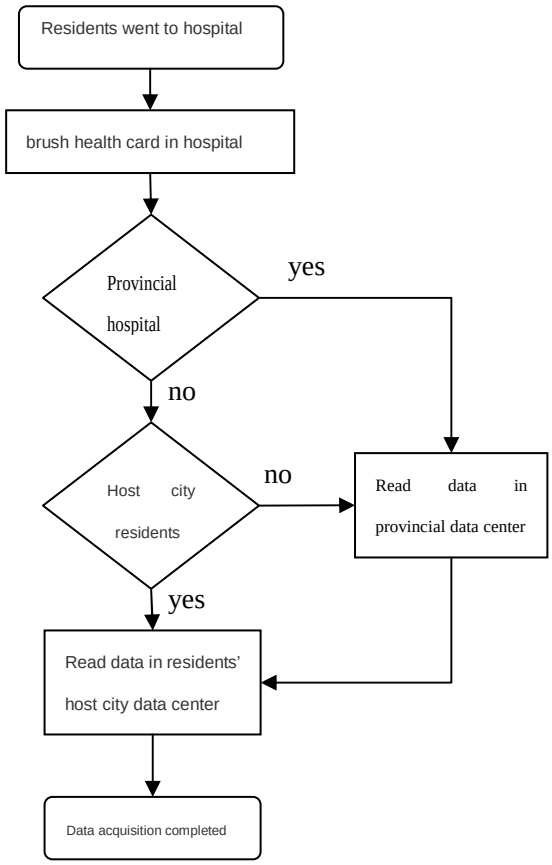

Figure 3 Data reading flow diagram of residents with health card

When the electronic health records system can cover all of urban and rural people, residents can take the record associated health card and go to any hospital in the province. As shown in Figure 3, when resident go to the hospital, the doctor read the health data through a special card reading device, and the provincial data can be read directly if the resident went to provincial hospital. Then the necessary information can be obtained from host city's data center through the provincial data center assignment according to the health card number. If the hospital is the city or town level, the residents would be judged whether constructed the record in this city or not. If the patient is not the city residents, the information also can be obtained from the patients host city assigned by the provincial data center. For host city residents, the most simple process will be execute, the data information can be obtained directly according to the number and then displayed in the hospital's computer terminal screen for medical reference. The information mainly include the basic health situation, the nearest examination, the diagnosis situation and other medical related information of the residents. The data information display on the screen can be customized, every department, hospital and doctor are free to permutate and combine the health data according to their own needs and habits, improve the information's readability and availability maximizely, in order to improve the efficiency and quality of diagnosis and treatment.

CONCLUSION

With the increasing development of the society and the demand for people's health, residents health records will gradually be popular as the only carrier of personal health information in daily life, and become the necessity for medical examination, treatment and all other health activities. But it was a new thing at present, it will encounter a variety of problems inevitably in the process of construction and the application.We need to do long-term plan and scientific implementation with strategic vision, solve the key problem of dynamic record updating according to the actual situation in order to avoid detours.In a word, we should implement health record project with no move or retreat, and improve it with attempt, get innovation in application, and make progress in exploration.

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