METHOD FOR TRACKING MANAGEMENT AND REAL-TIME DIAGNOSIS AND TREATMENT OF ORAL HEALTH

TECHNICAL FIELD

[0001] The present invention relates to the field of medical management, and in particular, to a method for tracking management and real-time diagnosis and treatment of oral health.

BACKGROUND

[0002] In existing stomatological hospitals, because there is no systematic information management system for patient diagnosis and treatment, it is usually impossible to perform targeted health tracking management for patients who receive treatment and follow up the diagnosis and treatment of patients and perform return visits on them according to their medical statuses and actual demands; therefore, it is impossible to know the progression status of their oral diseases in time and to monitor and early warn possible oral problems. Disease deterioration often occurs due to a fact that patients with some oral problems do not see a doctor, and therefore it is impossible to improve the diagnosis and treatment efficiency of patients in stomatological hospitals.

[0003] The Chinese Patent, with Publication No. CN112397166A, provides a medical management system for chronic diseases. In the patent, multiple functional modules used in a patient diagnosis and treatment process are established to evaluate and track the patient diagnosis and treatment data. However, the information of follow-up patients described in the patent cannot realize the whole visual operation of the patient diagnosis and treatment status through the doctor. The Chinese Patent, with Publication No. CN108735273B, provides a data processing method and a medical management system. The patent mainly relates to a data processing method used in a medical diagnosis process; data used in a medical diagnosis process is extracted and summarized, and then applied to a treatment process of a doctor, to improve the diagnosis and treatment efficiency of the doctor. However, data processing and summary described here are only used in the preliminary consultations of patients, without involving the systematic management of the subsequent diagnosis and treatment information of the patients.

[0004] Therefore, for the problems in the existing patient diagnosis and treatment process, the present invention provides a method for tracking management and real-time diagnosis and

treatment of oral health.

SUMMARY

[0005] For the above problems, the present invention provides a method for tracking management and real-time diagnosis and treatment of oral health, and the method specifically includes establishing a tracking diagnosis and treatment method based on color management, as shown in FIG. 1; and the tracking diagnosis and treatment method based on color management includes the specific steps:

[0006] S1. obtaining medical information of an individual patient and saving the medical information as a data set, and establishing a digital form module based on the data set of the medical information of an individual patient;

[0007] specifically, the digital form module includes a diagnosis and treatment problem display module, a tooth position serial number display module, a diagnosis and treatment status display module, a toolbar, and a legend;

[0008] specifically, the medical information of an individual patient includes, but is not limited to, patient name, patient gender, patient medical date, whether the patient is visiting for the first time, patient consultation information, patient electronic case, and the like; and the feature data of the medical status of the individual patient includes, but is not limited to, oral problems such as missing teeth, periodontitis, the number of teeth, decayed teeth, dentition irregularity, and the like; and different diagnosis and treatment status tags include a diagnosis status, a status under treatment not initiated, a status under treatment, and an end-of-treatment;

[0009] S2. extracting feature data indicating the medical information of an individual patient from the data set, and establishing association analysis between the feature data and the different diagnosis and treatment status tags;

[0010] S3. generating different display colors after the different diagnosis and treatment status tags are associated with different feature data;

[0011] specifically, the different diagnosis and treatment status tags includes:

[0012] A1. when a doctor issues an electronic case after diagnosing a patient, but the patient fails to make a payment and carries out subsequent operations, the tags are in a blue diagnosis state;

[0013] A2. when the patient makes a payment and an outpatient clinic fails to transfer funds, the tags are in a status under yellow treatment not initiated;

[0014] A3. when the outpatient clinic transfers the funds and there is a record of using medical

consumables, the tags are in a green treatment status; and

[0015] A4. when the patient treatment is completed, the doctor chooses to complete the treatment and the tags are in a gray treatment completion status; and

[0016] S4. positioning the feature data associated with the different diagnosis and treatment status tags in a designated position in the digital form module.

[0017] Specifically, in the tracking diagnosis and treatment method based on color management, patients are unified for different color displays according to different diagnosis and treatment problems; and the different color displays are subjected to custom settings by using RGB color vectors.

[0018] Preferably, in S4, in the designated position, a diagnosis and treatment problem display module and a tooth position serial number display module are taken as an ordinate and an abscissa to generate position data, and the designated position of the feature data is positioned by the diagnosis and treatment status display module.

[0019] Preferably, in S2, during the association analysis, a characteristic keyword is established as a trigger event in the data set of the medical information of an individual patient; and when the characteristic keyword is searched, a corresponding diagnosis and treatment status tag is triggered by the trigger event.

[0020] Specifically, the characteristic keyword includes, but is not limited to, progress records, inspection results, medical advices, payment records, types of medical consumables, quantities of medical consumables, operation records, and the like.

[0021] Preferably, a css pattern is adopted in the digital form module, and the digital form structure is subjected to custom adjustment in a toolbar.

[0022] Preferably, after obtaining the feature data corresponding to the characteristic keyword, the diagnosis and treatment status tag is associated with a corresponding color display module; the feature data is associated with the diagnosis and treatment problem display module and the tooth position serial number display module; and the feature data in the diagnosis and treatment status display module in the designated position is positioned.

[0023] Preferably, in the tracking diagnosis and treatment method based on color management, a patient diagnosis and treatment status query form is further created.

[0024] Specifically, the patient diagnosis and treatment status query form includes a business department module, an initial diagnosis time module, an outpatient module, a dedicated consultant module, a responsible doctor module, a return visit number module, a latest visit time module, and whether there is a follow-up appointment module after first blue elimination.

[0025] Preferably, in the patient diagnosis and treatment status query form, a directional mining mode of a patient diagnosis and treatment status is established; patient diagnosis and treatment status information is directionally summarized according to a patient diagnosis and treatment period and a market activity; and directionally summarized data is transmitted to a service port.

[0026] Preferably, a disease progression and deterioration model, a treatment cost estimation model, and a treatment plan evaluation model are established according to the patient diagnosis and treatment status query form.

[0027] Preferably, a disease evolution report is generated in the disease progression and deterioration model to provide treatment reference for a patient and forecast and early warn oral problems of the patient.

[0028] Preferably, as shown in FIG. 3, a treatment cost under a specified treatment period is generated in the treatment cost estimation model; and the treatment cost and the disease evolution report are combined and transmitted to the treatment plan evaluation model, to establish a patient grading treatment standard.

[0029] Specifically, doctors can determine the treatments of the individual patient under single disease condition according to the different diagnosis and treatment status tags, which facilitates subsequent treatment operations and improves the efficiency of doctor diagnosis and treatment.

[0030] Compared with the prior art, the present invention has the beneficial effects:

[0031] (1) In the method for tracking management and real-time diagnosis and treatment of oral health according to the present invention, in order to further perform directional health tracking management on patients who receive treatment, the progression statuses of the oral diseases of the patients are known in time through follow-up tracking diagnosis and treatment and return visit on the medical treatment statuses and actual demands of the patients; in the present invention, a tracking diagnosis and treatment method based on color management is established, and different diagnosis and treatment processes involved in patient diagnosis and treatment are given with different colors, helping the doctors to check the diagnosis and treatment status of the patient more intuitively and improving the diagnosis and treatment efficiency.

[0032] (2) On the basis of (1), in the method for tracking management and real-time diagnosis and treatment of oral health according to the present invention, a patient diagnosis and treatment status query form is established, and the tracking diagnosis and treatment method

based on color management and the patient diagnosis and treatment data are subjected to data summary through the patient diagnosis and treatment status query form, facilitating the subsequent analysis on the patient diagnosis and treatment statuses in the disease progression and deterioration model, the treatment cost estimation model, and the treatment plan evaluation model, which helps the individual patient to fully understand and master current disease conditions and future disease progression conditions, and further helps the patient to choose a suitable oral diagnosis and treatment plan and see a doctor in time to avoid disease deterioration.

[0033] (3) On the basis of (2), in the present invention, a directional mining mode of a patient diagnosis and treatment status is established and used for the diagnosis and treatment tracking and return visit of patients in a later stage, which facilitates business personnel to contact patients in time and master their diagnosis and treatment status in a later stage, and provides further consultation and diagnosis and treatment advices for the patients to meet their diagnosis and treatment demands; in order to avoid disease deterioration caused by untimely treatment of some oral problems of the patients, the patient diagnosis and treatment status is directionally mined during the subsequent diagnosis and treatment to help the doctors to deeply understand their historical treatment information, thereby helping the doctors to know their historical disease conditions in time and make subsequent diagnosis and treatment judgments quickly.

[0034] (4) On the basis of (3), in the present invention, the disease progression and deterioration model is generated based on patient diagnosis and treatment data, and a disease evolution report is generated to provide treatment reference for a patient; specifically, the disease progression and deterioration model is used to establish an analysis and prediction model according to current patient diagnosis and treatment status data, and automatically predict and generate the possible disease progression direction of patients treated with different methods in a specified period under the diagnosis and treatment status, thereby helping the patients to make treatment decisions for oral problems and avoiding their disease deterioration in the later stage.

[0035] (5) On the basis of (4), in the present invention, the treatment plan evaluation model is established; in the treatment plan evaluation model, the treatment plans that meet the economic conditions of the patients are classified for the treatment methods of the patients through analysis data in the disease progression and deterioration model and the treatment cost estimation model and under the condition of ensuring their treatment effect, so as to provide more reasonable treatment plans for patients in the field of oral treatment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0036] FIG. 1 shows a schematic diagram of a tracking diagnosis and treatment method based on color management used in a method for tracking management and real-time diagnosis and treatment of oral health;

[0037] FIG. 2 shows a schematic diagram of a patient diagnosis and treatment status query form used in a method for tracking management and real-time diagnosis and treatment of oral health; and

[0038] FIG. 3 shows a treatment cost estimation model used in a method for tracking management and real-time diagnosis and treatment of oral health.

DETAILED DESCRIPTION OF EMBODIMENTS

[0039] Embodiment 1:

[0040] In the embodiment, a method for tracking management and real-time diagnosis and treatment of oral health is provided. After arriving at an outpatient clinic, a patient A claims presence of decayed teeth and needs to fill teeth. A doctor records chief complaint information of the patient A, and the chief complaint information includes private complaint problems and expectations of the patient A. After the patient A receives a full-mouth examination, the doctor records that there are four kinds of problems, such as gingivitis, missing teeth, residual roots/crowns, and superficial caries, which are located respectively in tooth positions with serial numbers of 13, 45, 44, 35 and 36.

[0041] Specifically, the serial numbers of the tooth positions are represented by a general DFI tooth position representation method for dental professional diagnosis. For adult teeth, a ten-digit number of two digits represents an oral position, and 1, 2, 3 and 4 respectively represent the upper right, upper left, lower left and lower right of an oral cavity; and a unit number thereof represents the number of teeth counted from the middle to both sides.

[0042] The above four kinds of problems will be automatically marked as “blue” by a color management tracking diagnosis and treatment method. This indicates that when the doctor issues an electronic case for the patient after diagnosis, but the patient fails to make a payment and follow up, the tag is in a blue diagnosis status.

[0043] In an oral health tracking management system, a disease progression and deterioration model is established according to the medical information, and a disease evolution report is

generated to provide treatment reference for a patient. The oral health tracking management system inputs the medical information into a treatment cost estimation model, calculates the treatment cost of a single diagnosis and treatment problem, and then input it into a treatment plan evaluation model in combination with the disease evolution report; various evaluation factors such as treatment period, treatment cost and emergency degree are weighed, so that the solution of all oral problems of patients is divided into three plans, namely, A, B and C:

[0044] Plan A recommends that priority will be given to oral problems that the patients are eager to solve and treatable at an appropriate cost;

[0045] Plan B recommends to solve those oral problems that are not very serious at present, but will seriously worsen; and

[0046] Plan C recommends patients to solve those oral problems that can improve oral function and aesthetic function, and such treatment may be costly.

[0047] Doctors can flexibly combine or adjust the treatment plans of A, B and C according to the situations and wills of the patients, and finally make the treatment plan at each stage.

[0048] In one embodiment, the oral health tracking management system actively pushes the list of patients diagnosed with a blue status to a business personnel port according to a visit period and requirements for market activities, and reminds the business personnel to follow up the patients in time and educate oral knowledge, so as to promote new business opportunities. In addition, the business personnel can also actively query all kinds of patients diagnosed with a color status through a system function, and can also query the transfer data of each color diagnosis of each doctor in a certain period for analysis.

[0049] A digital form module specifically includes a diagnosis and treatment problem display module, a tooth position serial number display module, a diagnosis and treatment state display module, a toolbar, and a legend.

[0050] In one embodiment, as shown in FIG. 2, a diagnosis and treatment problem display module is used to display the feature data of a diagnosis and treatment status of an individual patient, including but not limited to oral problems such as missing teeth, periodontitis, the number of teeth, decayed teeth, dentition irregularity, and the like, and fill column vectors in the digital form module according to the actual diagnosis and treatment situation of the patient; the tooth position serial number display module is in the form of tooth position serial number, and is used for positioning the diagnosis and treatment status display module; the diagnosis and treatment status display module is used for displaying the diagnosis and treatment status of the patient in different colors; and the toolbar includes functions of modifying, tagging, and

deleting the diagnosis and treatment problem display module.

[0051] In the tracking diagnosis and treatment method based on color management, a patient diagnosis and treatment status query form is further created.

[0052] In one embodiment, the patient diagnosis and treatment status query form is a summary of multiple patient diagnosis and treatment data; in the patient diagnosis and treatment status query form, different diagnosis and treatment status tags are used as an abscissa and patient names are used as an ordinate to record the number of patient diagnosis and treatment problems under a single diagnosis and treatment status tag; a patient name column is double clicked to jump to a tracking diagnosis method interface based on color management, so as to specifically view data of the patient diagnosis and treatment problems; the patient diagnosis and treatment status query form further includes a total number of blue teeth, a total number of missing teeth, whether dentition is irregular, the number of decayed teeth, chief complaint, last diagnosis and treatment time, next appointment time, first treatment time, and the number of return visits, so as to carry out follow-up oral health tracking management and real-time diagnosis and treatment.

[0053] To sum up, in the tracking diagnosis and treatment method based on color management according to the present invention, the diagnosis and treatment status of the individual patient under single medical information is intuitively displayed, to help doctors quickly grasp the treatment status of the individual patient and facilitate follow-up of patients and their treatment conditions in a later period; this is considered as a directional data mining mode of a patient diagnosis and treatment status, which helps front-end business personnel to mine and visit a patient treatment status in a later period, improves a regular directional follow-up effect of patients in a later period while the development of new business opportunities is promoted, and improves the efficiency of oral health tracking management.

CLAIMS

WHAT IS CLAIMED IS:

1. A method for tracking management and real-time diagnosis and treatment of oral health, specifically comprising establishing a tracking diagnosis and treatment method based on color management, wherein the tracking diagnosis and treatment method based on color management comprises the specific steps:

S1: obtaining medical information of an individual patient and saving the medical information as a data set, and establishing a digital form module based on the data set of the medical information of an individual patient;

S2: extracting feature data indicating the medical information of an individual patient from the data set, and establishing association analysis between the feature data and the different diagnosis and treatment status tags;

S3: generating different display colors after the different diagnosis and treatment status tags are associated with different feature data;

S4: positioning the feature data associated with the different diagnosis and treatment status tags in a designated position in the digital form module.

2. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 1, wherein in S4, in the designated position, a diagnosis and treatment problem display module and a tooth position serial number display module are taken as an ordinate and an abscissa to generate position data, and the designated position of the feature data is positioned by a diagnosis and treatment status display module.

3. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 1, wherein in S2, during the association analysis, a characteristic keyword is established as a trigger event in the data set of the medical information of an individual patient; and when the characteristic keyword is searched, a corresponding diagnosis and treatment status tag is triggered by the trigger event.

4. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 1, wherein a css pattern is adopted in the digital form module, and the digital form structure is subjected to custom adjustment in a toolbar.

5. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 3, wherein after obtaining the feature data corresponding to the characteristic keyword, the diagnosis and treatment status tag is associated with a corresponding color display module; the feature data is associated with the diagnosis and

treatment problem display module and the tooth position serial number display module; and the feature data in the diagnosis and treatment status display module in the designated position is positioned.

6. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 1, wherein in the tracking diagnosis and treatment method based on color management, a patient diagnosis and treatment status query form is further created.

7. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 6, wherein in the patient diagnosis and treatment status query form, a directional mining mode of a patient diagnosis and treatment status is established; patient diagnosis and treatment status information is directionally summarized according to a patient diagnosis and treatment period and a market activity; and directionally summarized data is transmitted to a service port.

8. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 7, wherein a disease progression and deterioration model, a treatment cost estimation model, and a treatment plan evaluation model are established according to the patient diagnosis and treatment status query form.

9. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 8, wherein a disease evolution report is generated in the disease progression and deterioration model to provide treatment reference for a patient.

10. The method for tracking management and real-time diagnosis and treatment of oral health according to claim 9, wherein a treatment cost under a specified treatment period is generated in the treatment cost estimation model; and the treatment cost and the disease evolution report are combined and transmitted to the treatment plan evaluation model, to establish a patient grading treatment standard.