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(54) Title: AN ELECTRONIC MODULAR AND CUSTOMIZABLE PATHOLOGY TEST FORM CREATION SYSTEM

(57) Abstract: An electronic modular and customizable pathology form creation system comprising: at least a test element database and at least a test element values' database adapted to store a list of defined test items and a list of defined test element values, correspondingly; at least a unit element values' database adapted to store defined list of units or unit element values per defined test item; at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a normal format, at least an optional format, at least a widal format, and at least a sensitivity format; at least an attribute addition mechanism adapted to allow addition of pre-defined attributes per test item; and at least a range definition mechanism adapted to allow defining of ranges for each of said test items.

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AN ELECTRONIC MODULAR AND CUSTOMIZABLE PATHOLOGY TEST FORM CREATION SYSTEM

Field of the Invention:

This invention relates to the field of information systems, computational systems, databases, and networking systems, and communication systems.

Particularly, this invention relates to the field of healthcare information, healthcare technology, healthcare management, practice management, electronic medical records, and electronic health records.

Specifically, this invention relates to an electronic modular and customizable pathology test form creation system.

Background of the Invention:

Paper conservation is the order of the day. The term, 'paperless', has achieved higher significance in today's age owing to social causes such as a greener earth or even commercial causes of recording keeping in a succinct, tagged, searchable, and easily retrievable manner. Each day scores and scores of trees are reduced to paper. According to the Kansas green teams' website, it takes 17 trees to produce one ton of paper. According to the Trinity College in Western Australia, it takes 17 x 20 year old trees to produce 1 ton of paper. This suggests that 1 tree is equal to 22.62 reams @ 2.6 KG of the A4 80gsm copy paper. A popular Paper Calculator suggests that one tree equals 14 reams of paper. For any business, a 'paper trail' is an important aspect of documentation. It provides for physical recording of data.

In an endeavor to promote paperless activities, legislations are now being passed. There are legislations in various parts of the world. One sector specific legislation in USA, is the HITECH Act, 2009. In USA, the Health Information Technology for Economic and Clinical Health Act, abbreviated HITECH Act, 2009, is aimed to promote and expand the adoption of health information technology. Its further aim is to create a nationwide network of electronic health records.

With the advent of tablet computational devices, computers have become micro-portable; they have entered everyday lives in multiple formats. And tablet computers, smart phones, PDAs have ubiquitously started to replace much of the worlds paper communication such as mail, newspapers, notepads, books, magazines, and the like. Decreasing costs and increasing user acceptance are the key drivers of acceptance of this technology in everyday lives. And provide a firm platform for eliminating paper based activities in various spheres of educational, personal, business, as well as recreational life.

In at least one context where paperless activities can be introduced with ease and with much larger benefits is the healthcare ecosystem. The term, 'healthcare ecosystem', or 'healthcare', generically refers to various personnel such as doctors, general practitioners, surgeons, specialist doctors, specialist surgeons, dentists, specialist dentists, physiotherapists, therapists, nurses, paramedical staff, nodes, systems, points of care, hospitals, clinics, dispensaries, nursing homes, imaging labs, diagnostic centres, test labs, testing labs, rehabilitation centres, operating rooms, recuperating centres, examination centres, chemists, pharmacies, ambulances, emergency units, and the like care-giving environments, and even insurance related practitioners and systems.

Currently, at each of the nodes of the healthcare ecosystem, paper is used in order to log data. This data may be patient data, prognosis data, diagnosis data, recuperation data, medication data, and the like so on and so forth. The healthcare system has been forthcoming in adopting Hospital Information and Management Systems in their day to day activities. However, the systems aid in patient check-in check-out procedures and some aspects of medication records. Doctors still use pen and pads while attending to a patient.

Prescriptions are still pen and paper based. Communication with other doctors who are to be referred to is also paper based. This paper trail gets relegated within a defined zone of the healthcare ecosystem such as a single hospital. If a patient were to visit a second hospital, a substantially new paper trail would begin. There would be no correlation between the paper trail at one hospital and the paper trail at another hospital for the same patient. Also, the paper trail that a patient owns at the local general practitioners is not available to other nodes or zones in the healthcare system.

Electronic Medical Record refers to storing medical record in an electronic format as opposed to a paper format, which is widely practiced. The limitations of the paper format are its security, its portability, is universality. While a paper record is limited to a medical facility, its transfer from one location to another is cumbersome. Also, its storage and retrieval are major problems.

A user or a patient need not be loyal to a single medical facility. He / she may visit one facility to another for a variety of purposes. There is no trail which can be mapped when the user moves from one place to another. Since a patient may traverse through multiple nodes or zones or systems in the healthcare ecosystem, it

is important that the patients corresponding paper trail also follows to lend warranted credence to the case of the patient at all times.

Hence, there is a need for an authenticated and secure mechanism to ensure data portability and continuity of care record. There is a need for electronic data and electronic forms.

Many experts agree on two steps that could be taken to significantly improve the quality of care and to reduce medical errors. Both involve the use of information technology and electronic documentation.

There is a near consensus that the widespread use of electronic medical records, accessible to all those seeing and treating a patient substantially improves the coordination and quality of care. Another important reason for medical errors is that most data is still written on paper, and mistakes are made in the filling of data because they are difficult to read or incomplete, or merely because of human error. Again there is a near consensus that electronic data would greatly reduce errors, thereby improving the quality of care.

In at least one context of patient management systems and record systems, pathology and related databases, forms, input mechanisms have their own unique importance.

In at least one embodiment, pathology modules involve a variety of tests that can be performed. Each test can have multiple sub-tests and / or results which need to be recorded in a certain manner. Therefore, each test has a particular form (or

format) in which data is to be recorded. An administrator uses this form (or format) to capture the data of tests. This invention is directed towards making these forms (or formats) for a variety of tests or cluster of tests.

Objects of the Invention:

An object of the invention is to provide an electronic pathology system.

Another object of the invention is to provide a system and method to ensure medical data portability, in relation to a patient

Another object of the invention is to provide a system and method to ensure secure and protected patient health information.

Another object of the invention is to provide a system and method to ensure secure and protected patient pathology-related information

Yet another object of the invention is to a provide system and method to improve health care quality.

Still another object of the invention is to provide an electronic customizable pathology system.

Still another object of the invention is to provide an electronic modular pathology system.

An additional object of the invention is to provide system and method to improve coordination of care and information among hospitals, labs, physicians, etc.

Yet an additional object of the invention is to provide system and method to improve efforts to reduce health disparities.

Still an additional object of the invention is to provide an authenticated and secure mechanism to ensure data portability

Another additional object of the invention is to provide a universally accessible electronic medical record system for pathology data.

Yet another additional object of the invention is to provide a universally accessible electronic medical record system for pathology data in compliance with stringent defined regulations.

Still another additional object of the invention is to provide a networked ecosystem for transfer of data in a paperless format in a healthcare environment.

Yet another object of the invention is to provide a system which overcomes difficulty in creating a migration plan from paper to electronic documentation and record keeping.

Still another object of the invention is to provide a system which has information security and overcomes portability issues.

An additional object of the invention is to provide a system and method which is easy to use and understand for doctors as well as for patients, thereby increasing user adaptability.

Summary of the Invention:

According to this invention, there is provided an electronic modular and customizable pathology form creation system comprising:

- at least a test element database and at least a test element values' database adapted to store a list of defined test items and a list of defined test element values, correspondingly;
- at least a unit element values' database adapted to store defined list of units or unit element values per defined test item;
- at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a normal format, at least an optional format, at least a widal format, and at least a sensitivity format;
- at least an attribute addition mechanism adapted to allow addition of pre-defined attributes per test item; and
- at least a range definition mechanism adapted to allow defining of ranges for each of said test items.

Typically, said system comprises at least an addition mechanism in order to define and add test elements and test element values.

Typically, said system comprises at least a selection mechanism enabled with said test element database and test element values' database, correspondingly.

Typically, said system comprises at least a department tagging mechanism adapted to tag at least a department name per defined test item.

Typically, said system comprises at least a specimen tagging mechanism adapted to tag at least a specimen type adapted to tag at least a specimen type per defined test item.

Typically, said system comprises at least an inventory management mechanism adapted to associate requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine.

Typically, said system comprises at least an inventory management mechanism adapted to associate requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine and wherein a code generation mechanism generates a corresponding code in relation said test item, said department, said specimen – per inventory item.

Typically, said system comprises at least an addition mechanism in order to define and add unit elements and unit element values.

Typically, said system comprises at least a selection mechanism enabled with said unit element values' database.

Typically, said system comprises at least an addition mechanism in order to define and add format elements and unit element values.

Typically, said system comprises at least a selection mechanism enabled with said format element values' database.

Typically, said range definition mechanism is a machine specific range definition mechanism, characterised in that, said machine specific range definition mechanism is configured to define ranges per test item correlation to machine make that is to be used for said test item.

Typically, said at least a format element values' database is adapted to select a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'normal' format comprising normal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;
- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;

- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding normal value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

Typically, said at least a format element values' database is adapted to select a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'optional' format comprising optional values for each test item that need to be defined and shown in one column, said system further comprising:
- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;
- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding optional value; and

- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

Typically, said at least a format element values' database is adapted to select a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'sensitivity' format comprising sensitivity values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;
- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding sensitivity value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

Typically, said at least a format element values' database is adapted to select a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;
- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding widal value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

Typically, said at least a format element values' database is adapted to select a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a

'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers, characterised in that, said header number header number entering mechanism being adapted to define four number of headers, each of said headers adapted to have no elements or 2 elements, or 3 elements, or 4 elements, or n elements;
- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding widal value;
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names; and
- at least an option selection mechanism adapted to enable selection of pre-defined or user-defined ratios as headers, said ratios that are selected form sub-headings in columns that correspond with said element values, and wherein, said columns with the ratios' sub-heading is populated with corresponding format element value.

Typically, said system comprises at least a view option adapted to preview how a created form would be viewed to a doctor.

Typically, said system comprises at least an edit option to allow an administrator to view back to master format.

Typically, said system comprises at least a delete option for deletion of a created test / form.

Typically, said system comprises at least a profile management mechanism formulates pre-defined test profiles, said test profiles comprising test items along with format element values.

Typically, said system comprises at least a question management mechanism adapted to define at least a question master per test item or per test profile comprising various test items, questions associated per test item are defined and correspondingly tagged.

Typically, said system comprises at least a report generation mechanism adapted to generate report(s) per patient, said report generation mechanism being configured to generate reports per selected test items or selected test profiles, said report generation mechanism being communicably coupled with said range definition mechanism in order to display reference ranges per test item, and wherein a comparator is associated with said range definition mechanism in order to flag a red alert if a tested value is beyond the defined range.

Typically, said system comprises at least an interface mechanism in order to interface machine codes with element defined codes, characterised in that, said machine codes are input in a machine code database and test item codes are input in a test item database wherein according to pre-defined rules, said machine codes are correlated with said test item codes.

Typically, said system comprises at least a notification mechanism adapted to provide notifications of test results to doctors associated with users and / or users themselves.

Typically, said system is a role active system.

According to this invention, there is also provided an electronic modular and customizable pathology form creation method comprising the steps of:

- storing a list of defined test items and a list of defined test element values, correspondingly, using at least a test element database and at least a test element values' database;
- storing defined list of units or unit element values per defined test item, using at least a unit element values' database;
- selecting a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a normal format, at least an optional format, at least a widal format, and at least a sensitivity format, said selection being performed using at least a format element values' database;
- allowing addition of pre-defined attributes per test item, using at least an attribute addition mechanism; and

- allowing defining of ranges for each of said test items, using at least a range definition mechanism.

Typically, said method comprises a step of defining and adding test elements and test element values, in order to define and add unit elements and unit element values, and in order to define and add format elements and unit element values; independently, using at least an addition mechanism.

Typically, said method comprises steps of: - enabling with said test element database and test element values' database; - enabling with said unit element values' database; and – enabling with said format element values' database; independently, using at least a selection mechanism.

Typically, said method comprises a step of tagging at least a department name per defined test item, using at least a department tagging mechanism.

Typically, said method comprises a step of tagging at least a specimen type adapted to tag at least a specimen type per defined test item, using at least a specimen tagging mechanism.

Typically, said method comprises a step of associating requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, using at least an inventory management mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine.

Typically, said method comprises a step of associating requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, using at least an inventory management mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine and wherein a code generation mechanism generates a corresponding code in relation said test item, said department, said specimen – per inventory item.

Typically, said method comprising a step of defining ranges comprises a step of defining machine specific ranges using at least a definition mechanism, characterised in that, said step comprising a further step of using at least a machine specific range definition mechanism configured to define ranges per test item correlation to machine make that is to be used for said test item.

Typically, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprises element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'normal' format comprising normal values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;

- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to normal values so that for each element name there is a corresponding normal value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

Typically, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprises element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'optional' format comprising optional values for each test item that need to be defined and shown in one column, said system further comprising:
- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;

- correlating element names to optional values so that for each element name there is a corresponding optional value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

Typically, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprises element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'sensitivity' format comprising sensitivity values for each test item that need to be defined and shown in one column, said system further comprising:
- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to sensitivity values so that for each element name there is a corresponding sensitivity value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

Typically, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprises element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to widal values so that for each element name there is a corresponding widal value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

Typically, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprises element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal

values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism, characterised in that, said header number header number entering mechanism being adapted to define four number of headers, each of said headers adapted to have no elements or 2 elements, or 3 elements, or 4 elements, or n elements;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to widal values so that for each element name there is a corresponding widal value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism; and
- enabling selection of pre-defined or user-defined ratios as headers, using at least an option selection mechanism, said ratios that are selected form sub-headings in columns that correspond with said element values, and wherein, said columns with the ratios' sub-heading is populated with corresponding format element value.

Typically, said method comprises a step of providing a preview of how a created form would be viewed to a doctor, using at least a view option.

Typically, said method comprises a step of allowing editing in order to allow an administrator to view back to master format, using at least an edit option.

Typically, said method comprises a step of allowing deletion of a created test / form, using at least a delete option.

Typically, said method comprises a step of formulating pre-defined test profiles, said test profiles comprising test items along with format element values, said step of formulating being performed using at least a profile management mechanism.

Typically, said method comprises a step of defining at least a question master per test item or per test profile comprising various test items, questions associated per test item are defined and correspondingly tagged, said step of defining being performed using at least a question management mechanism.

Typically, said method comprises a step of generating report(s) per patient, using at least a at least a report generation mechanism, said report generation mechanism being configured to generate reports per selected test items or selected test profiles, said report generation mechanism being communicably coupled with said range definition mechanism in order to display reference ranges per test item, and a further step of flagging a red alert if a tested value is beyond the defined range, said step of flagging being performed using at least a comparator associated with said step of defining ranges using said range definition mechanism.

Typically, said method comprises a step of interfacing machine codes with element defined codes, characterised in that, said machine codes are input in a machine code database and test item codes are input in a test item database wherein

according to pre-defined rules, said machine codes are correlated with said test item codes, said step of interfacing being performed using at least an interface mechanism.

Typically, said method comprises step of providing notifications of test results to doctors associated with users and / or users themselves, using at least a notification mechanism.

Typically, said method is a role active method.

Brief Description of the Accompanying Drawings:

The invention will now be described in relation to the accompanying drawings, in which:

Figure 1 illustrates a schematic block diagram of this system;

Figure 2 illustrates a test element values' database;

Figure 3 illustrates a unit element values' database;

Figure 4 illustrates a formal elements values' database;

Figure 5 illustrates a sample 'normal' form created using this system;

Figure 6 illustrates a sample 'optional' form created using this system;

Figure 7 illustrates a sample 'sensitivity' form created using this system;

Figure 8 illustrates a sample 'widal' form created using this system;

Figure 9 illustrates a test creation page by an administrator;

Figure 10 illustrates a test profile database;

Figure 11 illustrates a view of usage of this system in a pathology role-active mode.

Detailed Description of the Accompanying Drawings:

For the purposes of this specification, the term, 'doctor', doctors, dentists, surgeons, physiologists, psychiatrists, medics, medicos, nurses, paramedics, midwifes, hospital staff, insurance personnel, and the like hospital related or healthcare related persons who deal with patients.

According to this invention, there is provided an electronic modular and customizable pathology form creation system.

Figure 1 illustrates a schematic block diagram of the system of this invention.

Typically, in a pathology, an administrator creates forms in relation to tests that can be prescribed by doctors. Each test or a set of tests has a typically form structure with values or results or data to be recorded. A doctor only advises these tests and refers them to a pathology module or lab. A pathology can see multiple doctors' lists wherein multiple tests ((that have been prescribed per patient) can be seen,

In accordance with an embodiment of this invention, there is provided a role active system wherein the system can be used in various role-active formats such as in an administrative role to be used by an authorised administrator or in a pathological role to be used by an authorised doctor or the like pre-defined roles.

Typically, in a doctor log-in mode, a doctor may: 1) see test names (in various modes such as auto complete mode, drop-down mode); 2) add tests; 3) select pathology names; and the like

Typically, in a pathology log-in mode, actual values are updated in the form(s) created by administrator.

In accordance with another embodiment of this invention, there is provided a **test element values' database (TD)**. This can be seen in **Figure 2** of the accompanying drawings For each pathology test, a list of test items need to be defined and stored in the test element values' database and selected from the test element values' database as a second step towards creating a pathology form to be used by a healthcare provider such as a pathologist or a lab technician. New test elements and element values can be added by an addition mechanism which allows an administrator to define and add elements and element values. The test elements and element values are selected by a selection mechanism enabled with the test element database and test element values' database, correspondingly. The test element values are selected by a **selection mechanism** enabled with the test element values' database. This is enabled when the system is administrator -role-active.

In at least one embodiment of the test element values' database, there is provided a **department tagging mechanism** adapted to tag at least a department name per defined test item. Exemplary embodiments of departments comprise biochemistry department, microbiology department, surgical pathology department, and the like.

In at least one embodiment of the test element values' database, there is provided a **specimen tagging mechanism** adapted to tag at least a specimen type adapted to tag at least a specimen type per defined test item. Exemplary embodiments of specimen type comprise blood, urine, and the like.

In accordance with another embodiment of this invention, there is provided a **inventory management mechanism** adapted to associate requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism. Pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine. This aids in pre-empting inventory requirement. Furthermore, a code such as a bar code may be generated per selected test item per department per specimen. This bar code may be printed and stuck on to the required identity.

In accordance with another embodiment of this invention, there is provided a **unit element values' database (UD)**. This can be seen in **Figure 3** of the accompanying drawings. For each pathology test, a list of units or unit element values for test results need to be defined and stored in the unit element values' database and selected from the unit element values' database as a third step towards creating a pathology form to be used by a healthcare provider such as a pathologist or a lab technician. The pathology unit element values need to be assigned per selected test. New unit element values can be added by an addition mechanism

which allows an administrator to define and add element values. The unit element values are selected by a selection mechanism enabled with the unit element values' database. The unit element values are selected by a **selection mechanism** enabled with the unit element values' database. This is enabled when the system is administrator-role-active.

In accordance with yet another embodiment of this invention, there is provided an **format element values' database (FD)**. This can be seen in **Figure 4** of the accompanying drawings. For each pathology test, a format for recording test values needs to be assigned. These formats have element values which are defined and stored in the format element values' database and selected from the format element values' database as a first step towards creating a pathology form to be used by a healthcare provider such as a pathologist or a lab technician. New format element values can be added by an addition mechanism which allows an administrator to define and add element values. The format element values are selected by a **selection mechanism** enabled with the format element values' database. This is enabled when the system is administrator-role-active. The selection mechanism is adapted of the **format element values' database is adapted** to select an option for a type of pathology form that is to be created. The system of this invention is pre-populated with at least 4 different types of forms. This includes normal form (N), optional form (O), widal form (W), and sensitivity form (S). This is enabled when the system is administrator-role-active.

Typically, there is provided a **range definition mechanism** adapted to allow defining of ranges for tests. This definition is allowed since different machines (various makes) have different ranges associated with them. A pathology can, hence, incorporate these ranges by the range definition mechanism (in relation to

defined tests) in relation to the machine that is being used (in relation to rated ranges provided by machine manufacturer).

Typically, there is provided an **attribute addition mechanism** adapted to allow addition of attributes per test. These attributes may be sex, gender, age group, and the like.

For the 'normal' (N) form (as seen in **Figure 5** of the accompanying drawings), normal values for each test need to be defined and shown in one column. **Element number entering mechanism (ENM)** is adapted to define number of elements. Every element has a range defined by the **range definition mechanism.** The element names refer to the tests to be / that are performed. Optionally, **header number entering mechanism (HNM)** is adapted to define number of headers. In the form, element names are displayed in a column. Header is a collection or group of elements. Header can have no elements or 2 elements, or 3 elements, or 4 elements, or the like. In another column, corresponding units for element names are to be displayed. A **first correlation mechanism (C1M)** is trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value. In yet another column, corresponding normal values for element names are displayed. A **second correlation mechanism (C2M)** is trained to correlate element names to normal values so that for each element name there is a corresponding normal value. This normal value, typically, is a range. In yet another column corresponding header types are to be displayed. A **header defining mechanism (HDM)** is adapted to define header types which may be a collective name in relation to a pre-defined group of element names. Exemplary, header elements, here, display the term, ''electorlyte syrum' containing element names, 'sodium', 'potassium', 'chloride' and the like. . This is

enabled when the system is administrator-role-active. Examples for unit include: mg/dl, g/L, ug/L, ng/L, mmol/L, umol/L, ug/mL, pg/mL, ulU/mL, IU/L, and the like

For the 'optional' (O) form (as seen in **Figure 6** of the accompanying drawings), optional values for each test need to be defined and shown in one column out of which one option needs to be selected by a healthcare provider in order to log a test result entry. **Element number entering mechanism (ENM)** is adapted to define number of elements. Every element has a range defined by the **range definition mechanism.** The element names refer to the tests to be / that are performed. Optionally, **header number entering mechanism (HNM)** is adapted to define number of headers. In the form, element names are displayed in a column. Header is a collection or group of elements. Header can have at least 1 element, 2 elements, or 3 elements, or 4 elements, or the like. In another column, corresponding format element values for element names are to be displayed. A **first correlation mechanism (C1M)** is trained to correlate element names to formal element values so that for each element name there is a corresponding format element value. In yet another column corresponding header types are to be displayed. A **header defining mechanism (HDM)** is adapted to define header types which may be a collective name in relation to a pre-defined group of element names. Typically, header elements, here, display the term, 'physical examination' with the element names, 'colour', 'odour', 'mucous', 'blood' and the like. Additionally, header elements, here, display the term, 'microscopic examination' with the element names, 'ova', 'cysts', 'bacteria', 'crystals' and the like. Typically, there is provided a **format item definition means** adapted to define input of format item for pathologists. This is enabled when the system is administrator-role-active. Examples, of format item, include: Yes/No, Present/Not-Present,

Resistant/Sensitive, TextBox, Positive/Negative, Reactive/Non-Reactive, Seen/Not-Seen, Suggestive/Non-Suggestive, Detectable/Non-Detectable, Resistant/Sensitive/Moderately Sensitive, and the like.

For the 'sensitivity' (S) form (as seen in **Figure 7** of the accompanying drawings), sensitivity values for each test need to be defined and shown in one column out of which one sensitivity value needs to be selected by a healthcare provider in order to log a test result entry. **Element number entering mechanism (ENM)** is adapted to define number of elements. Every element has a range defined by the **range definition mechanism.** The element names refer to the tests to be / that are performed. Optionally, **header number entering mechanism (HNM)** is adapted to define number of headers. In the form, element names are displayed in a column. Header is a collection or group of elements. Header can have no elements or 2 elements, or 3 elements, or 4 elements, or the like. In another column, corresponding format element values for element names are to be displayed. A **first correlation mechanism (C1M)** is trained to correlate element names to formal element values so that for each element name there is a corresponding format element value. In yet another column corresponding header types are to be displayed. A **header defining mechanism (HDM)** is adapted to define header types which may be a collective name in relation to a pre-defined group of element names. Typically, header elements, here, display the term, 'sensitivity'. In a sensitivity profile, there are headers without element as well as headers with elements. Exemplary header names without elements include: 'sample', 'gram stain', 'media used', 'organism isolated', 'colony count' and the like. Exemplary header names with element include: 'cephalosporins' with element names comprising: 'piperacillin', 'ampicillin', 'cephalothin', 'cefaperazone', 'cefuroxime', and the like. Typically, there is provided a **format item definition**

means adapted to define input of format item for pathologists. This is enabled when the system is administrator-role-active. Examples, of format item, include: Yes/No, Detectable/Not Detectable, Seen/Not Seen, Resistant/Sensitive, and the like.

For the 'widal' (W) form (as seen in **Figure 8** of the accompanying drawings), **element number entering mechanism** is adapted to define four number of elements. Every element has a range defined by the **range definition mechanism.** The element names refer to the tests to be / that are performed. Optionally, **header number entering mechanism** is adapted to define four number of headers. Header is a collection or group of elements. Header can have no elements or 2 elements, or 3 elements, or 4 elements, or the like. This selection of widal by the option selection mechanism (OSM) enables selection of pre-defined or user-defined ratios as headers. The ratios that are selected form sub-headings in columns that correspond with element values. The columns with the ratios' sub-heading is populated with corresponding format element value (such as Positive / Negative). This is enabled when the system is administrator-role-active. Examples for the ratios include: 1:40, 1:120, 1:360, 1:720. For Widal, header changes ratios. Exemplary header names comprise: 'cephalosporins', 'cephems', 'test', 'penicillins', and the like. Exemplary element names comprise: 'S.typhi 'O' antigen', 'S.typhi 'H' antigen', 'S.paratyphi A 'H' antigen', 'S.paratyphi B 'H' antigen'.

Figure 9 illustrates a test creation page (by an administrator). This page comprises a view option to preview how a created form would be viewed to a doctor. This page also comprises an edit option to allow an administrator to view back to master format. This page further comprises a delete option for delection of a created test /

form. However, if a test is used by any doctor, even once, the system disallows its deletion, although it may allow further use.

Figure 10 illustrates a test profile database. A master (or summary) profile view of the various tests created using the system and method of this invention is shown in Figure 10. All test names as defined can be seen. These names can be changed by the pathology. Further, other test related parameters can be seen (VIEW), edited (EDIT), and / or deleted (DELETED) by a pathology using the system and method of this invention.

Figure 11 illustrates a view of usage of the system in a pathology role-active mode.

Further, a **profile management mechanism** formulates pre-defined test profiles. Test profiles can be created in order to form groups of tests which are pre-populated (cumulative or combination of tests). The parameters for formulating test profiles comprises reference ranges, test items, age group, gender group, age-gender group, units, and the like. Aliases per defined test profiles may be allowed to be defined by a user. E.g. pregnancy has 5 tests (which are compulsory) and can be apart of a pre-populated test profile which relates to pregnancy so that a doctor can directly select a group of tests by merely selected pregnancy test profile. Additionally, dynamic grouping of dynamic activation of tests are done by the system based on pre-defined indexing of tests. E.g. if a test is indexed for a certain age group, it will not show up for a patient outside of the age group. E.g. if a test is indexed for a certain gender, it will not show up for a patient outside of the gender group.

In accordance with an additional embodiment of this invention, there is provided a **question management mechanism** adapted to define at least a question master per test item or per test profile comprising various test items. Questions associated per test item are defined and correspondingly tagged. This allows a doctor or a pathologist to go through specific questions before performing a selected test item or a selected test profile. Answers to the questions may also be pre-defined and these answer inputs to the question management mechanism are associated with profile management mechanism.

In accordance with yet an additional embodiment of this invention, there is provided a **report generation mechanism** adapted to generate report(s) per patient. The report generation mechanism is configured to generate reports per selected test items or selected test profiles. Furthermore, it is communicably coupled with the range definition mechanism in order to display reference ranges per test item. Furthermore, a **comparator** is associated with the range definition mechanism in order to flag a red alert if a tested value is beyond the defined range.

In accordance with still an additional embodiment of this invention, there is provided an **interface mechanism** in order to interface machine codes with element defined codes. Typically, machine codes are input in a machine code database and test item codes are input in a test item database. According to pre-defined rules, these machine codes are correlated with test item codes.

In accordance with another embodiment of this invention, there is provided a **notification mechanism** adapted to provide notifications of test results to doctors associated with users and / or users themselves. A message creation mechanism creates a message which can be relayed over a telecommunication network, data

network, computer network, Internet network, or the like to a recipient. Typically, an SMS is configured to be sent to an associated doctor.

The data, in each of the components, means, modules, mechanisms, units, devices of the system and method may be 'encrypted' and suitably 'decrypted' when required.

The systems described herein can be made accessible through a portal or an interface which is a part of, or may be connected to, an internal network or an external network, such as the Internet or any similar portal. The portals or interfaces are accessed by one or more of users through an electronic device, whereby the user may send and receive data to the portal or interface which gets stored in at least one memory device or at least one data storage device or at least one server, and utilises at least one processing unit. The portal or interface in combination with one or more of memory device, data storage device, processing unit and serves, form an embedded computing setup, and may be used by, or used in, one or more of a non-transitory, computer readable medium. In at least one embodiment, the embedded computing setup and optionally one or more of a non-transitory, computer readable medium, in relation with, and in combination with the said portal or interface forms one of the systems of the invention. Typical examples of a portal or interface may be selected from but is not limited to a website, an executable software program or a software application.

The systems and methods may simultaneously involve more than one user or more than one data storage device or more than one host server or any combination thereof.

A user may provide user input through any suitable input device or input mechanism such as but not limited to a keyboard, a mouse, a joystick, a touchpad, a virtual keyboard, a virtual data entry user interface, a virtual dial pad, a software or a program, a scanner, a remote device, a microphone, a webcam, a camera, a fingerprint scanner, a cave, pointing stick

The systems and methods can be practiced using any electronic device which may be connected to one or more of other electronic device with wires or wirelessly which may use technologies such as but not limited to, Bluetooth, Wi-Fi, Wimax. This will also extend to use of the aforesaid technologies to provide an authentication key or access key or electronic device based unique key or any combination thereof.

In at least one embodiment, one or more user can be blocked or denied access to one or more of the aspects of the invention.

Encryption can be accomplished using any encryption technology, such as the process of converting digital information into a new form using a key or a code or a program, wherein the new form is unintelligible or indecipherable to a user or a thief or a hacker or a spammer. The term 'encryption' includes encoding, compressing, or any other translating of the digital content. The encryption of the digital media content can be performed in accordance with any technology including utilizing an encryption algorithm. The encryption algorithm utilized is not hardware dependent and may change depending on the digital content. For example, a different algorithm may be utilized for different websites or programs. The term 'encryption' further includes one or more aspects of authentication,

entitlement, data integrity, access control, confidentiality, segmentation, information control, and combinations thereof.

The described embodiments may be implemented as a system, method, apparatus or article of manufacture using standard programming and/or engineering techniques related to software, firmware, hardware, or any combination thereof. The described operations may be implemented as code maintained in a "non-transitory, computer readable medium", where a processor may read and execute the code from the non-transitory, computer readable medium. A non-transitory, computer readable medium may comprise media such as magnetic storage medium (e.g., hard disk drives, floppy disks, tape, etc.), optical storage (CD-ROMs, DVDs, optical disks, etc.), volatile and non-volatile memory devices (e.g., EEPROMs, ROMs, PROMs, RAMs, DRAMs, SRAMs, Flash Memory, firmware, programmable logic, etc.), etc. The code implementing the described operations may further be implemented in hardware logic (e.g., an integrated circuit chip, Programmable Gate Array (PGA), Application Specific Integrated Circuit (ASIC), etc.).

Still further, the code implementing the described operations may be implemented in "transmission signals", where transmission signals may propagate through space or through a transmission media, such as an optical fibre, copper wire, etc. The transmission signals in which the code or logic is encoded may further comprise a wireless signal, satellite transmission, radio waves, infrared signals, Bluetooth, etc. The transmission signals in which the code or logic is encoded is capable of being transmitted by a transmitting station and received by a receiving station, where the code or logic encoded in the transmission signal may be decoded and stored in hardware or a non-transitory, computer readable medium at the receiving and

transmitting stations or devices. An "article of manufacture" comprises non-transitory, computer readable medium or hardware logic, and/or transmission signals in which code may be implemented. A device in which the code implementing the described embodiments of operations is encoded may comprise a non-transitory, computer readable medium or hardware logic. Of course, those skilled in the art will recognize that many modifications may be made to this configuration without departing from the scope of the present invention, and that the article of manufacture may comprise suitable information bearing medium known in the art.

The term network means a system allowing interaction between two or more electronic devices, and includes any form of inter/intra enterprise environment such as the world wide web, Local Area Network (LAN) , Wide Area Network (WAN) , Storage Area Network (SAN) or any form of Intranet.

The systems and methods can be practiced using any electronic device. An electronic device for the purpose of this invention is selected from any device capable of processing or representing data to a user and providing access to a network or any system similar to the internet, wherein the electronic device may be selected from but not limited to, personal computers, tablet computers, mobile phones, laptop computers, palmtops, portable media players, and personal digital assistants. In an embodiment, the computer readable medium data storage unit or data storage device is selected from a set of but not limited to USB flash drive (pen drive), memory card, optical data storage discs, hard disk drive, magnetic disk, magnetic tape data storage device, data server and molecular memory.

The process steps, method steps, algorithms or the like may be described in a sequential order, such processes, methods and algorithms may be configured to work in alternate orders. In other words, any sequence or order of steps that may be described does not necessarily indicate a requirement that the steps be performed in that order. The steps of processes described herein may be performed in any order practical. Further, some steps may be performed simultaneously, in parallel, or concurrently.

While the present invention is susceptible of embodiment in various forms, there is shown in the drawings and will hereinafter be described a presently preferred embodiment with the understanding that the present disclosure is to be considered an exemplification of the invention and is not intended to limit the invention to the specific embodiments illustrated. The use of "including", "comprising" or "having" and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items.

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms "a", "an" and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude or rule out the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

While this detailed description has disclosed certain specific embodiments for illustrative purposes, various modifications will be apparent to those skilled in the art which do not constitute departures from the spirit and scope of the invention as defined in the following claims, and it is to be distinctly understood that the foregoing descriptive matter is to be interpreted merely as illustrative of the invention and not as a limitation.

Claims,

1. An electronic modular and customizable pathology form creation system comprising:

- at least a test element database and at least a test element values' database adapted to store a list of defined test items and a list of defined test element values, correspondingly;
- at least a unit element values' database adapted to store defined list of units or unit element values per defined test item;
- at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a normal format, at least an optional format, at least a widal format, and at least a sensitivity format;
- at least an attribute addition mechanism adapted to allow addition of pre-defined attributes per test item; and
- at least a range definition mechanism adapted to allow defining of ranges for each of said test items.

2. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least an addition mechanism in order to define and add test elements and test element values, in order to define and add unit elements and unit element values, and in order to define and add format elements and unit element values; independently.

3. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a selection

mechanism: - enabled with said test element database and test element values' database; - enabled with said unit element values' database; and – enabled with said format element values' database; independently.

4. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a department tagging mechanism adapted to tag at least a department name per defined test item.

5. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a specimen tagging mechanism adapted to tag at least a specimen type adapted to tag at least a specimen type per defined test item.

6. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least an inventory management mechanism adapted to associate requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine.

7. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least an inventory management mechanism adapted to associate requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine and wherein

a code generation mechanism generates a corresponding code in relation said test item, said department, said specimen – per inventory item.

8. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said range definition mechanism is a machine specific range definition mechanism, characterised in that, said machine specific range definition mechanism is configured to define ranges per test item correlation to machine make that is to be used for said test item.

9. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'normal' format comprising normal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;

- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding normal value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

10. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'optional' format comprising optional values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;

- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding optional value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

11. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'sensitivity' format comprising sensitivity values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;

- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding sensitivity value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

12. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers;

- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding widal value; and
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names.

13. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said at least a format element values' database adapted to selected a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- at least an element number entering mechanism adapted to define number of elements;
- at least an element name definition mechanism adapted to define element names corresponding to test items;
- at least a range definition mechanism adapted to define range(s) per element name;
- at least a header number entering mechanism is adapted to define number of headers, characterised in that, said header number header number entering mechanism being adapted to define four number of headers, each of said headers

adapted to have no elements or 2 elements, or 3 elements, or 4 elements, or n elements;

- at least a first correlation mechanism trained to correlate element names to unit element values so that for each element name there is a corresponding unit element value;
- at least a second correlation mechanism trained to correlate element names to normal values so that for each element name there is a corresponding widal value;
- at least a header defining mechanism adapted to define header types which may be a collective name in relation to a pre-defined group of element names; and
- at least an option selection mechanism adapted to enable selection of pre-defined or user-defined ratios as headers, said ratios that are selected form sub-headings in columns that correspond with said element values, and wherein, said columns with the ratios' sub-heading is populated with corresponding format element value.

14. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprises at least a view option adapted to preview how a created form would be viewed to a doctor.

15. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprises at least an edit option to allow an administrator to view back to master format.

16. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprises at least a delete option for deletion of a created test / form.

17. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a profile management mechanism formulates pre-defined test profiles, said test profiles comprising test items along with format element values.

18. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a question management mechanism adapted to define at least a question master per test item or per test profile comprising various test items, questions associated per test item are defined and correspondingly tagged.

19. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a report generation mechanism adapted to generate report(s) per patient, said report generation mechanism being configured to generate reports per selected test items or selected test profiles, said report generation mechanism being communicably coupled with said range definition mechanism in order to display reference ranges per test item, and wherein a comparator is associated with said range definition mechanism in order to flag a red alert if a tested value is beyond the defined range.

20. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least an interface mechanism in order to interface machine codes with element defined codes, characterised in that, said machine codes are input in a machine code database and test item codes are input in a test item database wherein according to pre-defined rules, said machine codes are correlated with said test item codes.

21. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system comprising at least a notification mechanism adapted to provide notifications of test results to doctors associated with users and / or users themselves.

22. An electronic modular and customizable pathology form creation system as claimed in claim 1 wherein, said system is a role active system.

23. An electronic modular and customizable pathology form creation method comprising the steps of:

- storing a list of defined test items and a list of defined test element values, correspondingly, using at least a test element database and at least a test element values' database;
- storing defined list of units or unit element values per defined test item, using at least a unit element values' database;
- selecting a format for recording test element values, said formats comprising element values, said formats being selected from a group of formats consisting of at least a normal format, at least an optional format, at least a widal format, and at least a sensitivity format, said selection being performed using at least a format element values' database;
- allowing addition of pre-defined attributes per test item, using at least an attribute addition mechanism; and
- allowing defining of ranges for each of said test items, using at least a range definition mechanism.

24. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of defining and adding test elements and test element values, in order to define and add unit elements and unit element values, and in order to define and add format elements and unit element values; independently, using at least an addition mechanism.

25. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising steps of: - enabling with said test element database and test element values' database; - enabling with said unit element values' database; and – enabling with said format element values' database; independently, using at least a selection mechanism.

26. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of tagging at least a department name per defined test item, using at least a department tagging mechanism.

27. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of tagging at least a specimen type adapted to tag at least a specimen type per defined test item, using at least a specimen tagging mechanism.

28. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of associating requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, using at least an inventory

management mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine.

29. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of associating requirement of inventory with correlated test items, department tagging mechanism, and specimen tagging mechanism, using at least an inventory management mechanism, characterised in that, pre-defined rules of inventory required per test item per department per specimen are stored in a rules' engine and wherein a code generation mechanism generates a corresponding code in relation said test item, said department, said specimen – per inventory item.

30. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of defining ranges comprises a step of defining machine specific ranges using at least a definition mechanism, characterised in that, said step comprising a further step of using at least a machine specific range definition mechanism configured to define ranges per test item correlation to machine make that is to be used for said test item.

31. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that,

said 'normal' format comprising normal values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to normal values so that for each element name there is a corresponding normal value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

32. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'optional' format comprising optional values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;

- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to optional values so that for each element name there is a corresponding optional value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

33. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'sensitivity' format comprising sensitivity values for each test item that need to be defined and shown in one column, said system further comprising:
- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;

- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to sensitivity values so that for each element name there is a corresponding sensitivity value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

34. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:
- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;

- correlating element names to widal values so that for each element name there is a corresponding widal value, using at least a second correlation mechanism; and
- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism.

35. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method of selecting a format for recording test element values using at least a format element values' database, said formats comprising element values, said formats being selected from a group of formats consisting of at least a 'normal' format, at least an 'optional' format, at least a 'widal' format, and at least a 'sensitivity' format, characterised in that, said 'widal' format comprising widal values for each test item that need to be defined and shown in one column, said system further comprising:

- defining number of elements using at least an element number entering mechanism;
- defining element names corresponding to test items using at least an element name definition mechanism;
- defining range(s) per element name using at least a range definition mechanism;
- defining number of headers using at least a header number entering mechanism, characterised in that, said header number header number entering mechanism being adapted to define four number of headers, each of said headers adapted to have no elements or 2 elements, or 3 elements, or 4 elements, or n elements;
- correlating element names to unit element values so that for each element name there is a corresponding unit element value, using at least a trained at least a first correlation mechanism;
- correlating element names to widal values so that for each element name there is a corresponding widal value, using at least a second correlation mechanism; and

- defining header types which may be a collective name in relation to a pre-defined group of element names, using at least a header defining mechanism; and
- enabling selection of pre-defined or user-defined ratios as headers, using at least an option selection mechanism, said ratios that are selected form sub-headings in columns that correspond with said element values, and wherein, said columns with the ratios' sub-heading is populated with corresponding format element value.

36. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprises a step of providing a preview of how a created form would be viewed to a doctor, using at least a view option.

37. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprises a step of allowing editing in order to allow an administrator to view back to master format, using at least an edit option.

38. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprises a step of allowing deletion of a created test / form, using at least a delete option.

39. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of formulating pre-defined test profiles, said test profiles comprising test items along with format element values, said step of formulating being performed using at least a profile management mechanism.

40. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of defining at least a question master per test item or per test profile comprising various test items, questions associated per test item are defined and correspondingly tagged, said step of defining being performed using at least a question management mechanism.

41. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of generating report(s) per patient, using at least a at least a report generation mechanism, said report generation mechanism being configured to generate reports per selected test items or selected test profiles, said report generation mechanism being communicably coupled with said range definition mechanism in order to display reference ranges per test item, and a further step of flagging a red alert if a tested value is beyond the defined range, said step of flagging being performed using at least a comparator associated with said step of defining ranges using said range definition mechanism.

42. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising a step of interfacing machine codes with element defined codes, characterised in that, said machine codes are input in a machine code database and test item codes are input in a test item database wherein according to pre-defined rules, said machine codes are correlated with said test item codes, said step of interfacing being performed using at least an interface mechanism.

43. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method comprising step of providing notifications of test results to doctors associated with users and / or users themselves, using at least a notification mechanism.

44. An electronic modular and customizable pathology form creation method as claimed in claim 23 wherein, said method is a role active method.

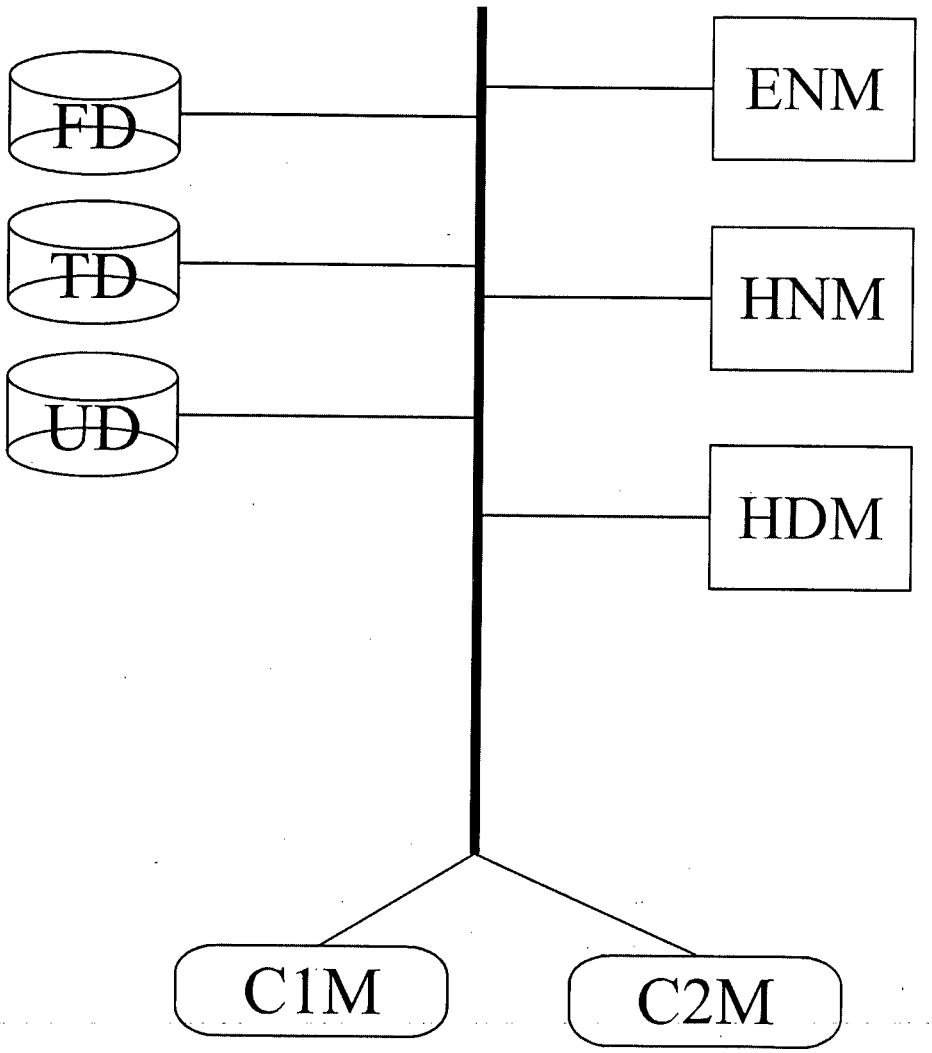


FIGURE 1

TEST ELEMENT VALUE	Is ACTIVE
Yes/No	☐
Present/Not-Present	☐
Resistant/Sensitive	☐
TextBox	☐
Positive/Negative	☐
Reactive/Non-Reactive	☐
Seen/Not-Seen	☐
Suggestive/Non-Suggestive	☐
Detectable/Non-Detectable	☐
Resistant/Sensitive/Moderately Sensitive	☐

FIGURE 2

TEST UNIT VALUE	Is ACTIVE
mg/dl	☐
g/L	☐
ug/L	☐
ng/L	☐
mmol/L	☐
umol/L	☐
ug/mL	☐
pg/mL	☐
ulU/mL	☐
IU/L	☐

FIGURE 3

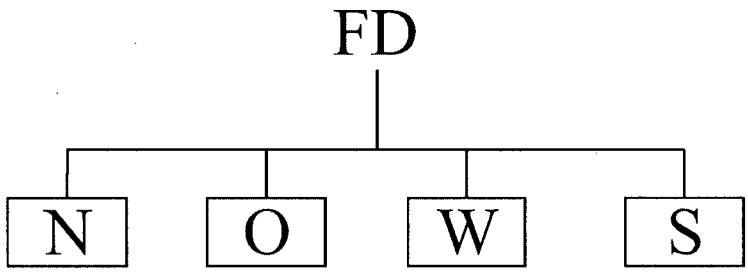
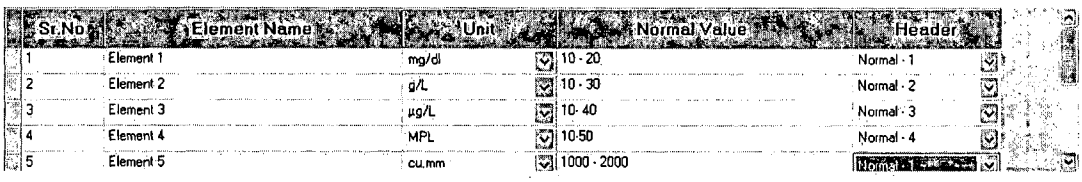


FIGURE 4



Sr.No	Element Name	Unit	Normal Value	Header
1	Element 1	mg/dl	10 - 20	Normal - 1
2	Element 2	g/L	10 - 30	Normal - 2
3	Element 3	µg/L	10- 40	Normal - 3
4	Element 4	MPL	10-50	Normal - 4
5	Element 5	cu.mm	1000 - 2000	

FIGURE 5

Sr.No	Element Name	Select Format Item	Header
2	Element 2	Resistant/Sensitive	Opt - 2
3	Element 3	TextBox	Opt - 3
4	Element 4	Reactive/Non-Reactive	Opt - 4
5	Element 5	Seen/Not-Seen	Opt - 5

FIGURE 6

Sr.No	Element Name	Select Format Item	Header
1	Element 1	Present/Not-Present	Sen 1
2	Element 2	Resistant/Sensitive	Sen 2
3	Element 3	TextBox	Sen 3
4	Element 4	Positive/Negative	Sen 4

FIGURE 7

Sr.No	Element Name	1:40	1:120	1:360	1:720
1	S.typhi 'O' antigen	Positive/Negative	Positive/Negative	Positive/Negative	Positive/Negative
2	S.typhi 'H' antigen	Positive/Negative	Positive/Negative	Positive/Negative	Positive/Negative
3	S.paratyphi A 'H' antigen	Positive/Negative	Positive/Negative	Positive/Negative	Positive/Negative
4	S.paratyphi B 'H' antigen	Positive/Negative	Positive/Negative	Positive/Negative	Positive/Negative

FIGURE 8

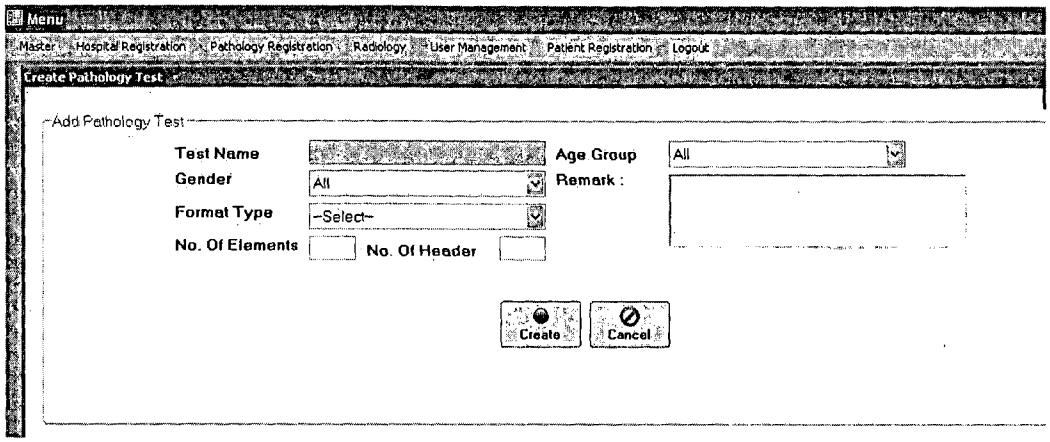

Menu
Master
Hospital Registration
Pathology Registration
Radiology
User Management
Patient Registration
Logout
Create Pathology Test
Add Pathology Test
Test Name
Gender
All
Format Type
--Select--
No. Of Elements
No. Of Header
Age Group
All
Remark :
Create
Cancel

FIGURE 9

TEST NAME	AGE GROUP	GENDER	EDIT	VIEW	DELETE
Stool Examination Report	All	All	EDIT	VIEW	DELETE
Blood for Widal	All	All	EDIT	VIEW	DELETE
BioChemistry Report	All	All	EDIT	VIEW	DELETE
CBC F	All	All	EDIT	VIEW	DELETE
Lipid Profile	All	All	EDIT	VIEW	DELETE
Sputum for Culture Sensitivity	All	All	EDIT	VIEW	DELETE
abcv	All	All	EDIT	VIEW	DELETE
HIV	All	All	EDIT	VIEW	DELETE
BT_CT_APTT	All	All	EDIT	VIEW	DELETE
blood sugar	All	All	EDIT	VIEW	DELETE
Acetoacetate	All	All	EDIT	VIEW	DELETE
Albumin	All	All	EDIT	VIEW	DELETE
Aldolase	All	All	EDIT	VIEW	DELETE
Ammonia	All	All	EDIT	VIEW	DELETE

FIGURE 10

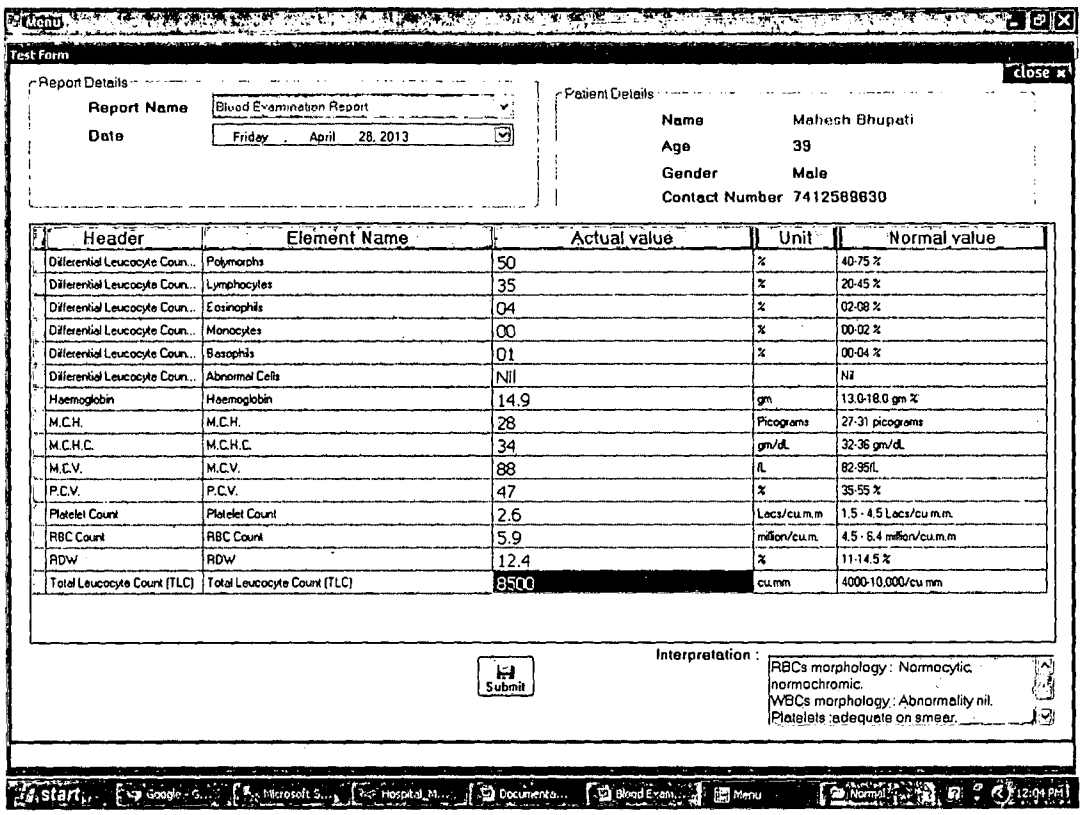

Menu
Test Form
close
Report Details
Report Name
Blood Examination Report
Date
Friday , April 26, 2013
Patient Details
Name Mahesh Bhupati
Age 39
Gender Male
Contact Number 7412588630
Header | Element Name | Actual value | Unit | Normal value
Differential Leucocyte Coun... | Polymorphs | 50 | % | 40-75 %
Differential Leucocyte Coun... | Lymphocytes | 35 | % | 20-45 %
Differential Leucocyte Coun... | Eosinophils | 04 | % | 02-08 %
Differential Leucocyte Coun... | Monocytes | 00 | % | 00-02 %
Differential Leucocyte Coun... | Basophils | 01 | % | 00-04 %
Differential Leucocyte Coun... | Abnormal Cells | Nil | | Nil
Haemoglobin | Haemoglobin | 14.9 | gm | 13.0-18.0 gm %
M.C.H. | M.C.H. | 28 | Picograms | 27-31 picograms
M.C.H.C. | M.C.H.C. | 34 | gm/dL | 32-36 gm/dL
M.C.V. | M.C.V. | 88 | fL | 82-95fL
P.C.V. | P.C.V. | 47 | % | 35-55 %
Platelet Count | Platelet Count | 2.6 | Lacs/cu.m.m | 1.5 - 4.5 Lacs/cu.m.m.
RBC Count | RBC Count | 5.9 | million/cu.m. | 4.5 - 6.4 million/cu.m.m
RDW | RDW | 12.4 | % | 11-14.5 %
Total Leucocyte Count (TLC) | Total Leucocyte Count (TLC) | 8500 | cu.mm | 4000-10,000/cu mm
Submit
Interpretation :
RBCs morphology : Normocytic normochromic.
WBCs morphology : Abnormality nil.
Platelets :adequate on smear.
start
Google - G...
Microsoft S...
Hospital_M...
Documents...
Blood Exam...
Menu
Normal
12:04 PM

FIGURE 11