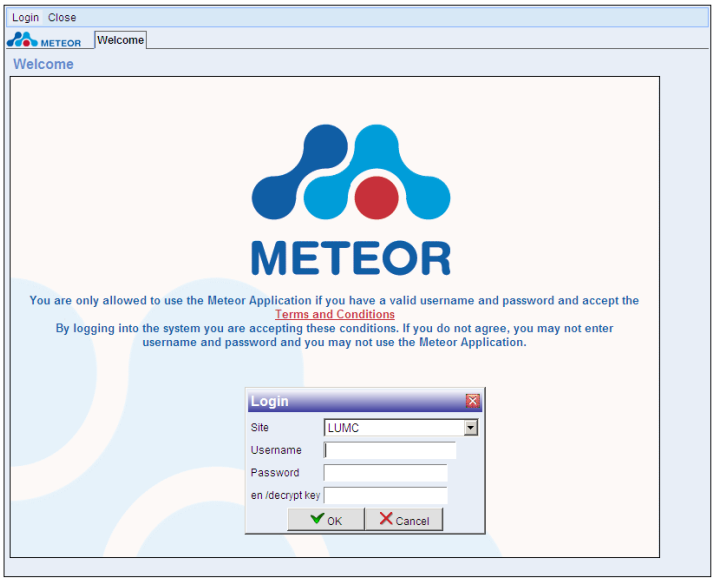
Meteor User Guide
October2012

1 Access the Application

The Meteor application can be accessed by entering the appropriate URL into the web browser:
https://www.meteorapplication.com/central/application.html

1.1 Access new site from the "site" menu in the application

The site can be selected from the drop down list, as indicated below.



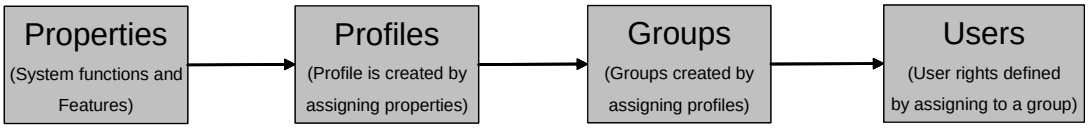
1.1.1 Enter the username, password and encryption key* details

The username, password and encryption key will be provided by your site administrator.

Note that the encryption key cannot be changed or updated.

1.2 Creating new users and groups

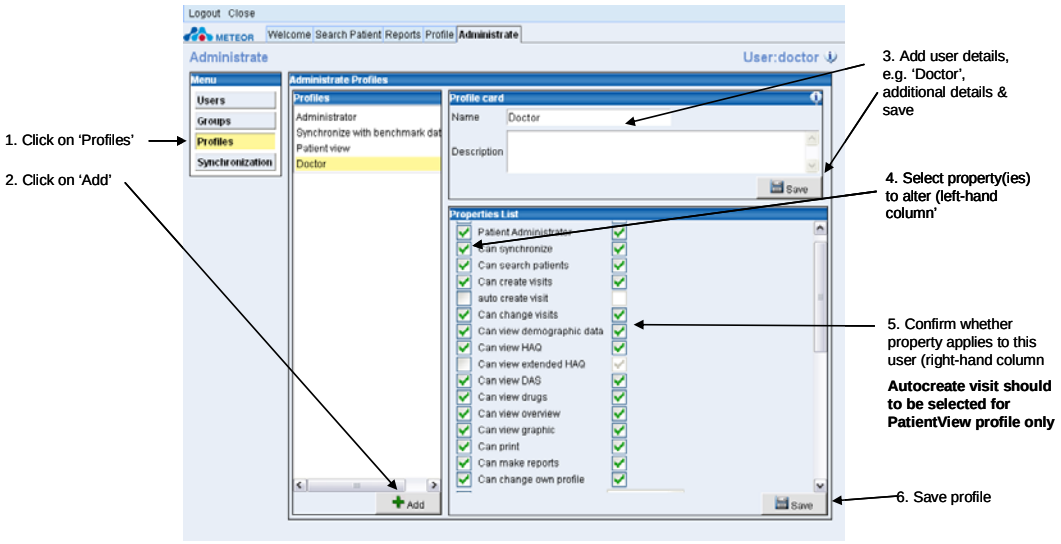
The **administrator** can create new users, groups and profiles to provide an efficient way of administering the system. This is performed using a hierarchical inheritance of defined properties, as summarised in the schematic below:



When the administrator accesses the system for the first time, there are 5 default groups (administrators, synchronizers, patients, doctors and research nurses) at that site, in accordance with the anticipated users of the system and their permissions. If needed more groups and profiles can be added.

1.2.1 Adding properties

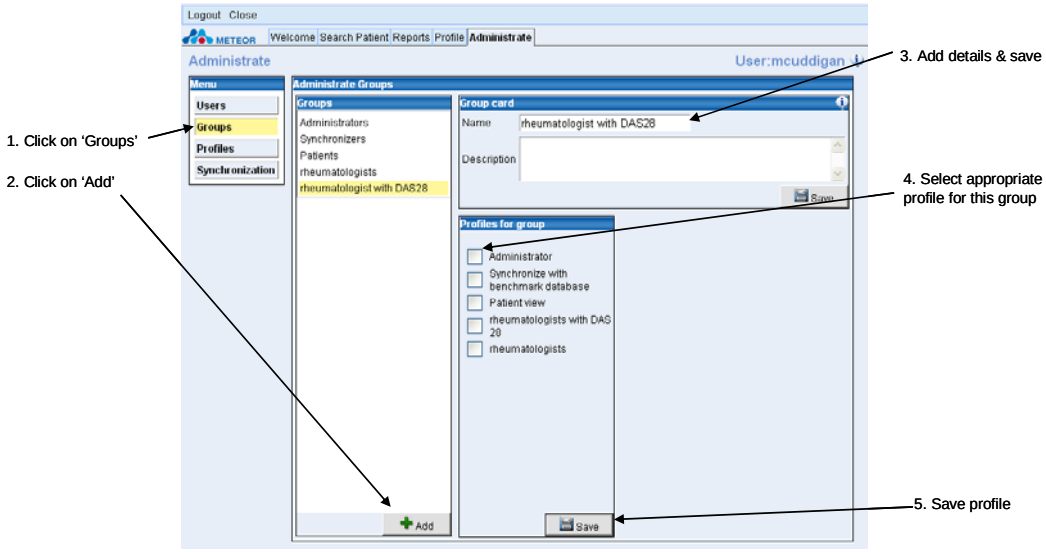
The properties are turned on and off using simple checkboxes, as shown in the diagram below.



The Meteor application is designed for use primarily for rheumatologists and research nurses. Rheumatologists should have access to all properties except for the ability to administer the application. Default the DAS 53/44 is set, but in the properties list you can change that to DAS 28. The profiles selected for nurses will depend on the role and workflow of each individual rheumatology department. In addition, there is the possibility to provide access for patients to enter data (for example) via a console in a waiting area.

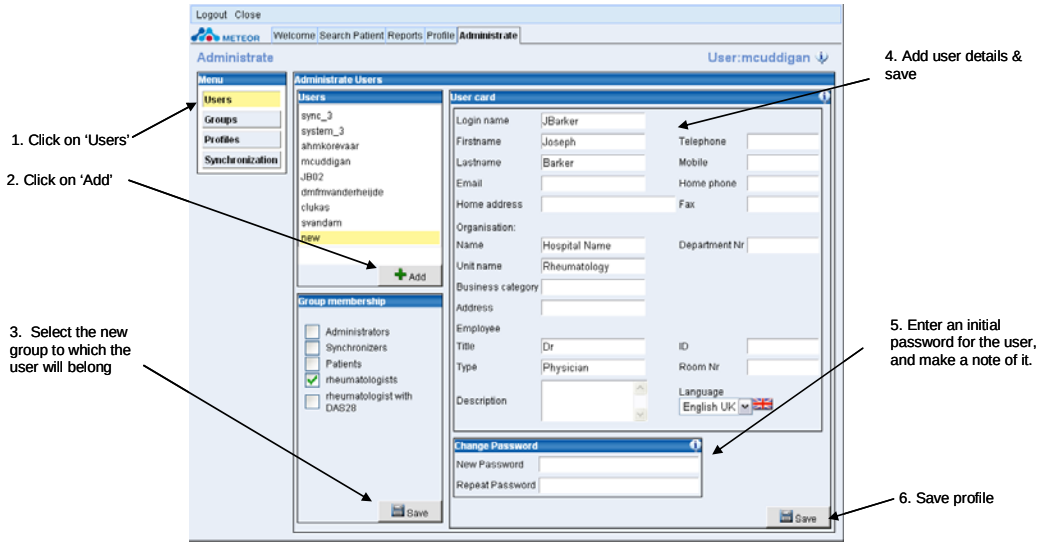
1.2.2 Adding a new group

The diagram below illustrates how a new group called ‘Rheumatologists’ is created which inherits the profile Rheumatologist.



1.2.3 Adding a user to a group

This diagram shows how to add a new user and assign the user the privileges relevant to the group ‘Rheumatologists’.



As a minimum, it is recommended that Login Name, First Name and Last name should be considered as required fields.

Login Name, Password and Encryption key must be provided to the new user in order to allow him/her to access the system for the first time.

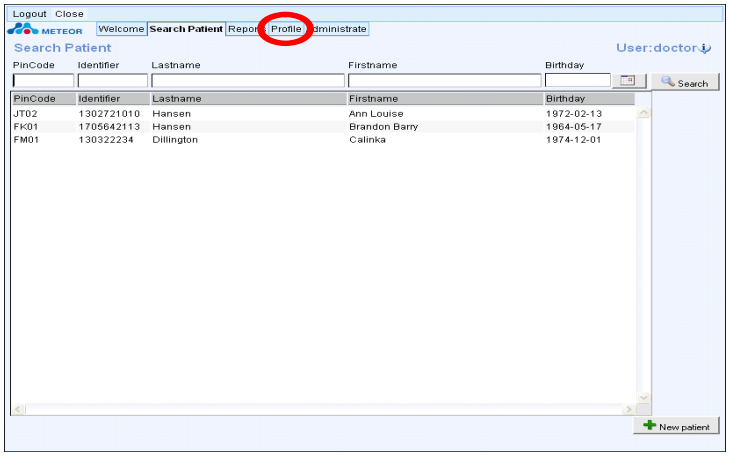
1.3 Profile and password changes

Users with the ability to edit their profile have the ability to modify the layout of the application.

1.3.1 Access the profile page

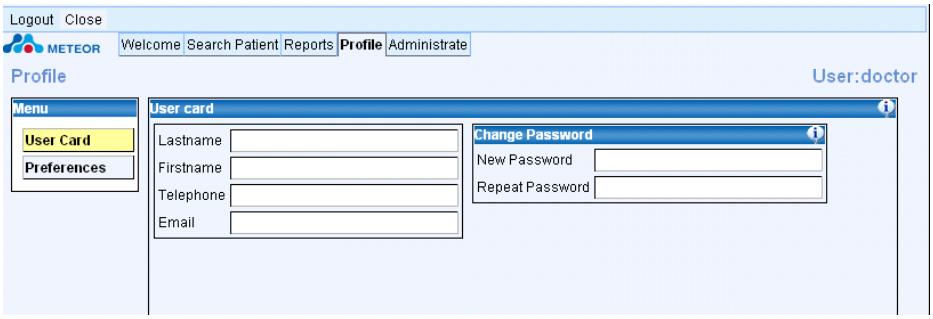
The profile settings are accessed from the navigation tabs in the application frame, as indicated below.

Users should click the profile tab to access the settings menu:

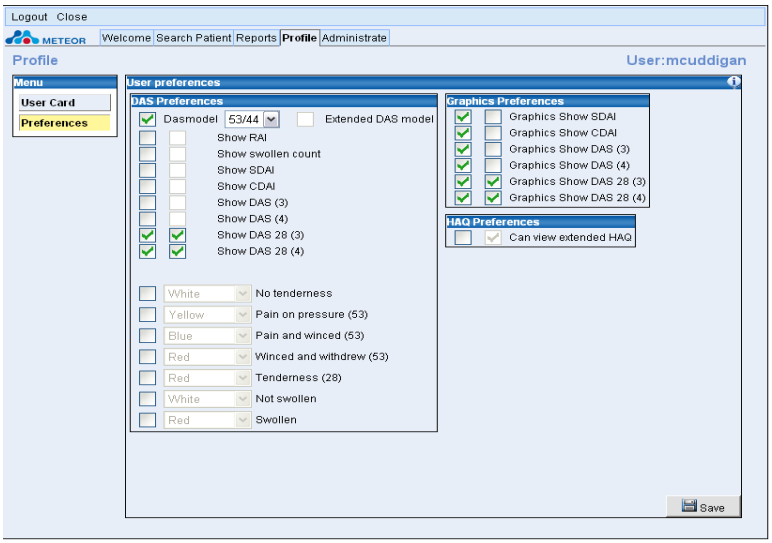


The screen below will appear - note that users can change their access password on this screen, using the change password entry field.

Click the ‘preferences’ button, shown below:



The profile settings menu should then be displayed, as shown below. The user can choose to alter these settings. If no changes are made, the user will inherit a default profile for the appropriate group (e.g. doctors, research nurses, etc).

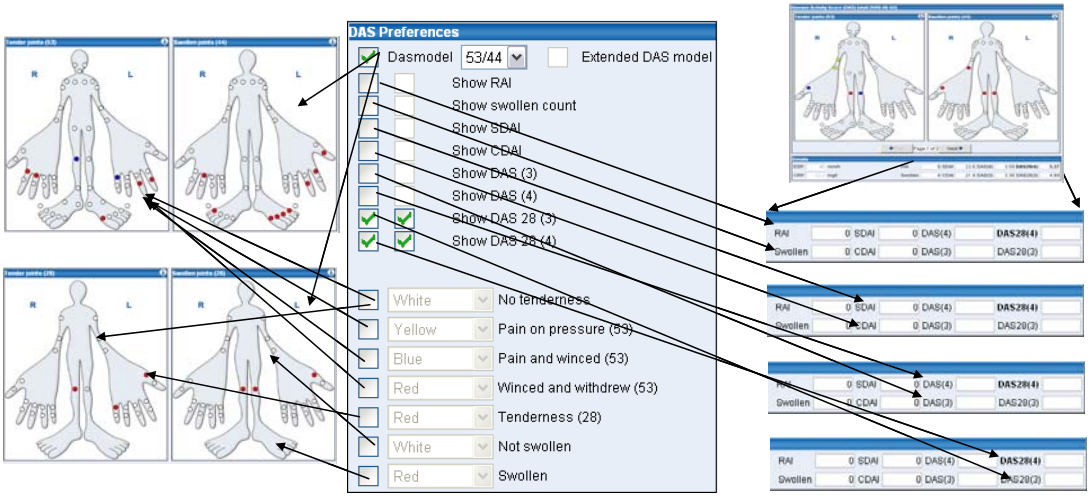


It is important for the user to remember the following points when changing any item(s) on his/her profile:

- Always select the left-hand box first; this indicates that you wish to change something about the current setting.
- Having checked the left-hand box, enter the intended future setting using the right-hand box. A tick indicates that the user wishes to view a certain feature. Removing the tick will remove that feature/function from view.
- Example: if a user wishes to switch from the DAS 53/44 view to the DAS28, he may want to remove the RAI box from the DAS page. In that situation he should tick the left-hand box for RAI, and the right-hand box should remain empty.

1.3.2 Changing profile settings

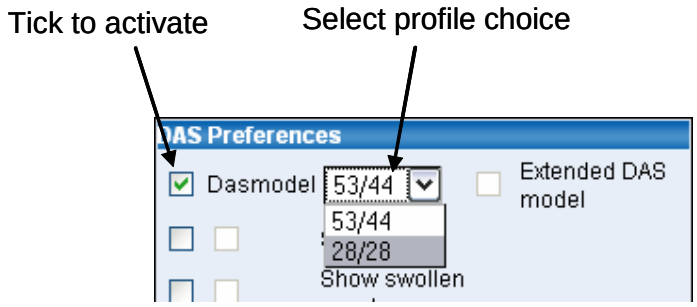
The links between the DAS preferences in the profile page and the application view are shown below



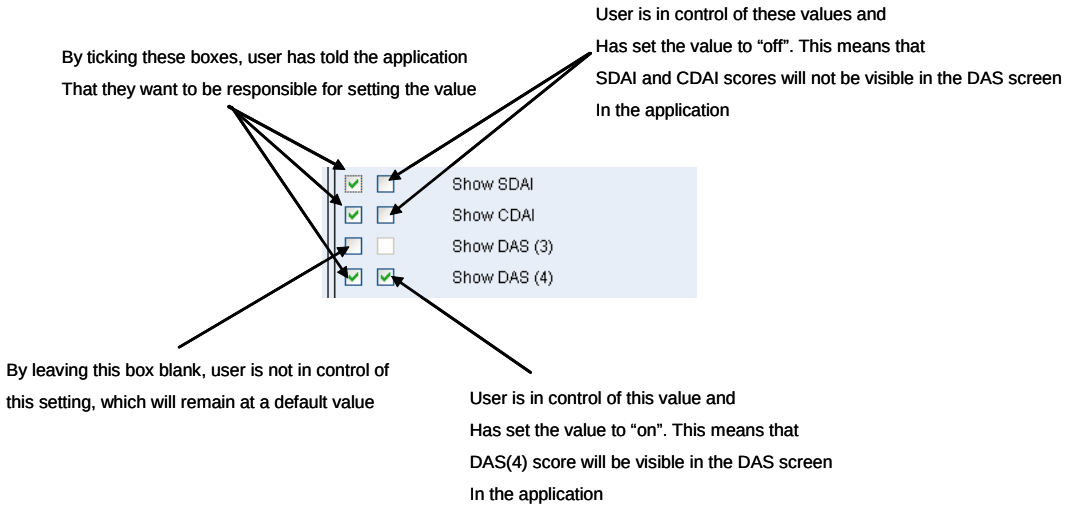
The profile altering function is activated by selecting the first checkbox. This action tells the application that the user wants to be responsible for determining the status of

the particular profile item in question. **If a user does not click the first checkbox, the profile property maintains a default value set by the Administrator.**

When activated, the profile is then altered using the drop down menu or the checkboxes. Drop down menus list the choices for the profile, as shown below for the DAS mannequin, which can have two options - DAS53/44 or DAS28/28.

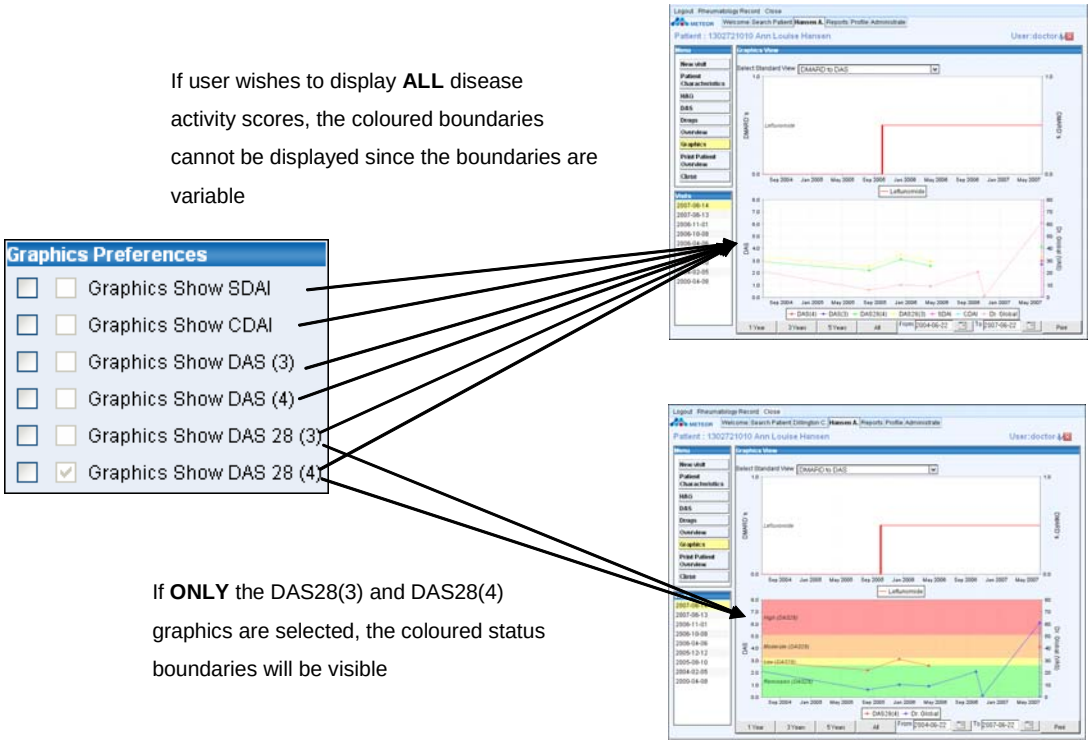


Where there is no drop down menu, the profile is altered to an "on" or "off" status using the second checkbox. Some examples are shown below.



NOTE: It is highly recommended that the default values for the colours of tender and swollen joints remain unchanged.

The link between the graph profile and the graphics page is shown below:



NOTE: The DAS28(4) measurement is always visible in the application. This setting can never be switched off.

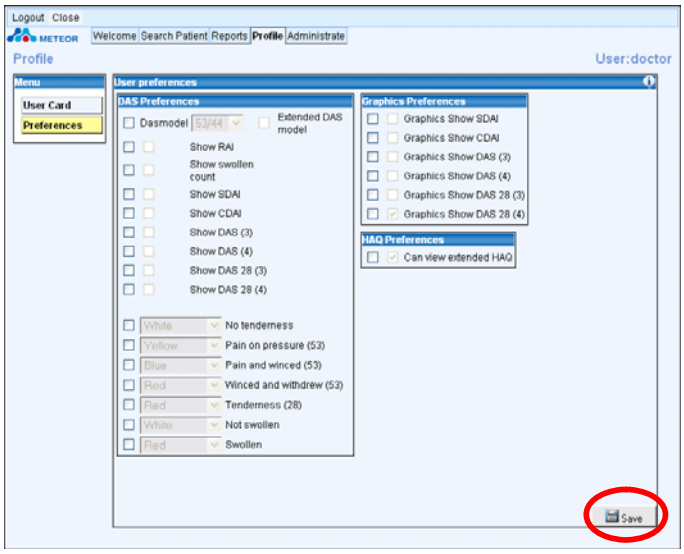
1.3.3 Saving Profile Changes

Once the user is satisfied with the profile settings, the new profile must be saved by clicking the save button, as shown in the next diagram.

The profile changes are not immediately applied and only become active once the user logs out and then back into the application.

In addition, the user cannot modify the DAS profile for any patient visit retrospectively - once a visit has been started and data entered, the profile applied will remain and cannot be changed. For this reason, it is suggested that the user decides upon their preferred disease assessment set up, modifies the profile accordingly and sticks to this profile, rather than changing the profile frequently.

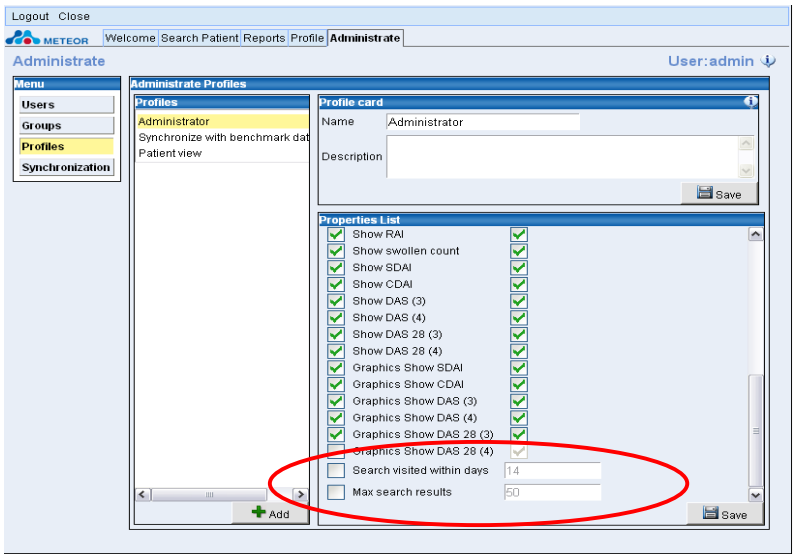
If the user wishes to check the profile settings at any point, they must go into the profile page, click preferences, and then click preferences again to show current status.



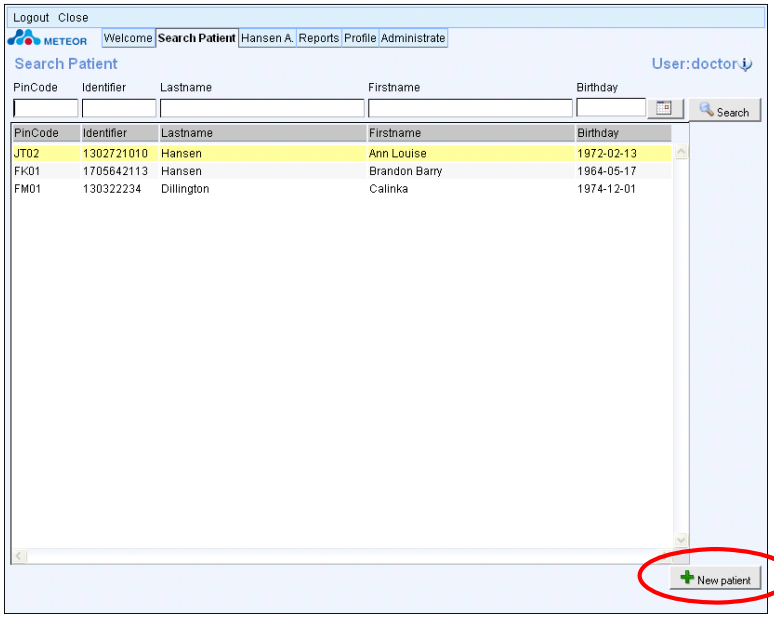
1.4 Adding a patient record to the system

When users enter the system, they will be presented with a list of patients. In order to maximise efficiency, the system has a default setting so that all patients with visits in the past 14 days will be shown, up to a maximum of 50 patients. If a patient's name does not appear on the list, clicking on the 'Search' button will allow the user to view the entire patient list.

The setting which determines the time window and number of patients to be included in the list seen on login, can be adjusted by users with administrator privileges. See screenshot below:

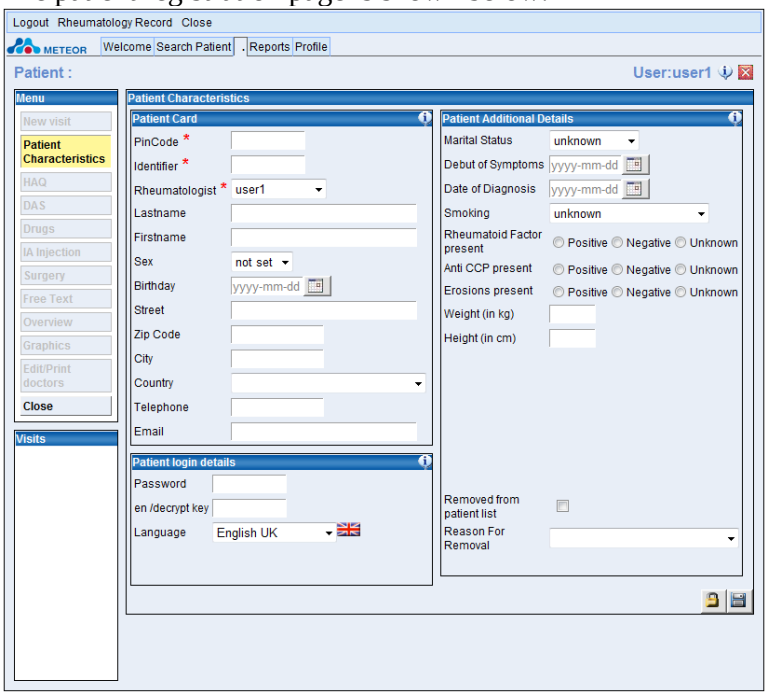


The user will be presented with the following screen on entering the application (in this view three patients exist, for illustrative purposes):



Clicking the new patient button will take the user to the patient registration page. Depending on the user's screen settings, it may be necessary to scroll down to locate the 'New patient' button at the bottom of the page.

The patient registration page is shown below:



The registration card should be completed in full by the user. There are conditions applied to the completion of this card which are indicated below:

1. PinCode - a mandatory field - is a unique code assigned to a patient by each site. Each patient must be allocated a PinCode, but the policy for setting what the PinCode consists of is a local decision. For example, one hospital/clinic may set the PinCode as the patient's initials and date of birth (MB011059), while another may set sequential PinCodes (e.g. Leiden001, 002, etc). The site administrator should ensure that the policy by which the PinCode is determined is readily available to staff who may be entering patient records.
2. Identifier –also a mandatory field – a code to identify the patient.
3. PinCode and Identifier must be different for each patient record. Duplicates will not be accepted by the system. These fields are useful if the user wishes to enter any pre-existing unique anonymous identifier which may exist as part of a patient dossier or patient study.
4. Rheumatologist – also a mandatory field – to register the rheumatologist who is treating this patient. The name of the rheumatologist can be selected from a drop down list.
5. The email address will not be accepted unless there is an @ sign
6. The date of birth will not be accepted if the date of symptoms or date of diagnosis have been entered and the date of birth falls **after** these dates

The user should complete all details and save this page using the save button, at the bottom of the page. 

1.4.1 Modifying the registration details

Users can modify the registration details at a later stage, if desired. However, the date of birth, pincode and identifier can only be modified by first clicking the **unlock** button  , modifying and then re-saving  .

1.4.2 Completing the patient additional demographic details

The demographic data is completed by selecting from the pull down lists, clicking the checkboxes and entering dates and measurements. There are some conditions applied to these details

1. The lists are fixed and cannot be amended or updated with additional categories.
2. The date of diagnosis cannot be before the date of birth or the date of symptoms
3. The date of symptoms cannot be before the date of birth

1.5 Allocating log-in privileges to patients

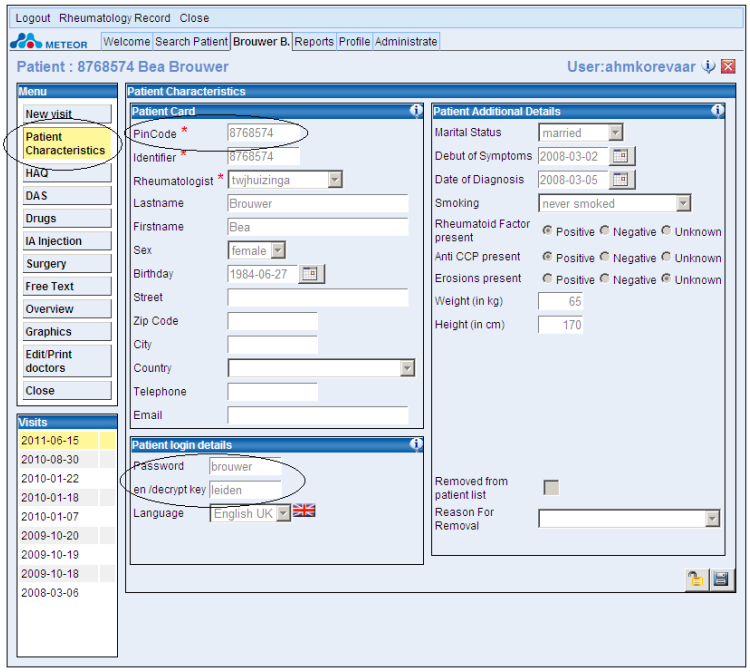
It is possible to allocate limited user access to patients, if local hospital/clinic policy permits this.

In the Patient Characteristics you find “Patient log in details” at the bottom if the page.

Patients who are authorised to do so will access the system by using a combination of 3 pieces of information:

1. their unique PinCode, displayed at the top
2. a patient-specific password, which may be defined by the patient.
   Do not enter your own user password here.
3. a patient-specific encryption key, which may be defined by the patient and is also entered into the patient characteristics page.
   Do not enter your hospital encryption key here.

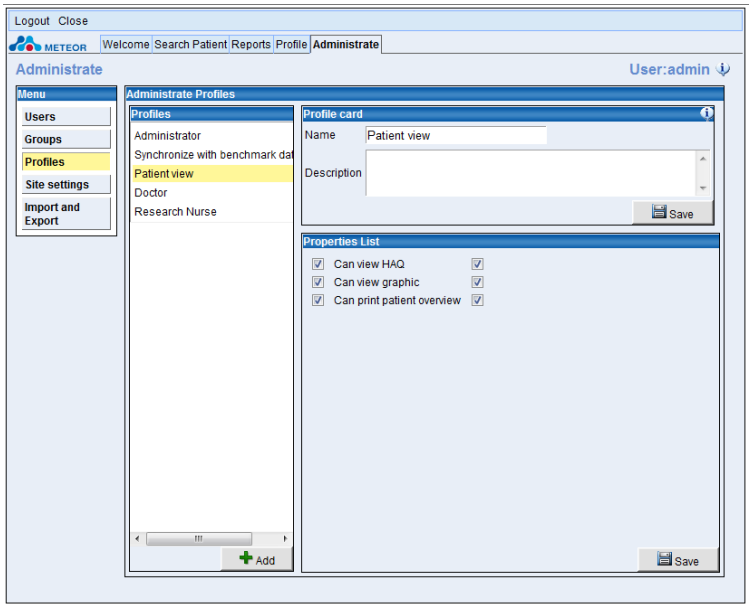
   Both password and encryption key must be a minimum of six (6) characters in order to be valid.



It is also possible to set here a language for every individual patient.

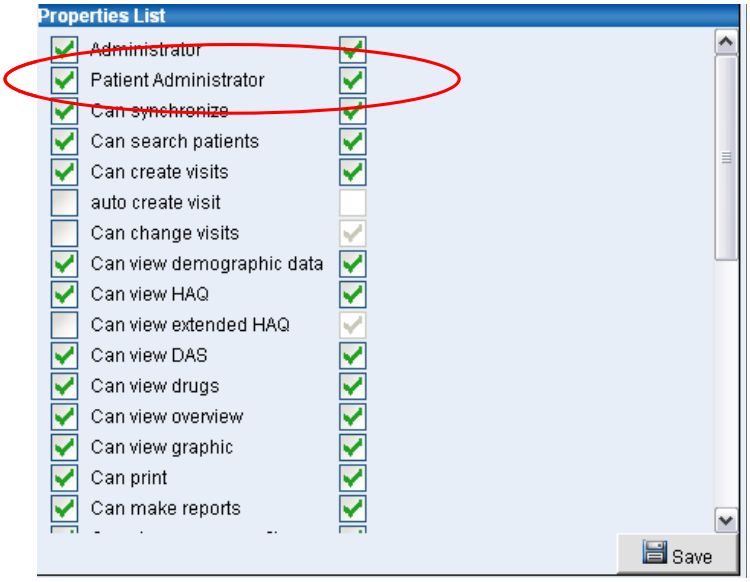
The PinCode, password and encryption key may be amended at any time, by any user authorised to amend patient characteristics, by clicking on the ‘Unlock’ button at the right hand bottom, entering and saving the new details.

The application allows patients to access their record, to complete the HAQ questionnaire, to view graphics and to view and print patient overview.
By default these 3 properties are set for patients, but can be altered by the site administrator.



1.5.1 Set the correct administrative profile

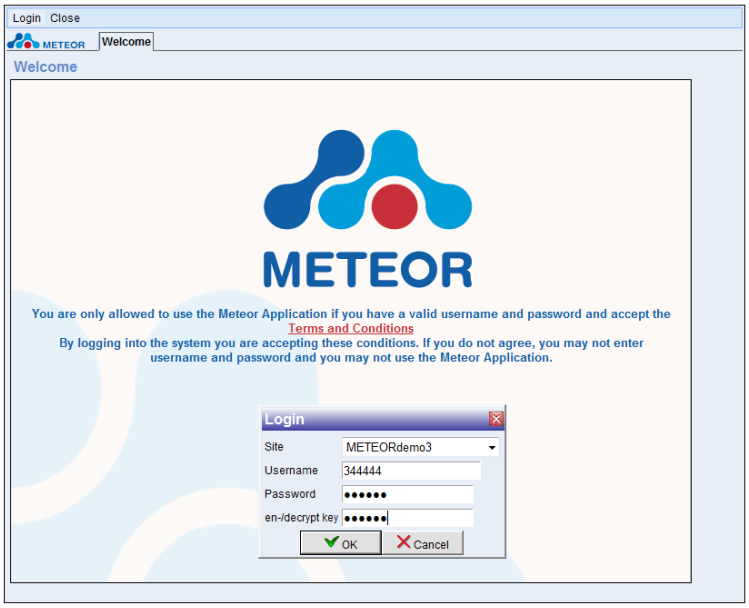
By default doctors and researchers have ‘patient administrator’ enabled on their profile:



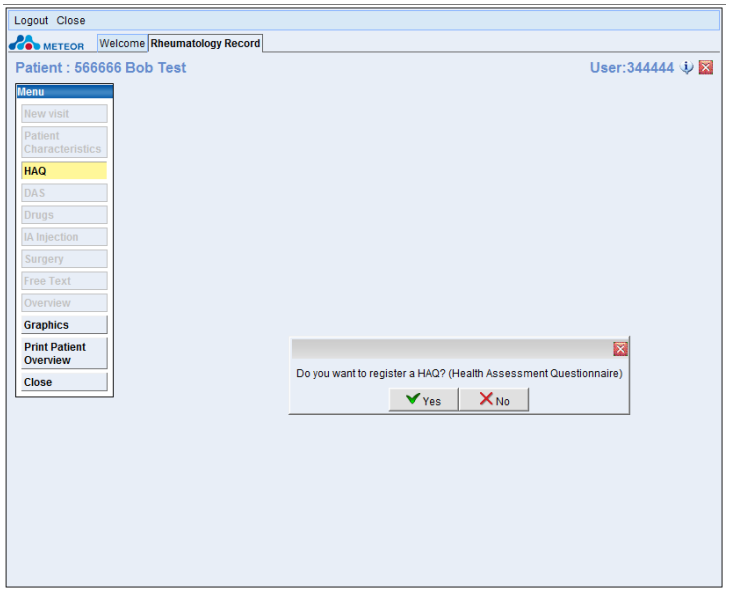
The administrator should also ensure that ‘Auto-create visit’ is ONLY checked for the patient group, not medical staff.

1.5.2 Patient Log-in

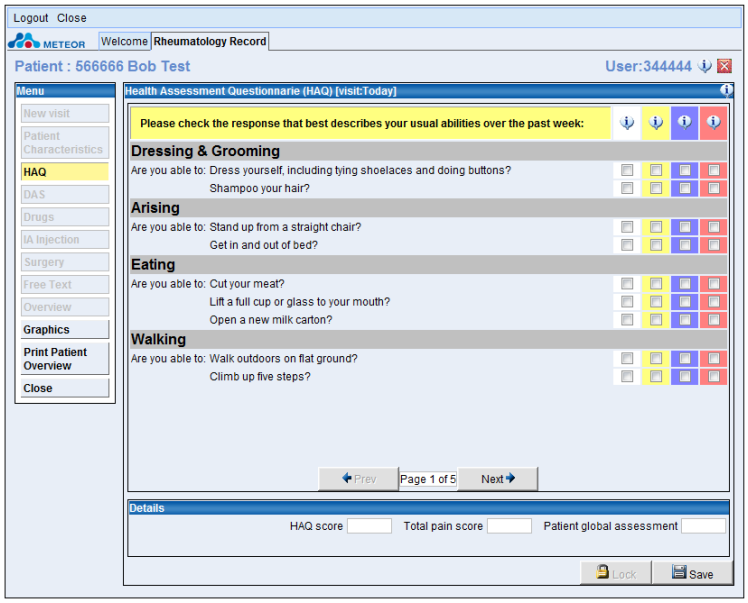
Patients may be able to log into the application either on-line or by accessing a terminal in the hospital/clinic waiting room. Patient users will be presented with the same login screen as all other users:



After logging in the following screen will appear

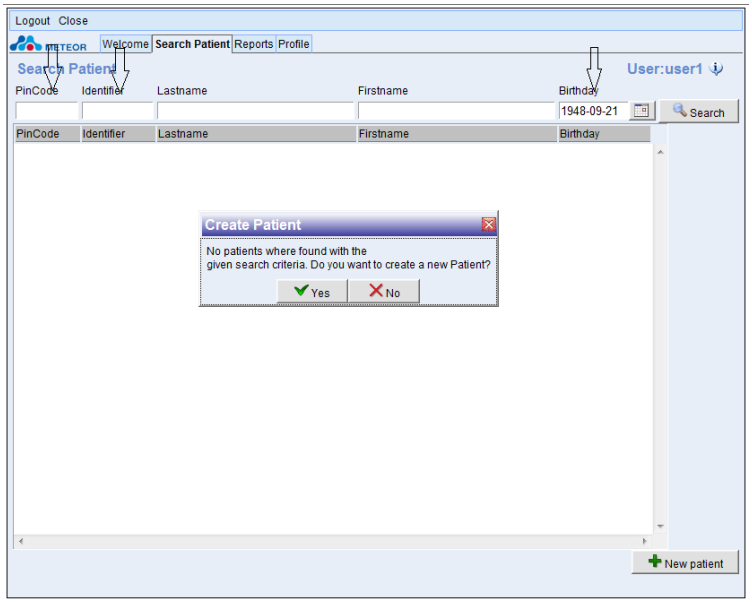


If clicking “yes “the patient is immediately taken to the HAQ screen.
Note that only menu options Graphics and Print Patient Overview are also available to patient users.



1.6 Search patient

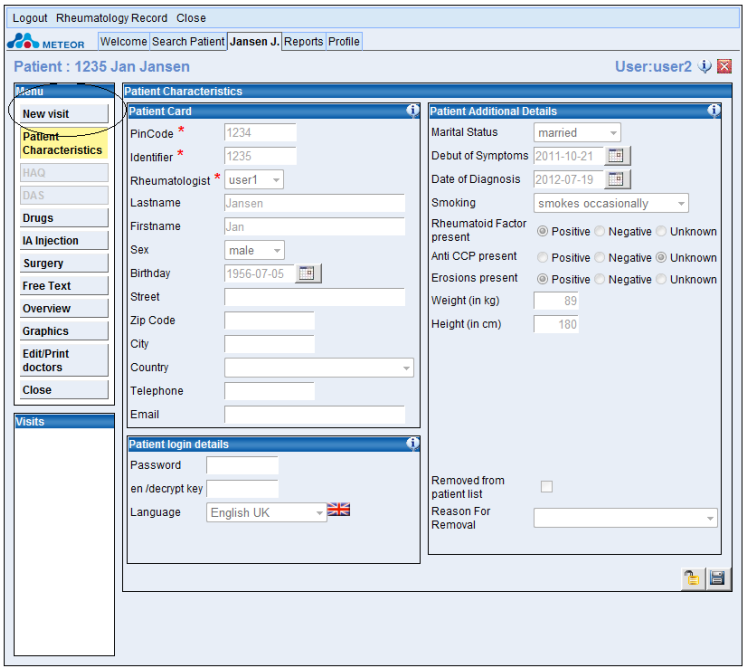
In stead of searching for a patient in the patient list, the user can directly enter some patient details in the search patient fields, for instance date of birth, Identifier or PinCode
Searching on Last name/First name is not recommended as the name has to be entered exactly the same, due to storing and retrieving encrypted names in the database for privacy reason. Any mistake in upper or lower case or anything else, and the system will not find the name of the patient.
With numbers there is less chance of mistakes.



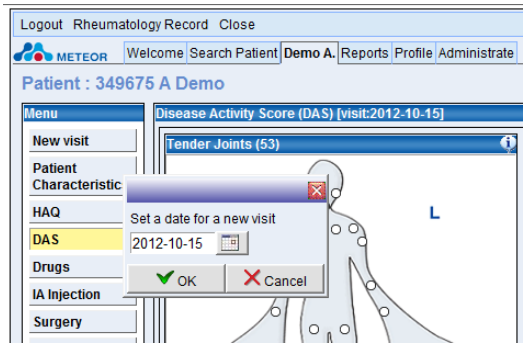
If the patient is not found, the application will automatically ask if a new record is to be created.

1.7 Creating a new visit

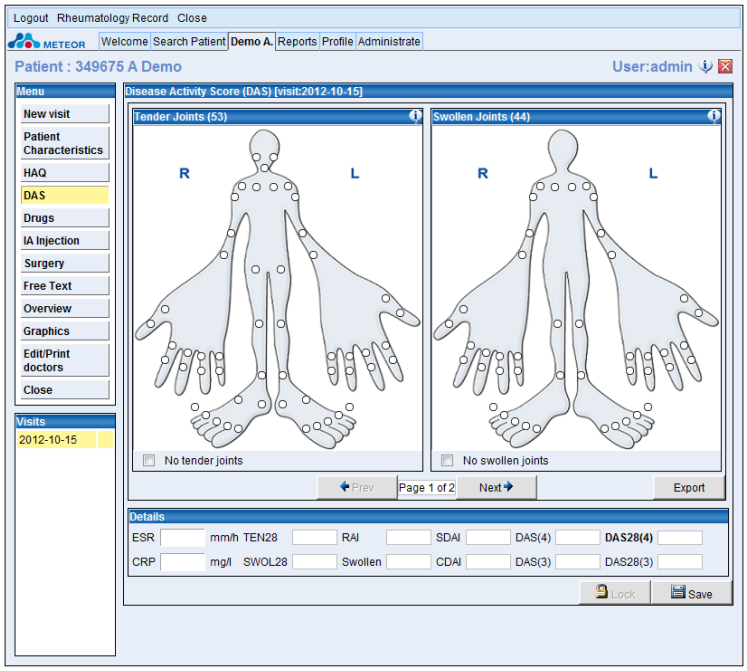
A new visit is created by clicking the new visit button in the main application menu, as shown in the diagram below:



Once clicked, the user will be asked to record a date for the visit. This allows users to record visits in the past, should the user wish to enter previously recorded information for this patient.



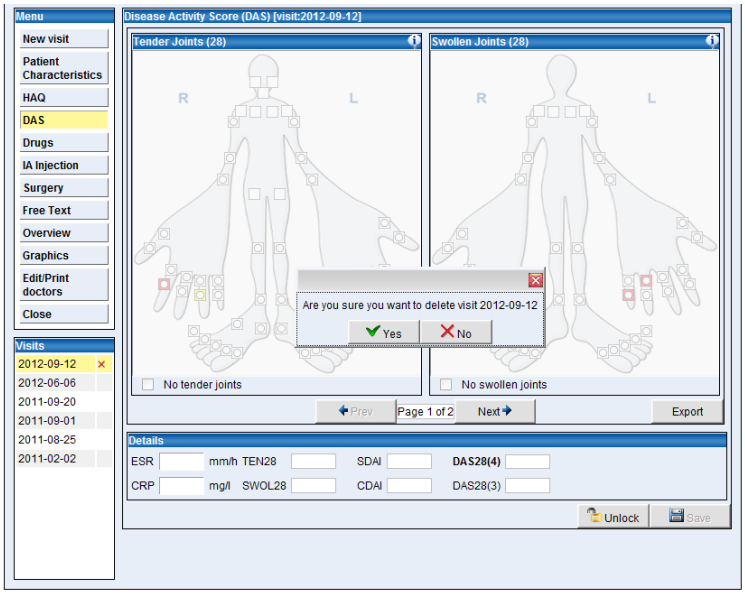
Clicking new visit will always present the user with a default visit date which will be the date the new visit button was clicked. In addition, creation of a new visit will immediately take the user to the DAS data entry page.



The date of the visit will automatically appear in the list of visits.

1.7.1 Possibility to delete a visit

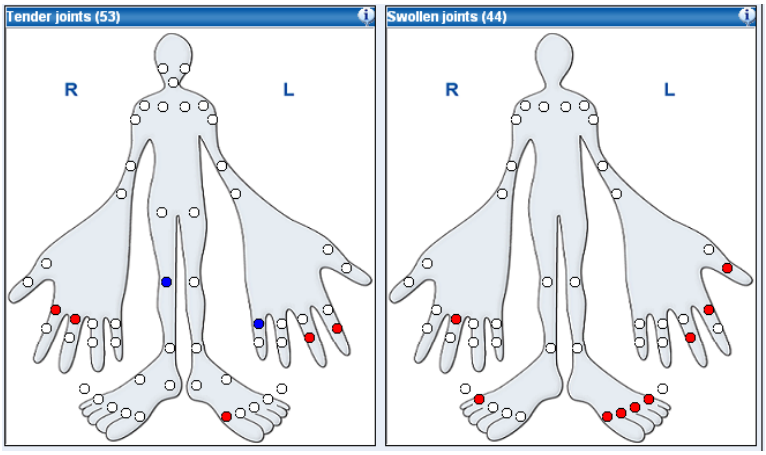
In case a wrong visit date and only if not one disease data has been registered site administrators have the possibility to delete this visit.
This visit has a red cross behind the date, which has to be clicked.
For security reasons this functionality has only been allocated to site administrators.
Users of that site have to submit a request to their site administrator to delete a specific visit.

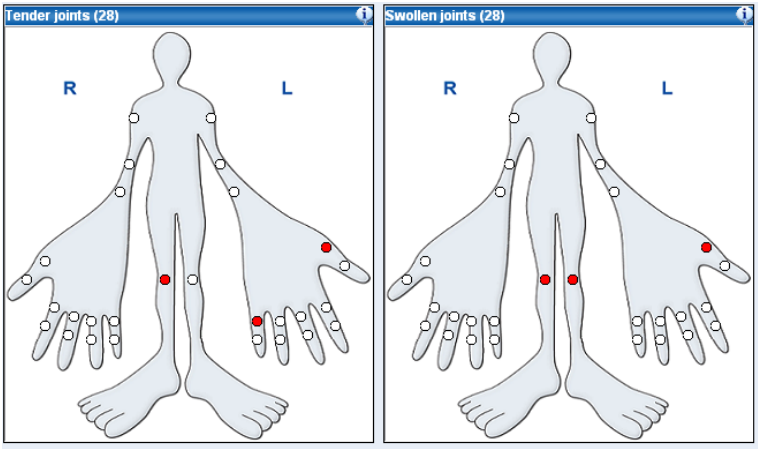


1.8 Recording disease assessment data

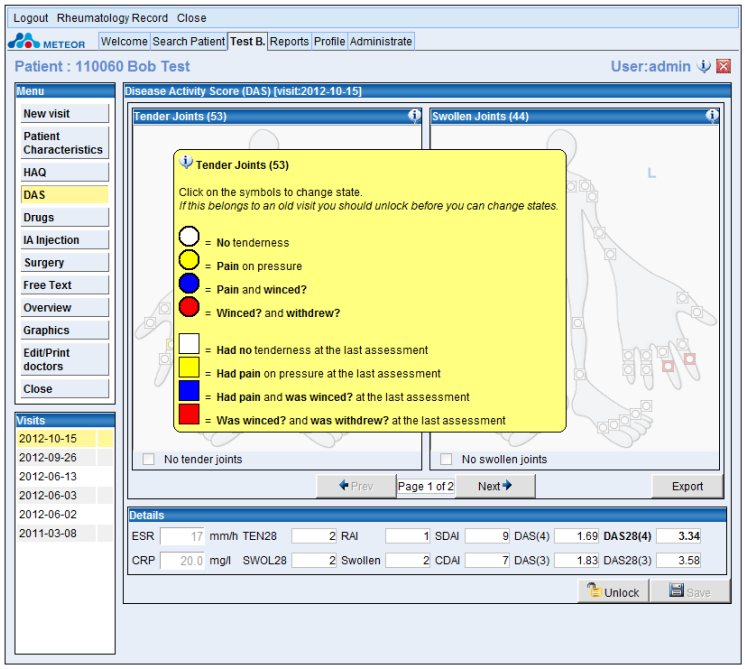
1.8.1 Using the DAS mannequin

There are two different DAS mannequins available for swollen and tender joint assessment. The mannequin displayed will be dependent on the profile selected by the user, or the default profile applied by the system administrator. As a rule, the DAS53/44 mannequin is always default since this provides a means of capturing DAS28(3), DAS28(4), DAS(3), DAS(4), SDAI and CDAI information.





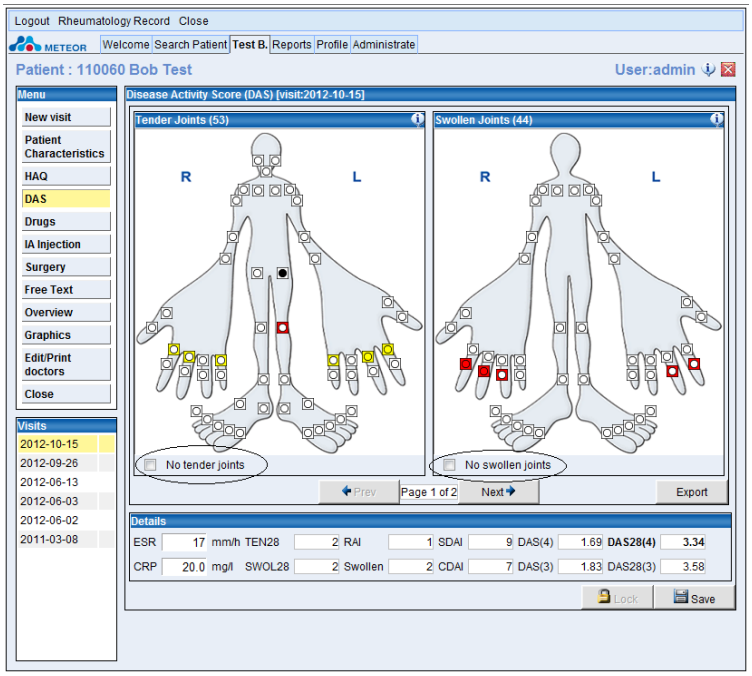
The information bubbles in the top right hand corner of each mannequin frame provide information on the assessment result based on joint colour, as shown in the diagram below - this is the result of clicking the information bubble for the tender joint 53/44 mannequin.



1. Selecting and scoring the joints is achieved by hovering over the joint using the arrow.
2. The joint will enlarge slightly, making it easier to capture the score.
3. The score is captured by clicking on the joint.
4. Where more than one score is possible (such as in capturing information for the Ritchie Articular index - RAI), multiple clicks allow the user to cycle through the available options
5. The circles represent the current score for the joint
6. The squares represent the previous score for the joint

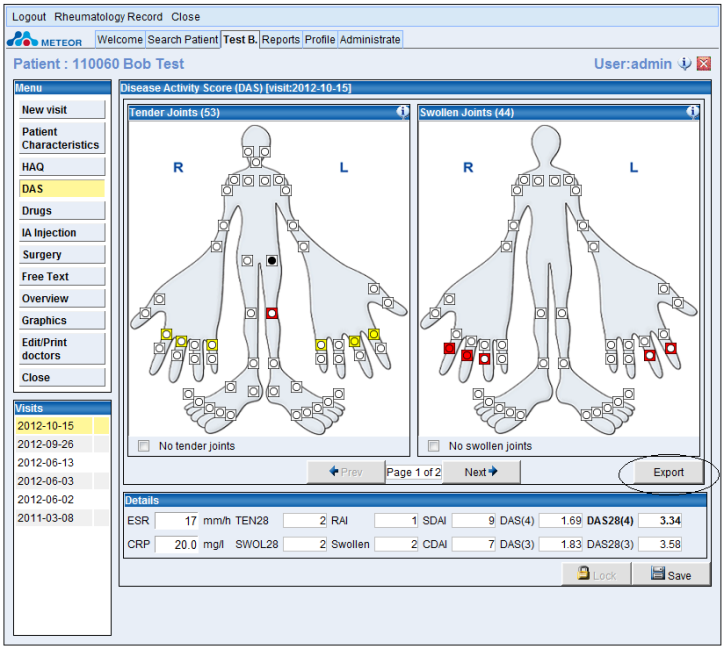
1.8.2 No tender and/or swollen joints.

It is possible to register 0 tender and/or 0 swollen joints with 1 mouse click.

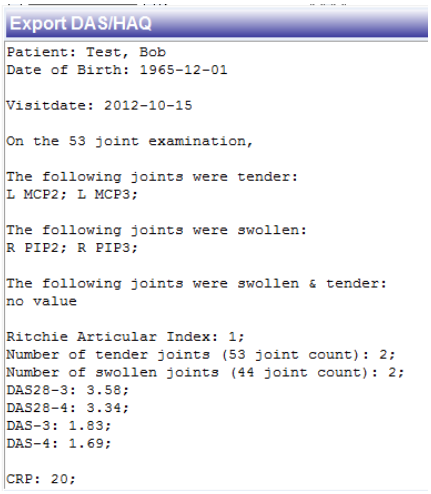


1.8.3 Export button

Clicking “Export” button on the right hand bottom of the screen



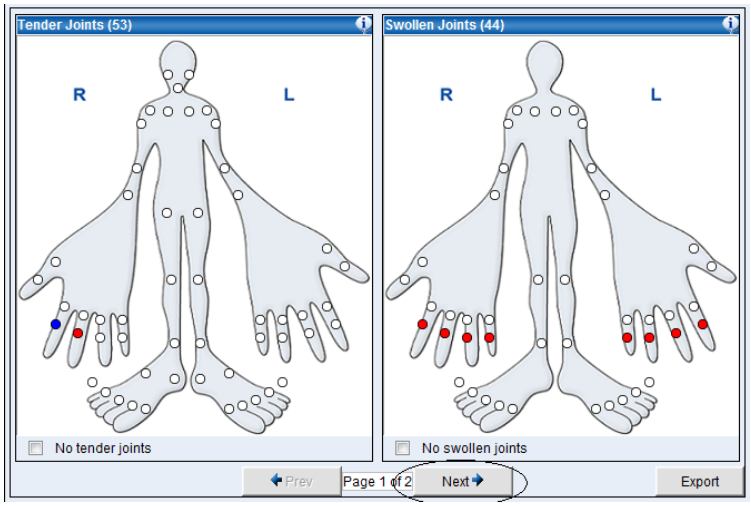
will generate a text document with registered information of the chosen visit.

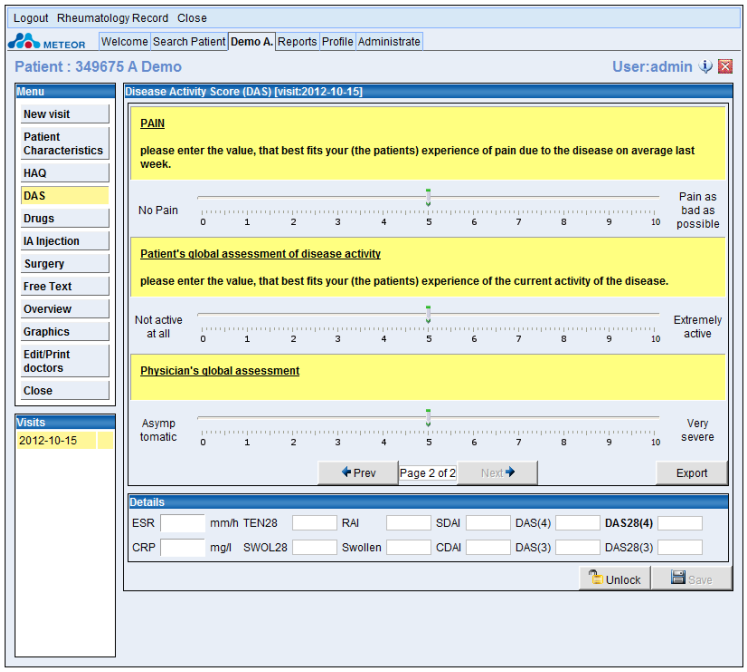


When the first visit is recorded for a patient the joints will appear as circles only, since no previous data is available.

1.8.4 Global assessments and pain assessments

Once the user has recorded the joint scoring, clicking on the 'next' button on the DAS page will take the user to the Visual Analogue Scales for recording the global assessments and pain assessment, as indicated in the diagram below





The default position of the pointer on the scale is at 5, however the scale does not record any score until it is activated. The user activates the scale in one of two ways:

1. User clicks on the desired score directly on the scale - the arrow will automatically reposition and the score is recorded
2. User selects the pointer and moves it by sliding to the appropriate position

The user should then save the information by clicking the save button.

The visual rating scales for Pain and Patient Global Assessment are the same in the DAS assessment and the HAQ assessment. They should therefore only be completed once for each patient visit. The sequence will depend on the individual clinic's workflow, but if the DAS is completed before the HAQ, then the patient should not complete the scales again when completing the HAQ assessment. Similarly, if the HAQ is completed before the DAS score, the ratings from the visual rating scales will be transferred automatically to the DAS assessment and used to calculate the DAS score.

1.8.5 Entering ESR and CRP results

The ESR and CRP results are manually entered by the user by clicking on the relevant field and entering the score using the keyboard. By default, the ESR and CRP values are blank, since a score of 0 is a reading which will contribute to the disease assessment calculations.

The ESR score is limited to a maximum of 300.

1.8.6 Calculating disease activity scores

The disease activity scores are automatically calculated based on data entered in the DAS assessment (including visual analogue scales), the ESR and CRP results. Thus, once all parameters for any calculation have been completed, the score is automatically calculated irrespective of the field being visible to the user.

If a user has selected only to show DAS(3) and DAS(4) on the screen (see profile set up in section 3.2) and records all data for these calculations, the SDAI, CDAI, DAS28(3) and DAS28(4) results are all also calculated and recorded in the system on saving.

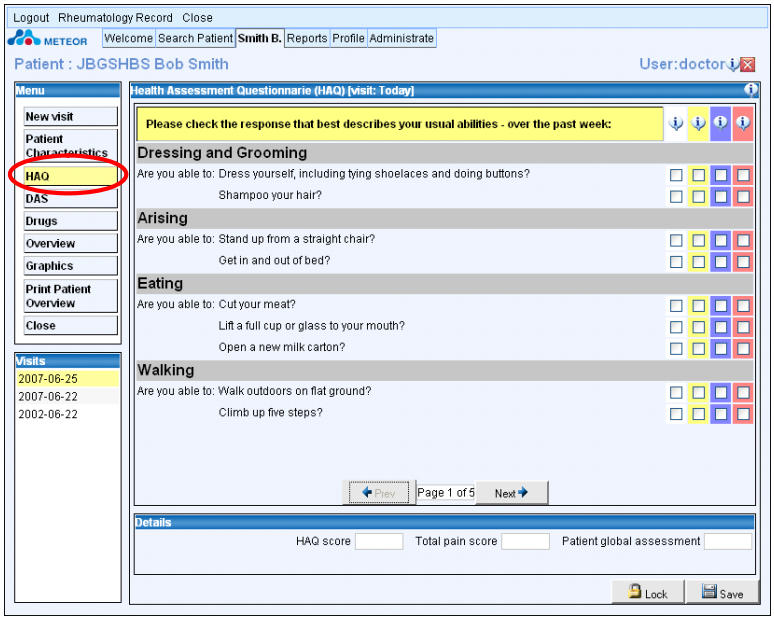
The DAS28(4) score is always visible in the application and cannot be removed from the view.

Once all data necessary to calculate a disease activity score is available, the field will automatically be populated with the result, if the field is displayed in the users view.

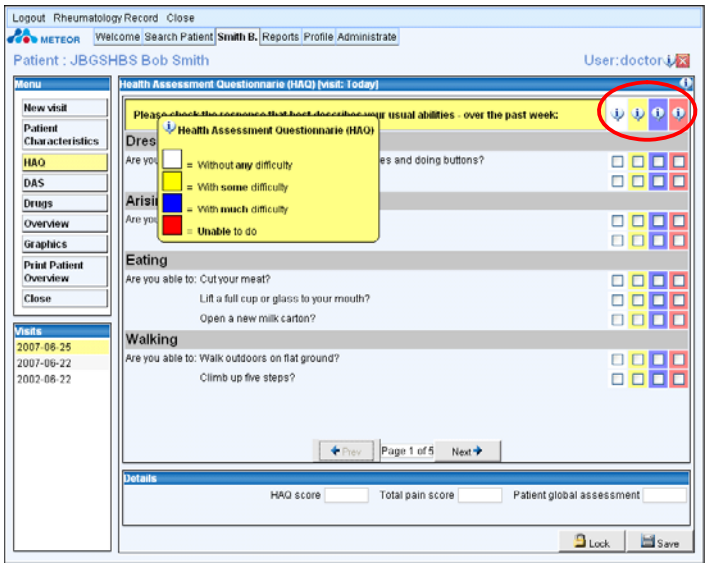
1.9 Recording Health Assessment Information

The Health Assessment Questionnaire (HAQ) in the Meteor Application is a version of the HAQ Disability Index (HAQ-DI).

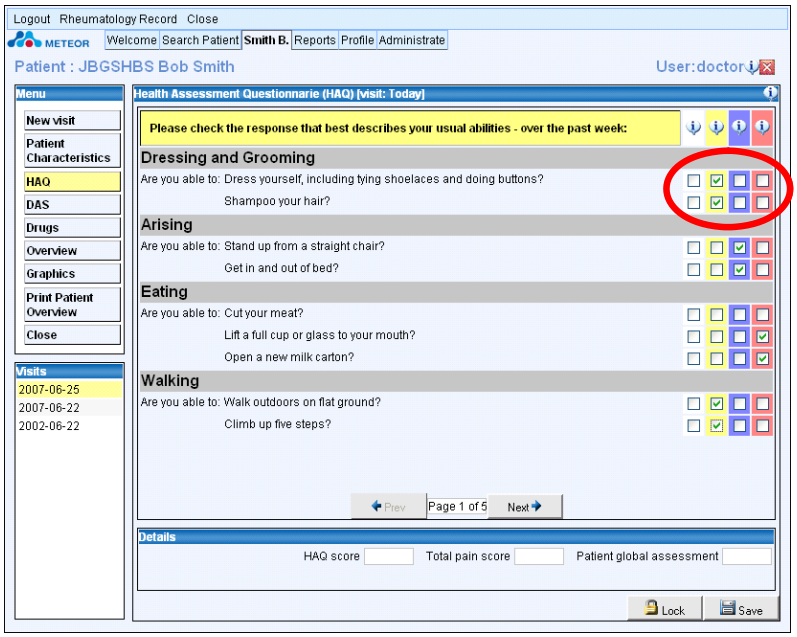
The HAQ is accessed by clicking on the HAQ menu button, as shown below:



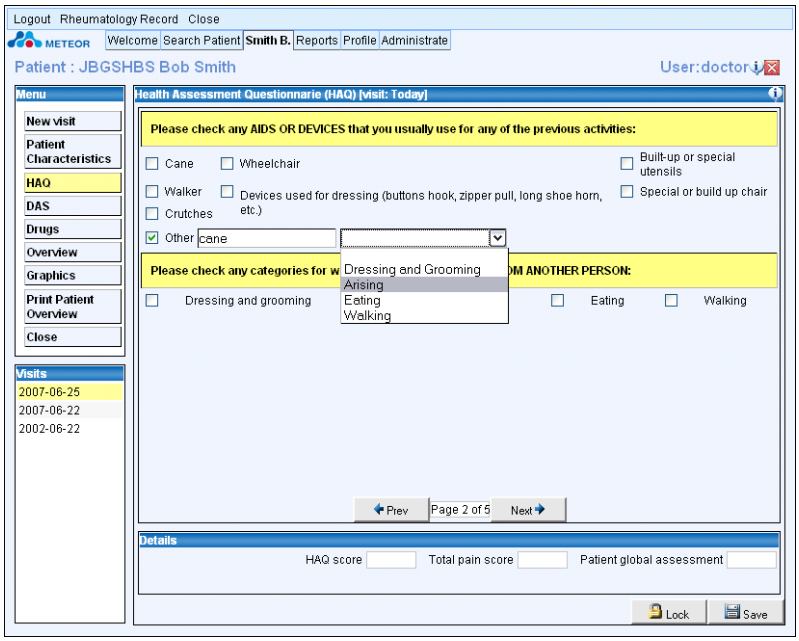
The information bubbles show how the coloured columns relate to the HAQ, as shown below:



The HAQ is completed by placing ticks in the available checkboxes to indicate the patients ease of performing routine tasks.



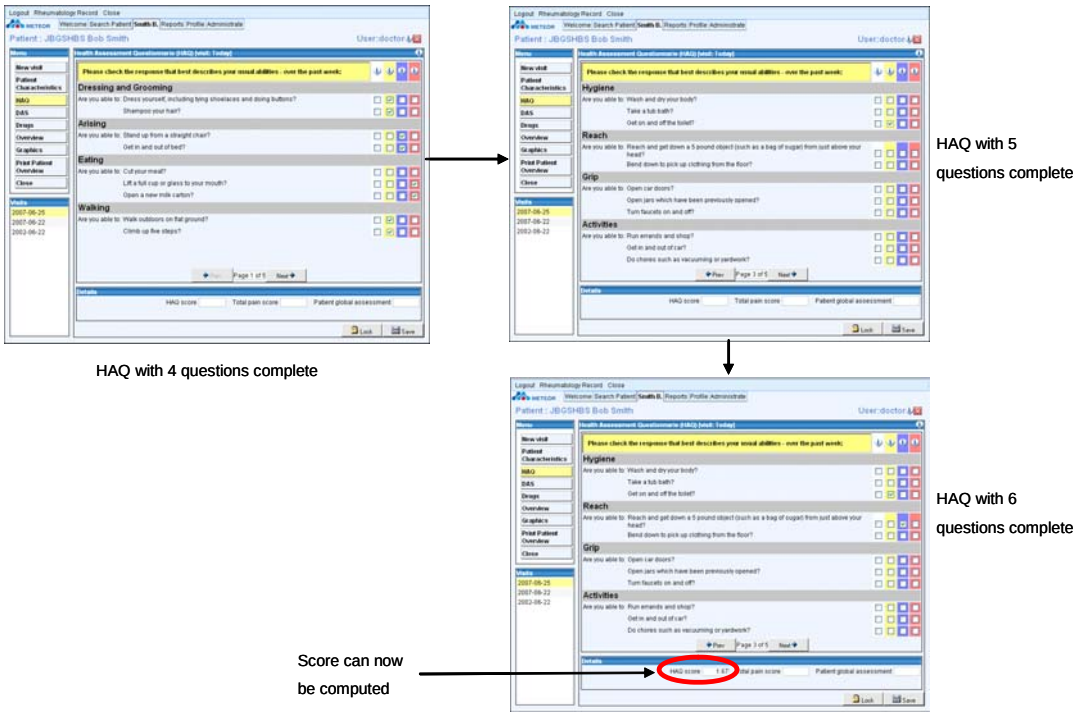
The aids and devices items are automatically linked to the corresponding HAQ question - where other aids and devices are used, a drop down list is used to link the answer to the relevant section.



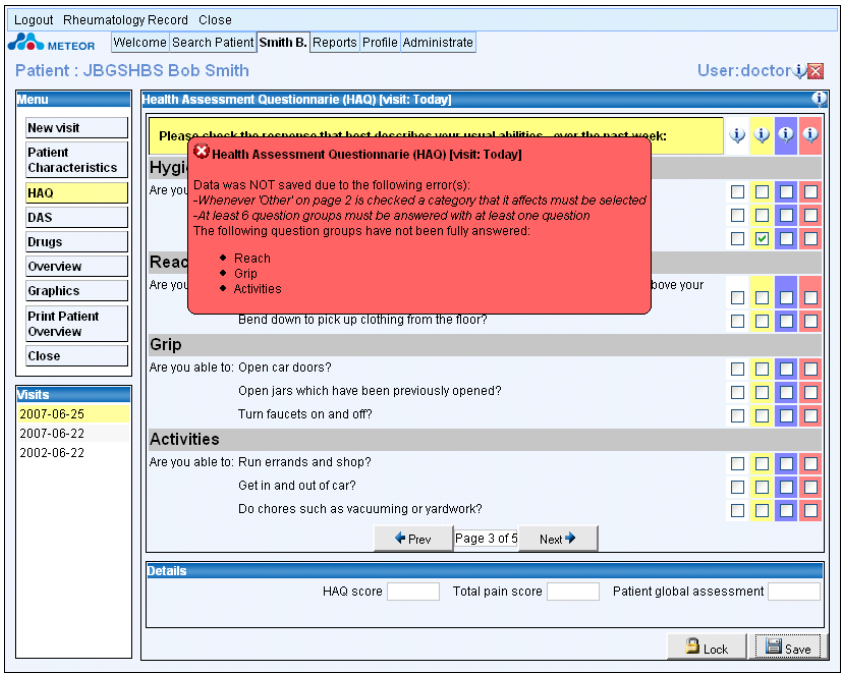
The user must save the data in the HAQ page using the save button before exiting.

1.9.1 Calculating the HAQ score

The HAQ score is automatically calculated when the minimum information required to compute a HAQ has been entered (6 of the 8 categories complete).



If a user attempts to save the HAQ without completing the minimum number of questions, an error message will appear informing the user of the completion criteria.



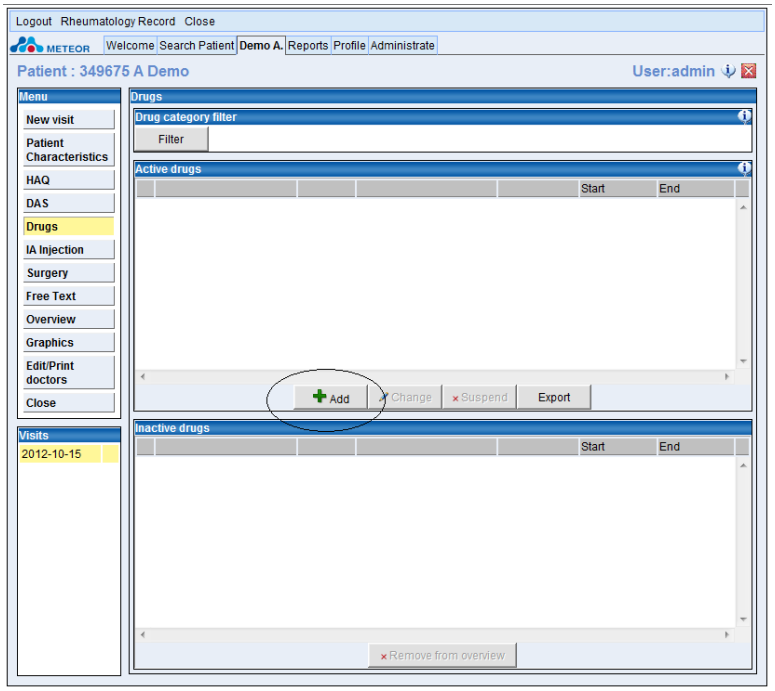
1.10 Recording Prescription Information

The Meteor application captures information on drug treatment for rheumatoid arthritis only.
The drugs which can be prescribed are taken from a pre-approved list of common drugs used in the treatment of Rheumatoid Arthritis.

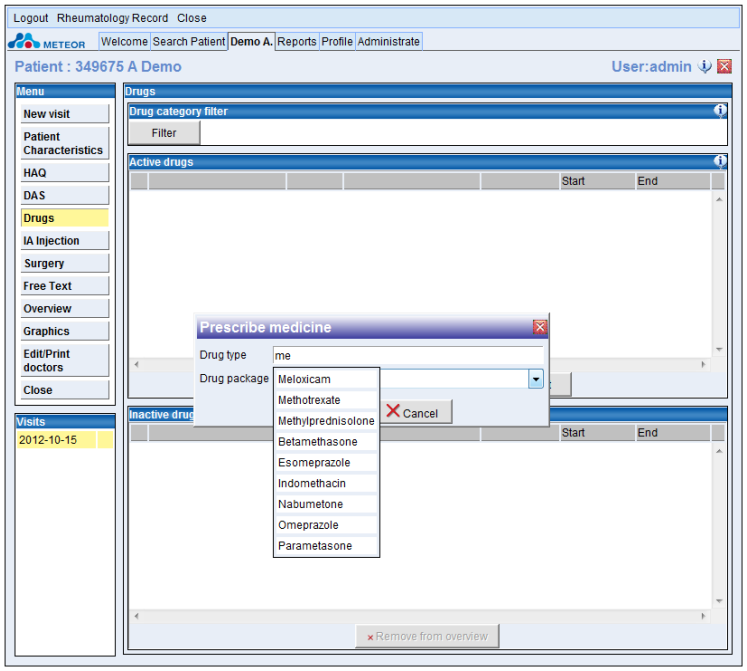
Users enter prescription information using the drugs page, which is accessed from the main menu as shown below:

1.10.1 Adding a drug

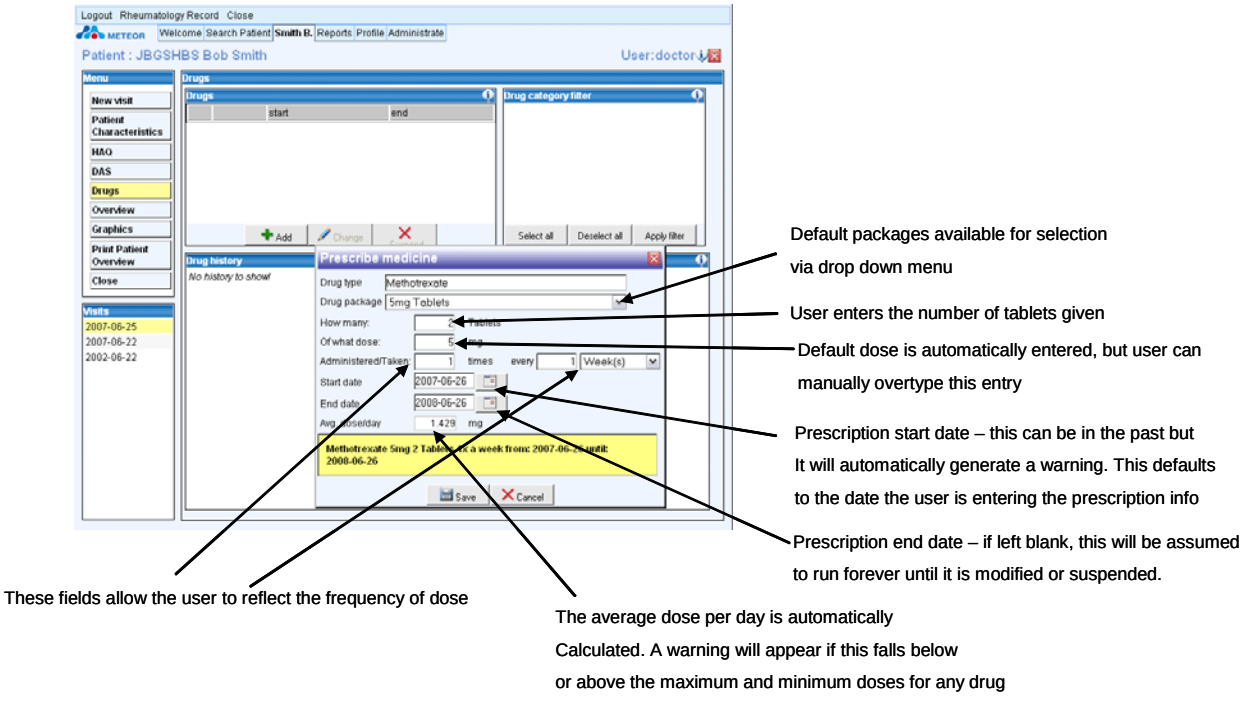
To add a drug, click the add button, as shown below:



A pop up will allow the user to type in the first few letters of the desired drug. The application has a search ahead prediction functionality and will pull up the closest matches in order for selection - this is shown below for methotrexate (user types "me")

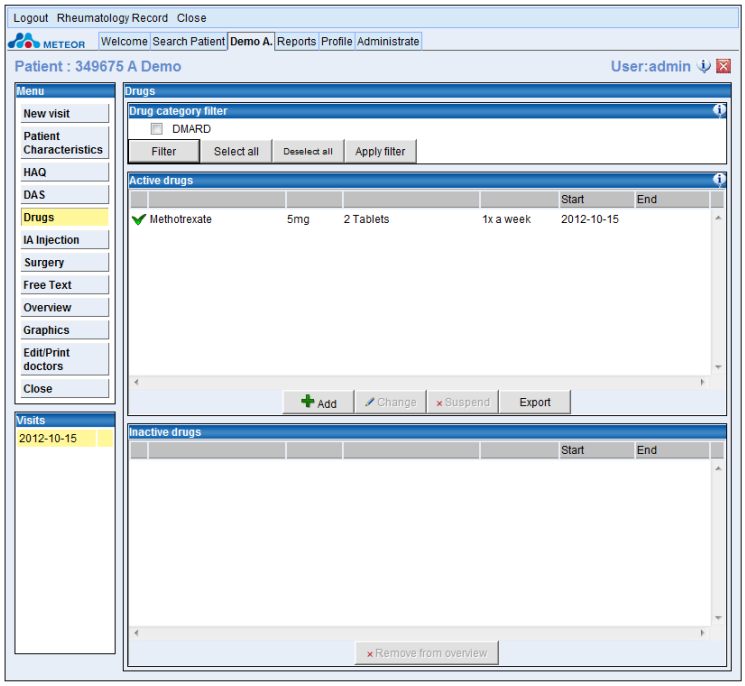


On selection of a drug, the prescription input module will appear for that drug, as shown:



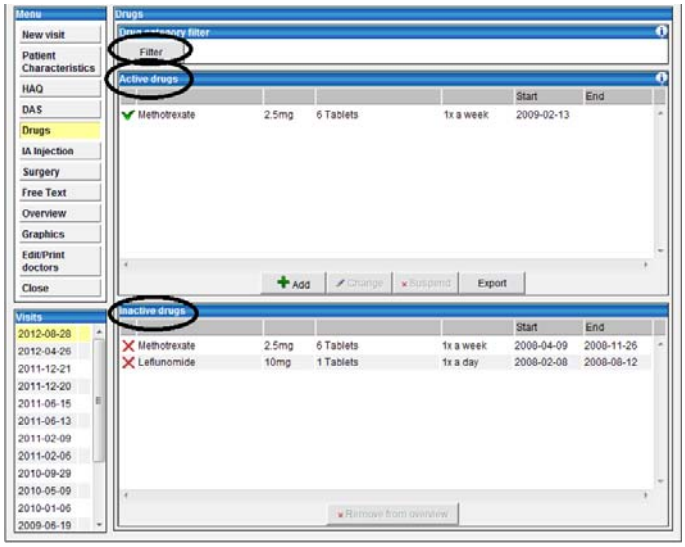
Saving the prescription adds the drug to the main drugs window, as shown below. Each drug belongs to one or more categories (e.g. DMARD, NSAID). When a given

drug is prescribed, the relevant category will automatically appear in the category window.



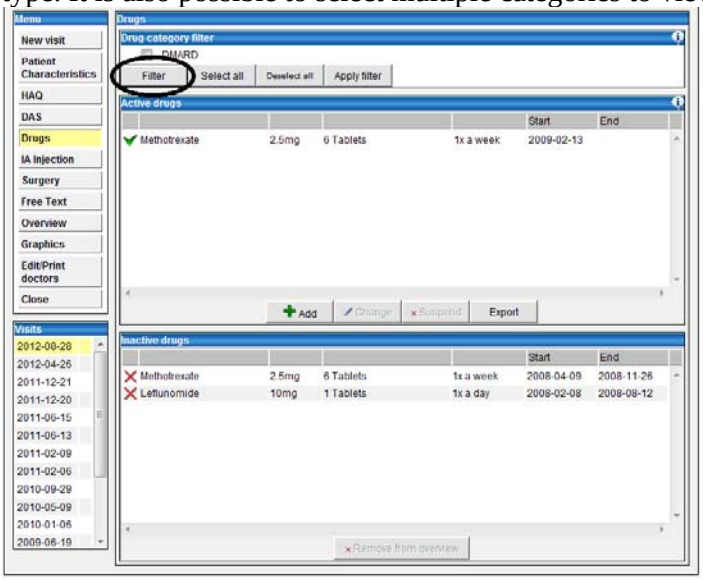
1.10.2 Drug overview

The overview is split into three sections: Filter, Active drugs and Inactive drugs. Medication is always displayed with most recent start date at the top.

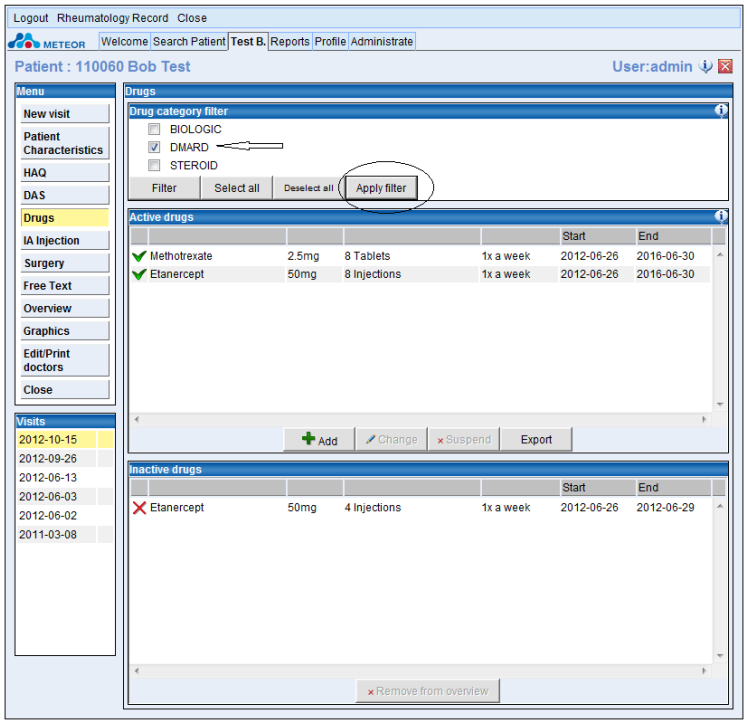


1.10.3 Filter selection to view drugs by category

If the user clicks Filter all drug categories will be displayed.
The user can select a category to view the history of prescribing for all drugs of that type. It is also possible to select multiple categories to view combinations of drugs.



Select a category, click “Apply filter” and Active and inactive drugs of that category will be displayed.
Multiple filters can be selected in order to see more than one class of drug at a time.

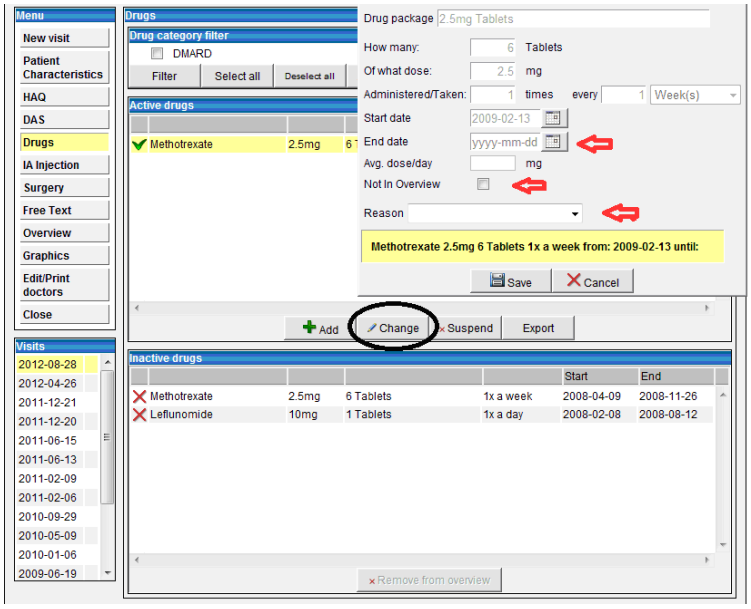


To hide the categories the user has to click Filter again.

1.10.4 Active drugs

1.10.5 Change an existing prescription

Select an existing prescription and click Change to modify the prescription.



Only 3 modifications for active drugs are allowed: End date, Not in overview and Reason.
If the user clicks Wrong entry or Drug not used in the Reason drop down menu, option Not in overview will be automatically ticked.

1.10.6 Suspend an active drug

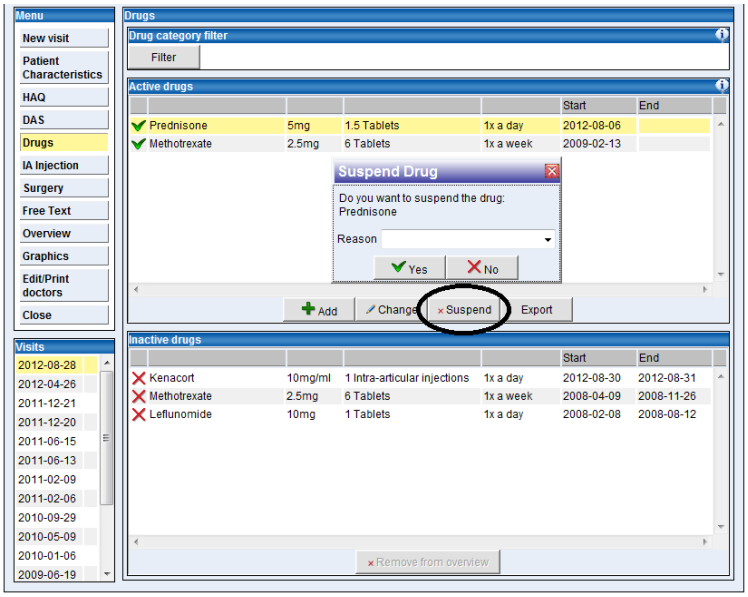
In some cases, it may be necessary to suspend a drug currently being taken. This may be for safety or other reasons. It is possible to record this in the application. The 'suspend' button should only be used for drugs currently being taken, that are to be stopped on the date of the visit.

If a drug is to be suspended, the user should click on the appropriate drug on the drugs page. This will activate the 'change' and 'suspend' buttons. Clicking on the 'suspend' button will cause a dialog box to pop up, in which the user will be asked to select a reason for suspending the drug. Possible reasons are:

- lack of efficacy
- drug-drug interaction
- side effects/adverse reaction
- Remission
- Wish patient
- Pregnancy

Once the user confirms the reason for suspension, the drug will be suspended, and the end date will be the date on which the suspend button is clicked.

Click Suspend to stop a drug immediately on the actual date by selecting the prescription entry in question.

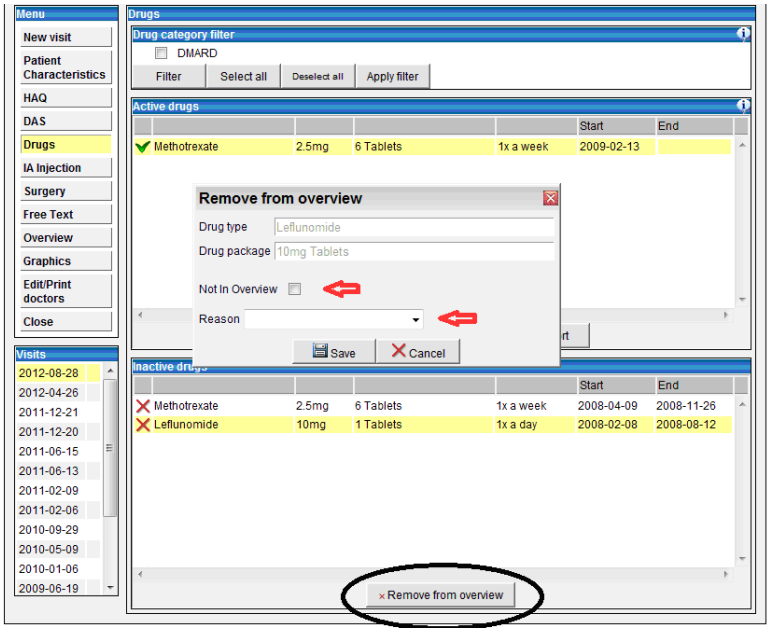


A dialog box pops up, in which the user can select a reason for suspending the drug.

1.10.7 Inactive drugs

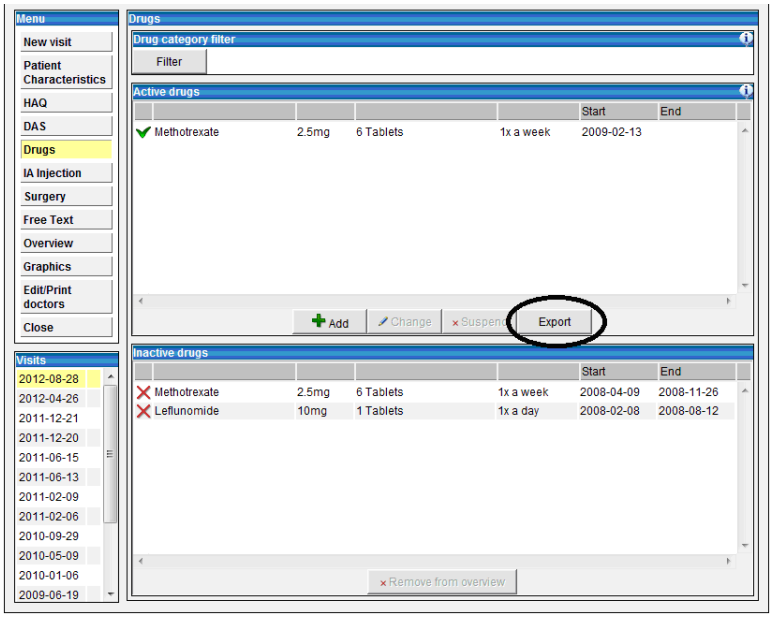
The only modification for inactive drugs is Remove from overview with two options: Not in overview and Reason.
Reasons for using this functionality are for instance when a patient never took a prescribed drug or when a drug was entered by mistake.
If a drug is to be ‘removed’, the user should click on the appropriate drug on the drugs page. This will activate the ‘change’ and ‘suspend’ buttons. Clicking on the ‘change’ button will cause a dialog box to pop up, in which the user can tick the checkbox ‘not in overview’, fill in end date equal to start date.
Important: When ticking the checkbox ‘Not in overview’ the user should fill in an end date equal to start date and choose for a reason either ‘Wrong Entry’ or ‘Drug Not Used’

When “Not in Overview” is ticked the drug will no longer be visible in the drug history, but the data will remain in the database.



1.10.8 Export button

At the bottom of the active drug overview a new button Export has been added.



This button generates an overview of active and inactive drugs,
and the user can select the preferred format type.

Meteor Rheumatology Module

Medication Overview Table

Name	Dose/Form	Start date	End date
Methotrexate 2,5mg	6 Tablets 1x a week	2009-02-13	
Methotrexate 2,5mg	6 Tablets 1x a week	2008-04-09	2008-11-26
Leflunomide 10mg	1 Tablets 1x a day	2008-02-08	2008-08-12

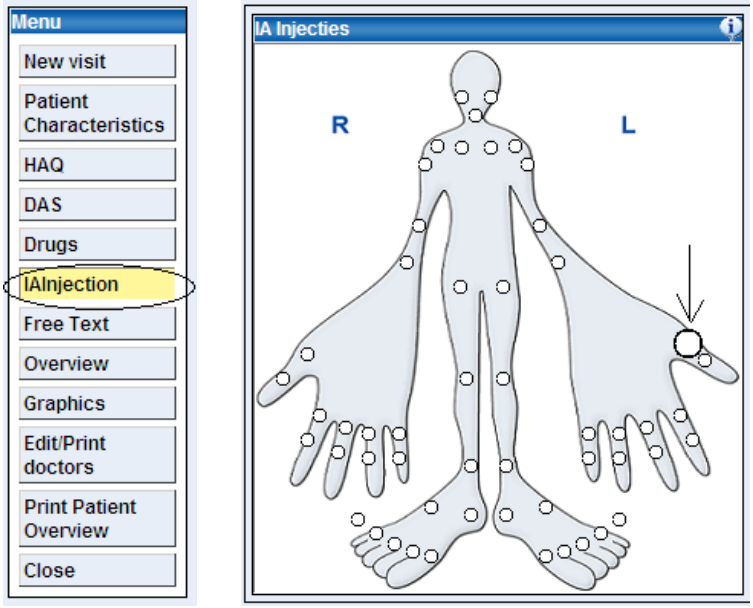
Select the format type ExportFile Cancel

1.11 Recording Intra Articular injection

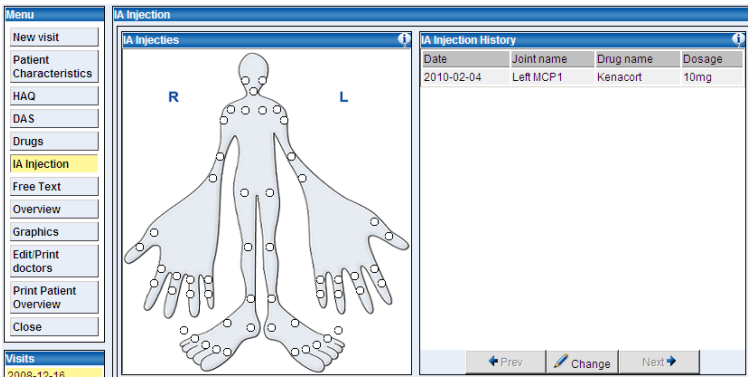
The IA Injection module contains a mannequin with 53 joints and the medication history.
Start by clicking the IAInjection-button in the menu.

1.11.1 Selecting a joint

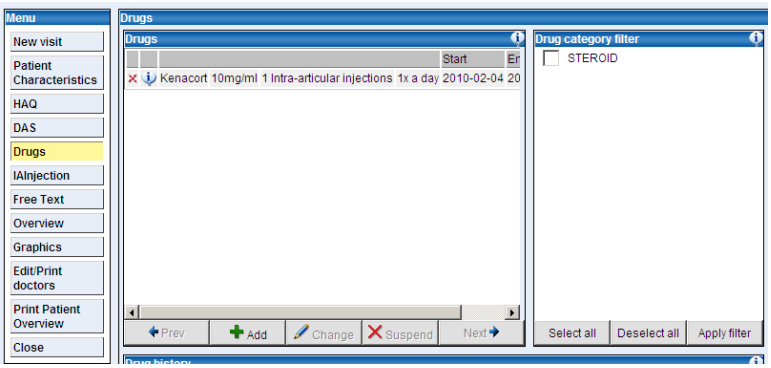
By clicking the selected joint a pop up screen will appear to add a drug.

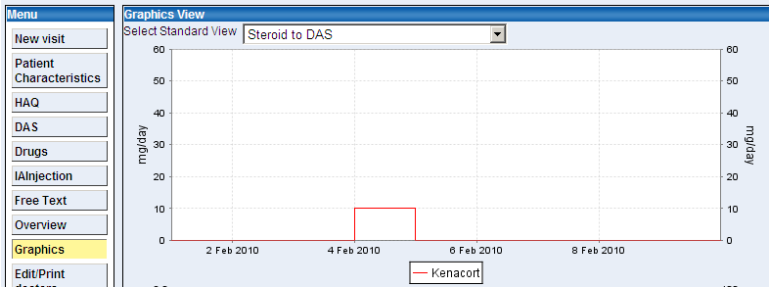


After saving the drug the injection history (date, joint name and prescribed drug) will appear in the overview on the right side of the screen.



The prescribed drug will also be displayed in the drugs module and in the Graphics module.





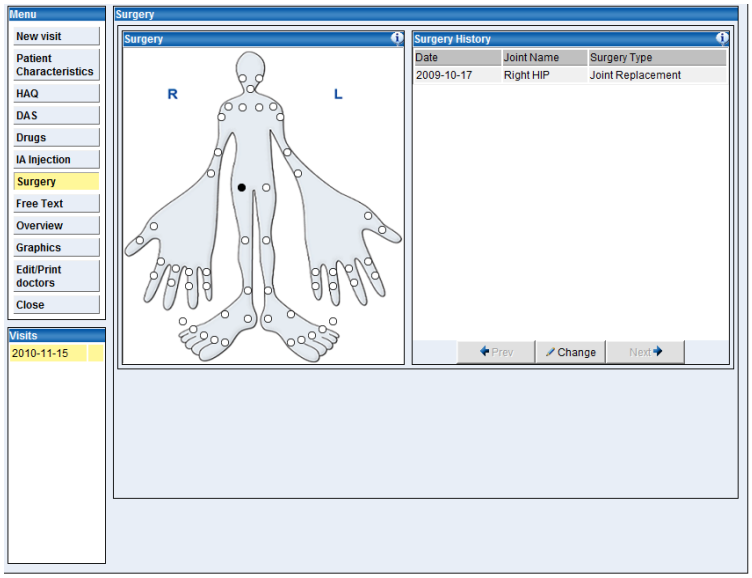
Please be aware that visits in the menu only refer to visits with DAS scores.

1.12 Recording Surgery

This module enables you to register specific rheumatoid arthritis surgeries for 53 joints.
Start by clicking the Surgery button in the menu.

1.12.1 Selecting a surgery

By hovering over a joint the name of the joint appears and after clicking the selected joint a pop up will appear with a drop down list of surgery types.
After selecting the surgery type the user has to register the date of the surgery.



Surgery types are:
Arthrodesis, Lavage, Synovectomy, Tenosynovectomy, Other and Joint replacement.

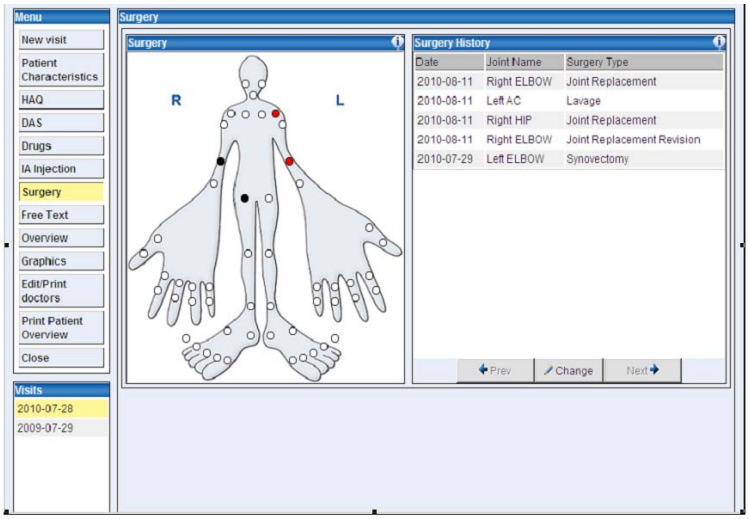
On top of these there are 2 specific surgeries:

- Neck Surgery: this option can only be selected when selecting the Spine joint
- Joint replacement revision: this option can only be selected after registering a pre-registered Joint replacement.

1.12.2 Overview of all surgeries

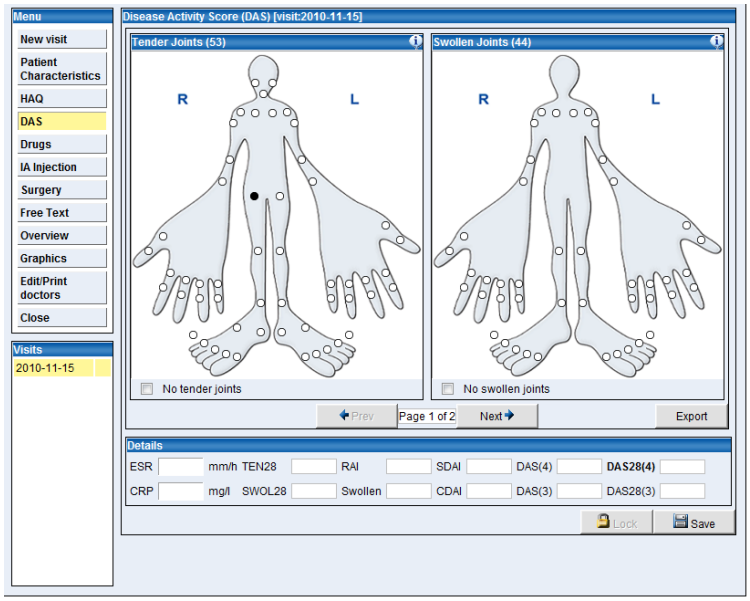
After registering an Arthrodesis, Lavage, Synovectomy, Tenosynovectomy, Other or Neck surgery, the selected joint is shown in **red**.
When a “Joint replacement” or “Joint replacement revision” surgery is selected, the joint is shown in **black**.

An overview of all registered surgeries are ordered by date.



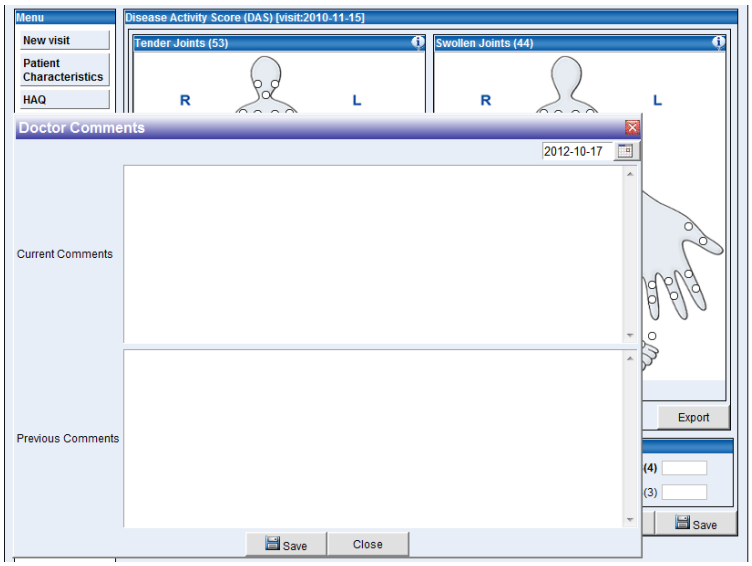
1.12.3 Replacement surgeries affecting the DAS module

All registered “Replacement” and “Replacement revision” are displayed in the DAS module as a black joint. Replaced joints can no longer be selected for both Tender and Swollen DAS assessment.



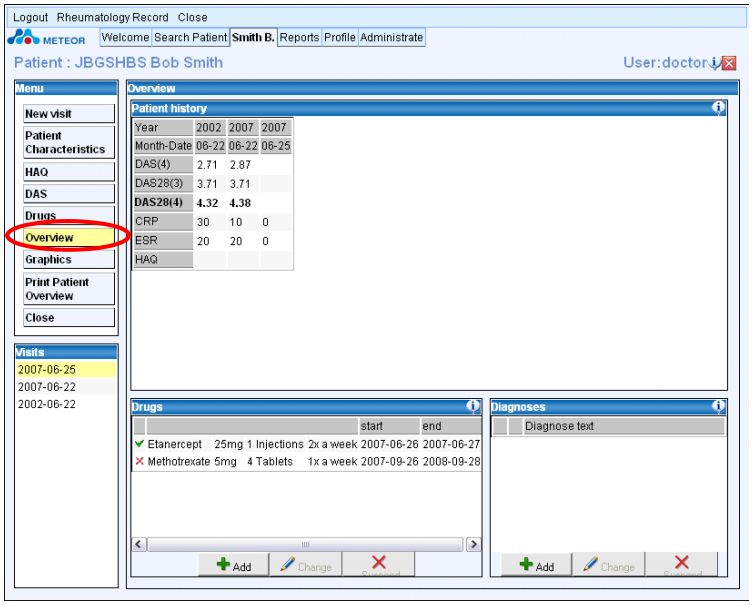
1.13 Free Text

By clicking “free text” in the menu a pop up screen will come up where you can register additional information of the patient.
This information will be stored locally and will not be sent to the central database.



1.14 Overview data.

Users access the overview page by clicking the overview button, as shown:



The overview page is split into three functional sections, drugs summary, disease assessment history (patient history) and co-morbidity entry (diagnosis).

The drugs summary is identical to the equivalent section in the medicines page (refer to guidance in section 3.9).

1.14.1 Patient Summary

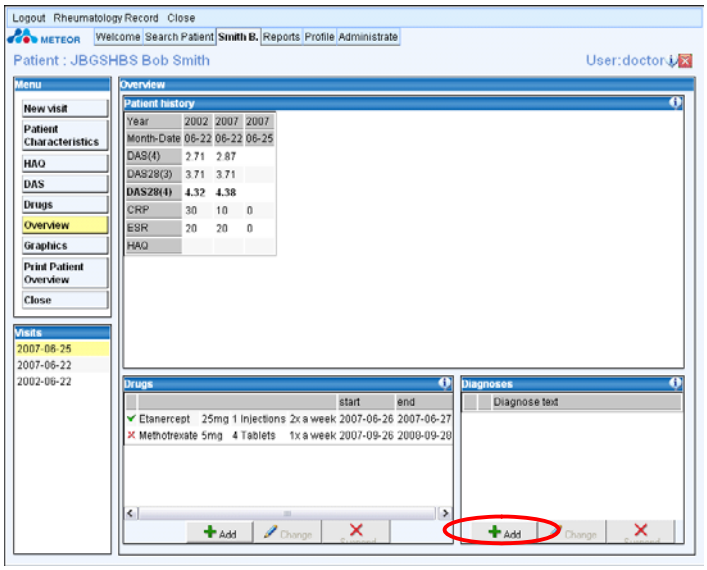
The patient summary shows the overall scores for clinical assessment data as follows:

Parameter	Variable/Always present
DAS(3)	Variable
DAS(4)	Variable
DAS28(3)	Variable
DAS28(4)	Always present
SDAI	Variable
CDAI	Variable
ESR	Always present
CRP	Always present
HAQ	Always present

The items marked as "variable" in the table above will be visible if the user has selected to display these items in their personal profile selection, as described in section 3.3.2.

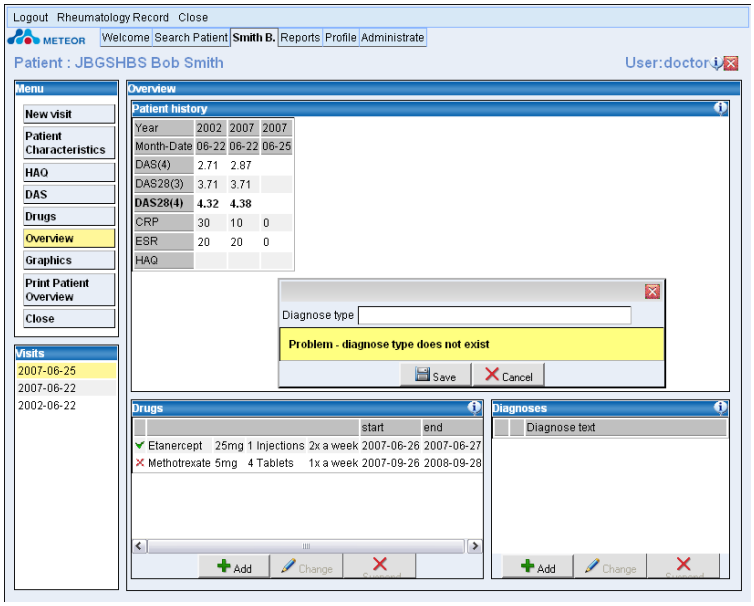
1.15 Co-morbidity registration.

The user can register co-morbidity by clicking the add button, as shown below.

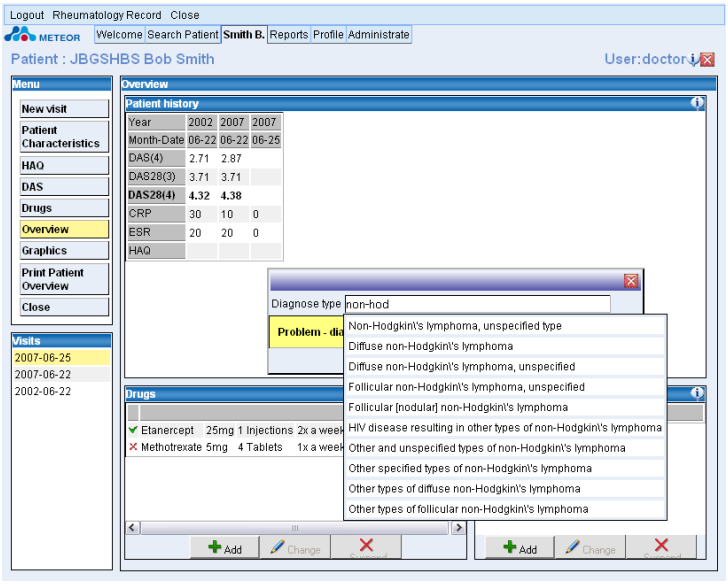


The application uses a standard ICD-10 list for diagnosis and terminology. It can accept diagnoses in text form, or the ICD-10 codes.

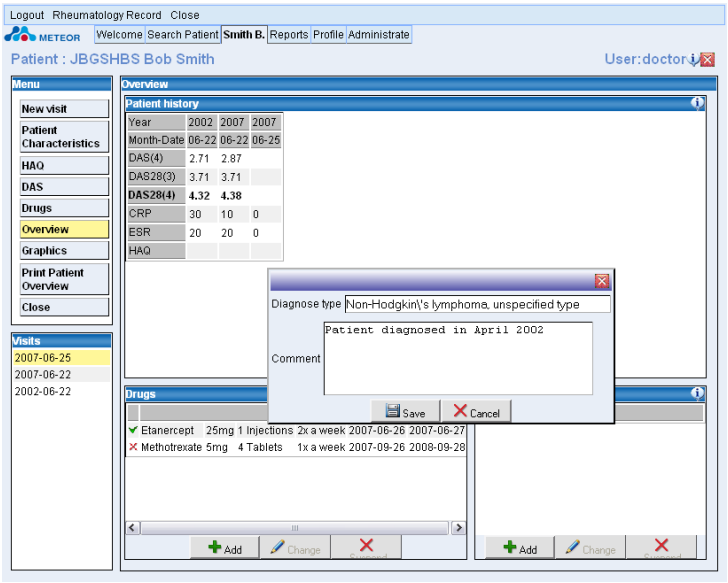
Clicking the add button initiates the entry box:



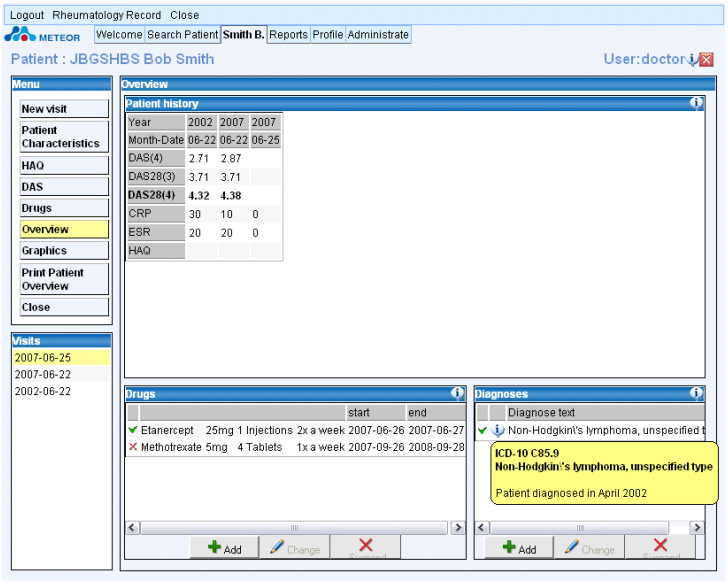
The user can then enter the diagnosis - the application has search ahead functionality and will match closest available entries as the user types. This is shown below for a user entering non-Hodgkins Lymphoma:



The entry is selected and the user can enter additional comments, if required:



Once the entry is saved, the entry is visible in the diagnosis window. Clicking on the information button reveals the additional comments, as shown:

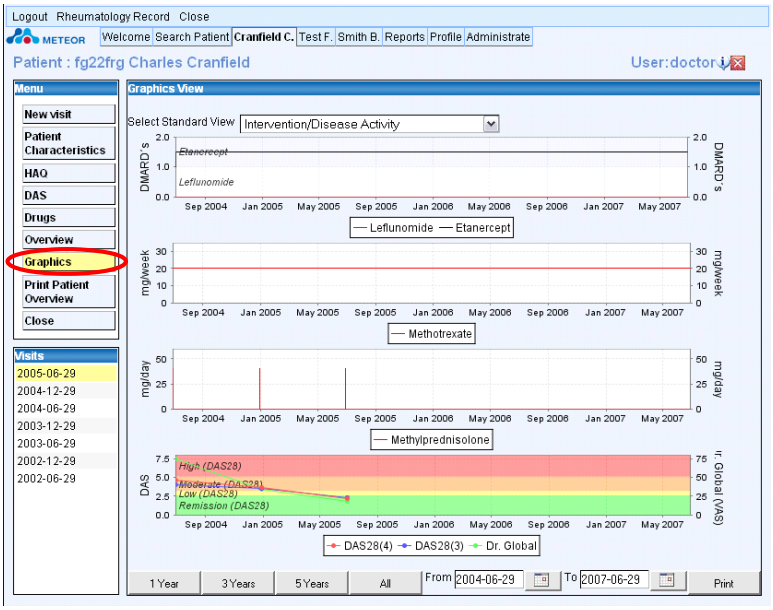


The diagnosis can be changed or suspended using the change and suspend buttons. If a diagnosis is suspended, it will not be possible to change or re-activate that diagnosis again. Should it become necessary to re-enter a diagnosis that had previously been suspended, the user should select the condition and enter the reason for re-entering the diagnosis in the comments field.

To change a diagnosis, the user should overtype the new diagnosis to trigger the search ahead function.

1.16 Disease activity and medication graphs

The graphics page is displayed by clicking on the graphics menu button, as shown:



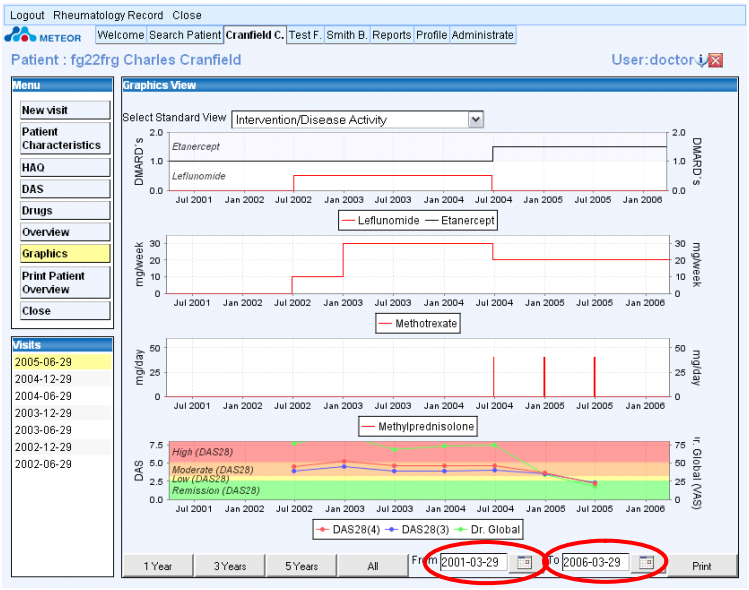
On entering this page, the application will automatically display data for a 3 year period.

1.16.1 Displaying graphs over a specified time period

The graphs page has some buttons to allow quick viewing of the graphs over periods of 1 year, 3 years or 5 years. Clicking the buttons will automatically align the graphs to these periods.

The "All" button will display all data available for any graph - the time periods will therefore become desynchronised if there is more data available for one graph than another.

To display the graphs over a specified timeframe, the dates should be entered in the from and to boxes, as indicated in the diagram below - the time period shown here is from March 2001 until March 2006:

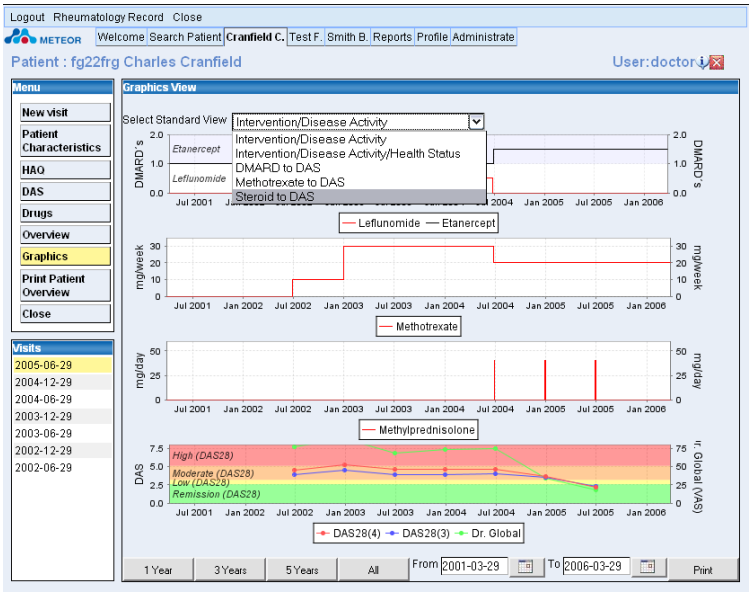


1.16.2 Selecting graph types to display

There are 5 different graph types available to display within the application:

Drop down menu reference	Graph Information
Intervention/Disease Activity	This is the default view - 4 graphs are displayed: DMARD vs Time Methotrexate vs time Steroid vs Time DAS/Dr Global vs Time
Intervention/Disease Activity/Health Status	DMARD vs Time Methotrexate vs time Steroid vs Time DAS/Dr Global vs Time HAQ vs Time
DMARD to DAS	DMARD vs Time DAS vs Time
Methotrexate to DAS	Methotrexate vs time DAS vs Time
Steroid to DAS	Steroid vs Time DAS vs Time

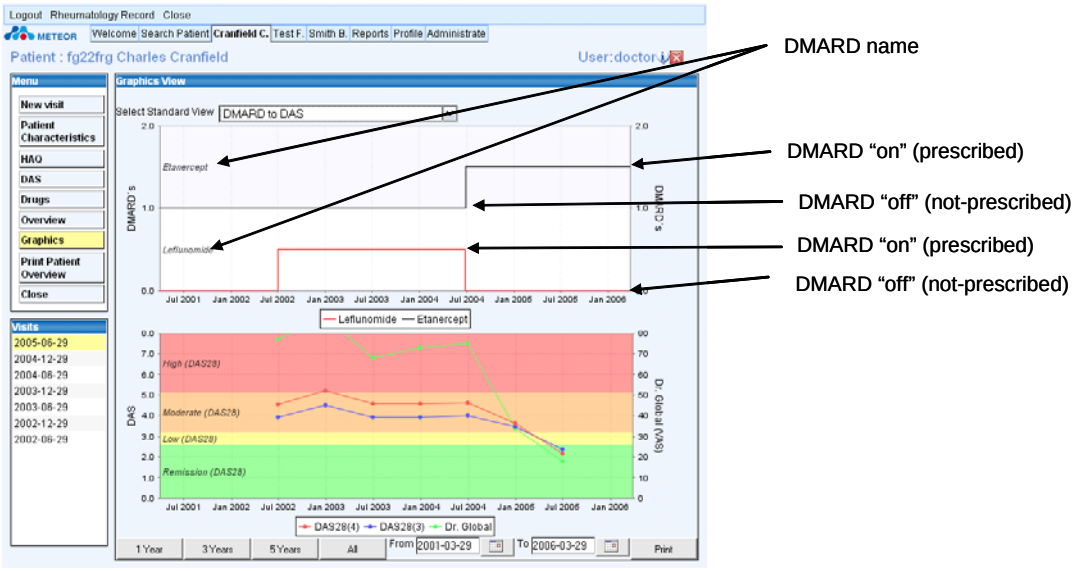
The graphs to display are selected from the drop down menu, as shown in the diagram below:



Each of the graphs is now explained in turn.

1.16.3 DMARD vs Time

The DMARD vs time graph is shown below, in the DMARD to DAS view:



The DMARD graph does not show medication dose information and is binary in its' representation, with the drug being "on" or "off".

The graph is designed on the basis that a patient will not be on more than 3 or 4 DMARDs at any one point in time.

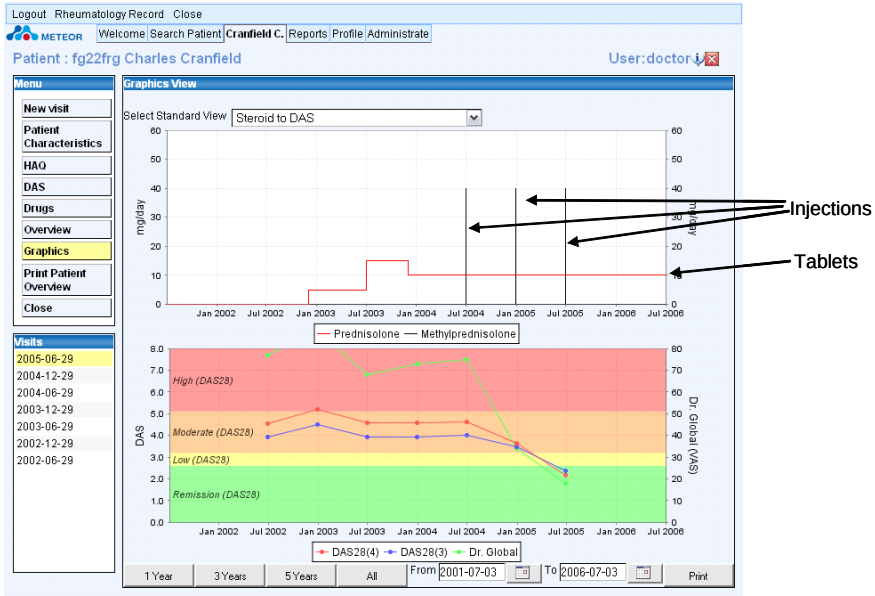
1.16.4 Methotrexate vs Time

The methotrexate graph is shown below, in the methotrexate vs DAS view:

The graph displays the methotrexate dosing in mg per week.

1.16.5 Corticosteroid vs Time

The corticosteroid graph is shown below, in the steroid vs DAS view:



As shown in the graph, injections display as a single vertical line to allow the injections to be quickly identified in the graph.

1.16.6 Choosing the DAS graph

The DAS graph displayed can be personalised, as explained in profile set up in chapter 1.3.2.

The DAS28 graph has coloured boundaries to show the high, moderate, low and remission cut offs and is the recommended view.

If the user wishes to display combined measurements (for example DAS 28 (3), DAS28(4), DAS(3) and DAS(4)) the boundaries will be removed, since the boundaries are different depending on the measure used.

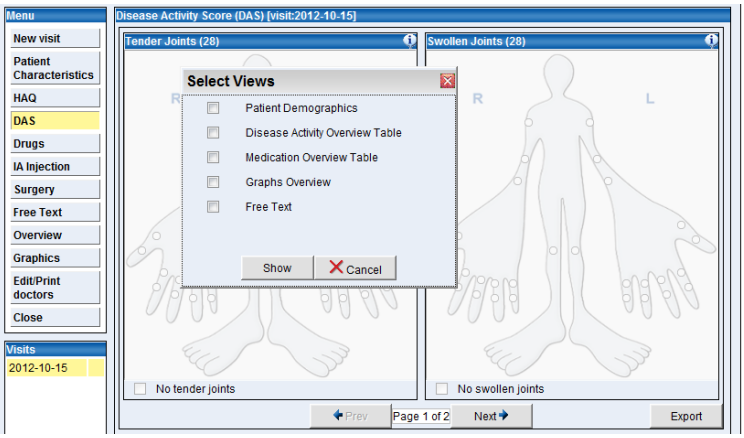
The Physician's Global assessment is always visible and cannot be removed from the graphs display.

1.17 Printing Functions

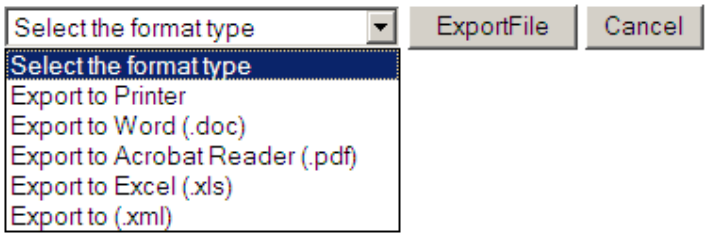
The Meteor application has several printing options.

1.17.1 Edit/Print Doctors

When clicking the edit/print doctors button the ‘select views’ menu will be opened with views to be selected as shown below:



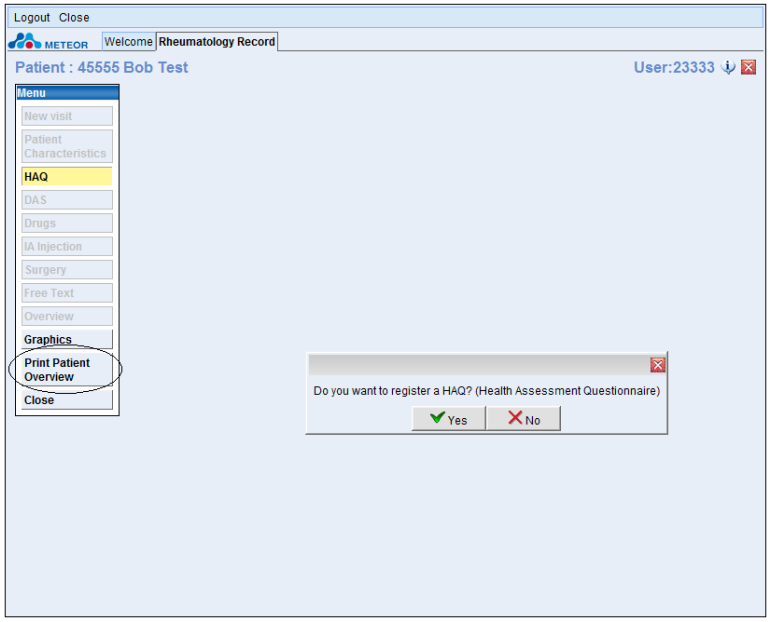
After ticking the boxes the user can select a format type to export these data to:



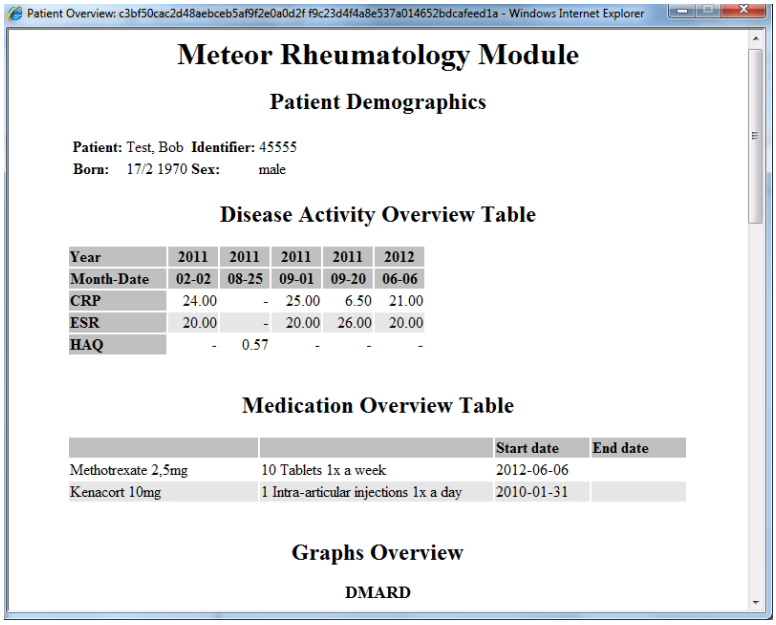
Word and Excel have a possibility to edit these data.

1.17.2 Print Patient Overview

If hospital policy permits this, it is possible to allocate rights to patients to print their own data.
The overview automatically defaults to show a 3 year period and displays the patient summary, intervention and DAS graphs.
The print patient overview button is activated from the main menu in the application. as shown in the diagram below.

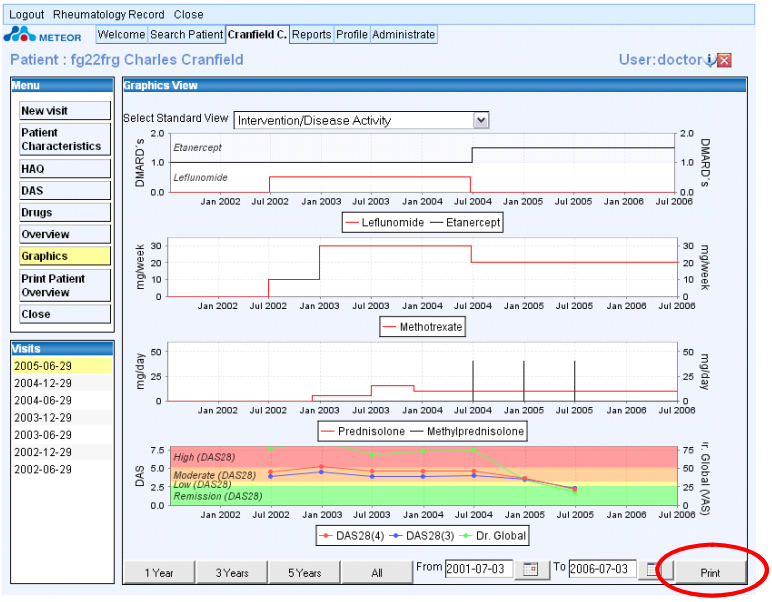


An example of the report to be printed is shown below:

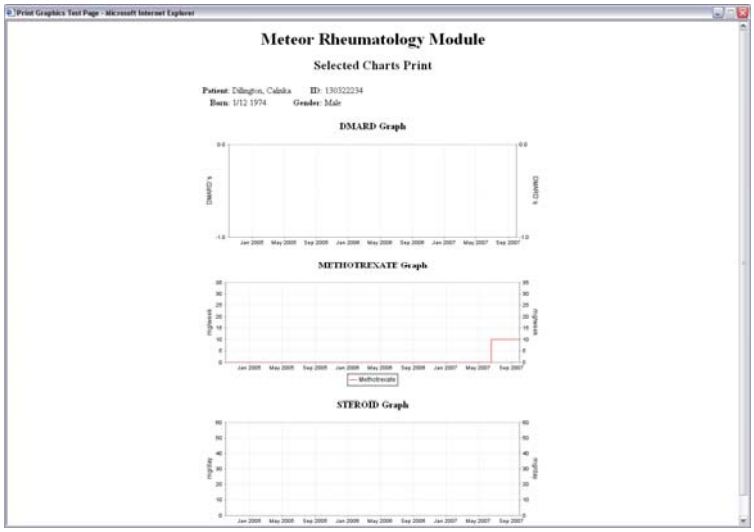


1.17.3 Graph print functions

The graphics page has a print function that allows the user to print whatever is on the screen at the time of activating the button. This allows the user to display medication and DAS summary data for any chosen period.



When the user selects the 'print' option, the application will format the graphs for printing. An example of the formatted document ready for printing is shown below:



2 Generating benchmark reports in METEOR

This is an instant benchmarking functionality with other participating sites worldwide. In order to access the reporting function, the user should select the 'Reports' tab in the application. This will open a screen which will include a drop-down menu listing the available reports. These are:

Report Name	Brief Description
Basic Patient Data	Presents summary data of the patients included in the database.
DAS and HAQ Statistics	Summarises key DAS and HAQ values for selected patient groups
DAS and HAQ Remission and Low Statistics	Reports the proportion of patients (expressed as %) who are in low or remission ranges as defined by DAS, DAS28, CDAI, SDAI and HAQ values.
DAS Graph Report	Shows the average HAQ, and one of the average DAS, CDAI or SDAI for the selected scope over the selected time range.
Drug Usage Report	Presents drug usage statistics for key drugs, by patients who have taken the drug(s) in the past or who are taking the drug(s) at present
Care indicators Report	A site performance report with DAS, CRP and ESR outcomes over time

Users of the reporting function can define the scope of selected reports generated from the application. These are:

1. Rheumatologist: including the username's own patients only (Data extracted from patient characteristics table)
2. Site: including patients of all rheumatologists registered at that site
3. Country: including patients of rheumatologists registered and using the Application in that Country
4. Meteor Database: including all patients in the system

Furthermore, several additional selection criteria are available for the DAS and HAQ statistics report, the DAS and HAQ Remission and Low Statistics report, and the DAS graph report.

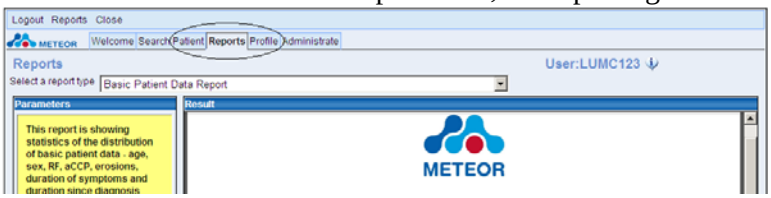
2.1 Authority to access and run reports

In order for users to be able to run reports, they must have appropriate privileges defined in the user profile. Only users who have 'can make reports' included in their profile will be able to run the reports outlined above.

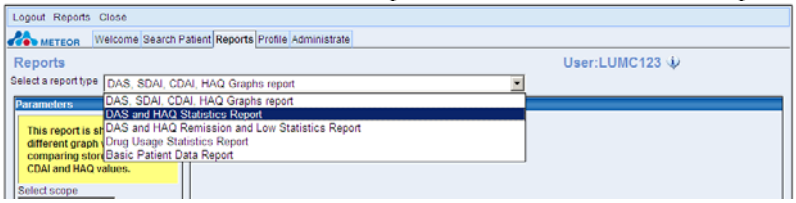
If a user has any questions regarding his/her ability run reports, he/she should refer to the site administrator for advice.

2.2 Accessing reports

Once the user clicks on the 'Reports' tab, the reporting screen will be visible



The user should click on the drop-down menu to select the report type:



Depending on the report selected, the user will then be presented with a range of data filters, to allow him to tailor the report to his needs. These filters vary by report, but include:

- Scope – the patient population to be included. Options are rheumatologist, site, country and Meteor database (all sites in all countries)
- Visits occurring within the selected time windows
- Gender
- Age
- Disease duration
- Presence of erosions, anti-CCP or rheumatoid factor

For the Drug Usage Report, the user can select either 'past usage' of the drug, or 'currently being taken'.

2.3 Running a report

The user should select the required report, and confirm the search criteria. Once these are selected, the user should click 'run'. The report will be generated in the main part of the screen.

Depending on the report chosen, it may be necessary to use the scroll bar on the right-hand side of the screen to view all parts of the report.

Users can also print the chosen report after it is visible on the screen, and can also choose to export the data to excel or Word formats

.

2.4 Overview of each report type

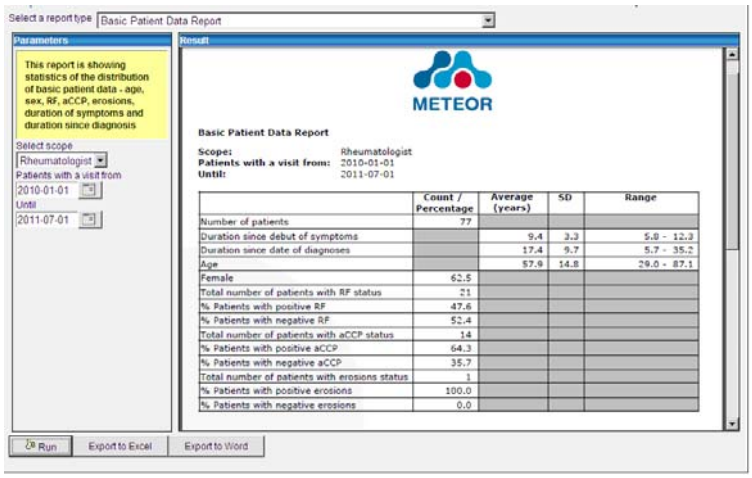
This section provides an overview of the scope and objectives of each report. Example screenshots are included for illustrative purposes.

2.4.1 Basic Patient Data Report

This report presents a demographic overview of the data held in the system. It includes:

- Number and age profile of patients in the selected time frame
- Gender
- Duration since onset of symptoms
- Duration since diagnosis
- Information on erosions, anti-CCF and rheumatoid factor

An example of a completed report is shown below:

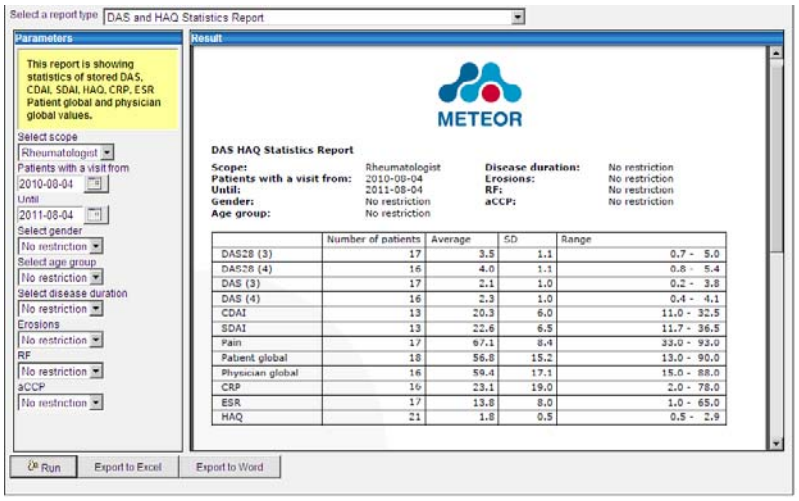


2.4.2 DAS and HAQ Statistics Report

This report presents statistics for the following variables: DAS, HAQ, SDAI, CDAI, Pain, Patient global assessment, physician global assessment, CRP and ESR.

Data can be selected in a selected time frame. However, it should be noted that if a patient has more than 1 visit in a period, then the report will include the average value for that patient, for the selected reporting period.

An example is shown below:

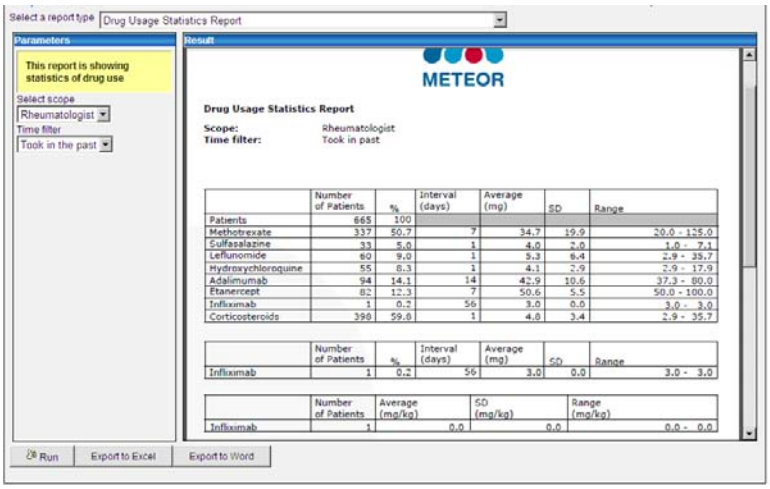


2.4.3 Drug Usage Report

This report will present the statistics for patients who are currently using, or having used, a particular set of drugs.
The scope is limited to rheumatologist and site.
The drugs included in the report are:

- Methotrexate
- Sulfasalazine
- Leflunomide
- Hydroxychloroquine
- Adalimumab
- Etanercept
- Infliximab
- Corticosteroids – note that the prednisolone factor is incorporated in the calculation of doses of corticosteroids

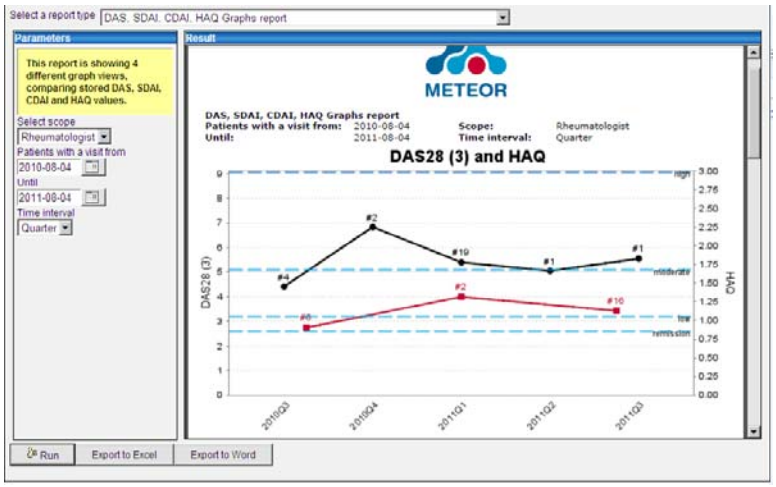
An example of the Drug Usage Report is shown below:



2.4.4 DAS, CDAI, SDAI, HAQ Graphs Report

This report will show the average HAQ, and average DAS, CDAI or SDAI for the selected scope over the selected time range. The report consists of 4 graphs, showing: DAS 28(3) and HAQ; DAS (3) and HAQ; SDAI and HAQ; CDAI and HAQ. Each graph shows the thresholds for high/moderate/low/remission.

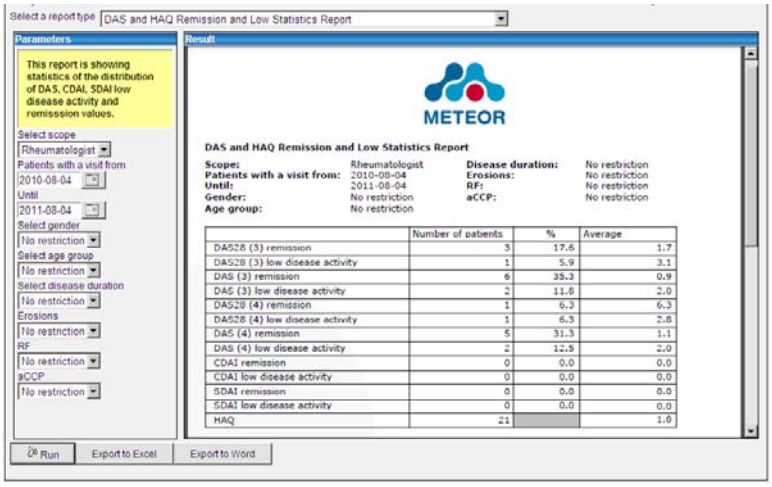
An example of a part of the report is shown below:



2.4.5 DAS, CDAI and SDAI low and remission report

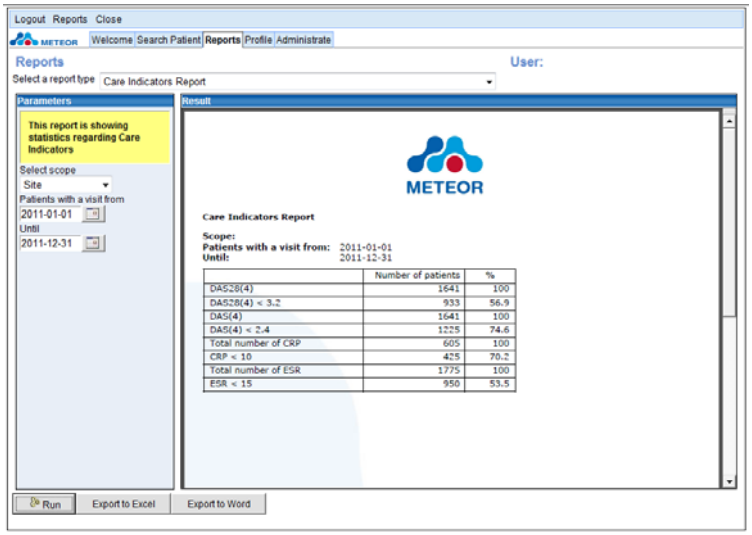
This report in the proportion of patients (expressed as %) who are in low or remission ranges as defined by the DAS, DAS28, CDAI, SDAI and HAQ values and low/remission thresholds.

Note that if a patient has more than one visit in a specific reporting period (quarter/year), the data will contain an average of all visits in that period.



2.4.6 Care Indicators Report/Site performance Report

This is a site performance report with DAS, CRP and ESR outcomes over time

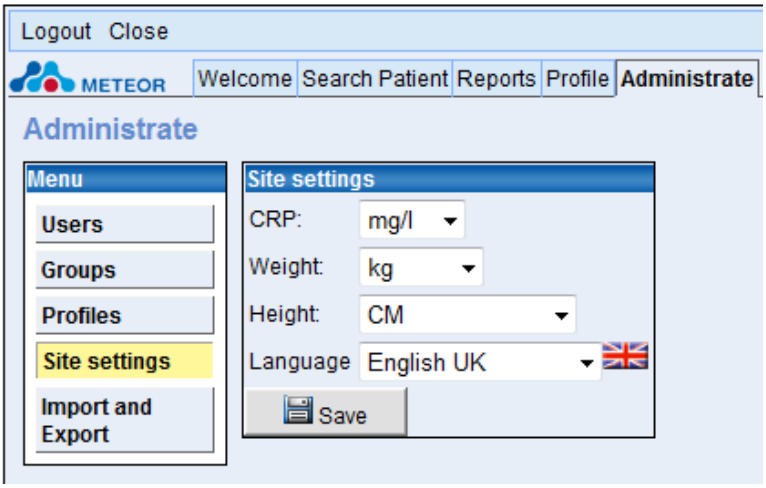


3 Site specific settings

The site administrator has the possibility to set specific site settings for

- CRP mg/l or mg/dl
- Weight kg or pounds
- Height cm or heetand inches
- Language

The settings below are default settings.
To activate the selected preferences the administrator has to log out and log in again.

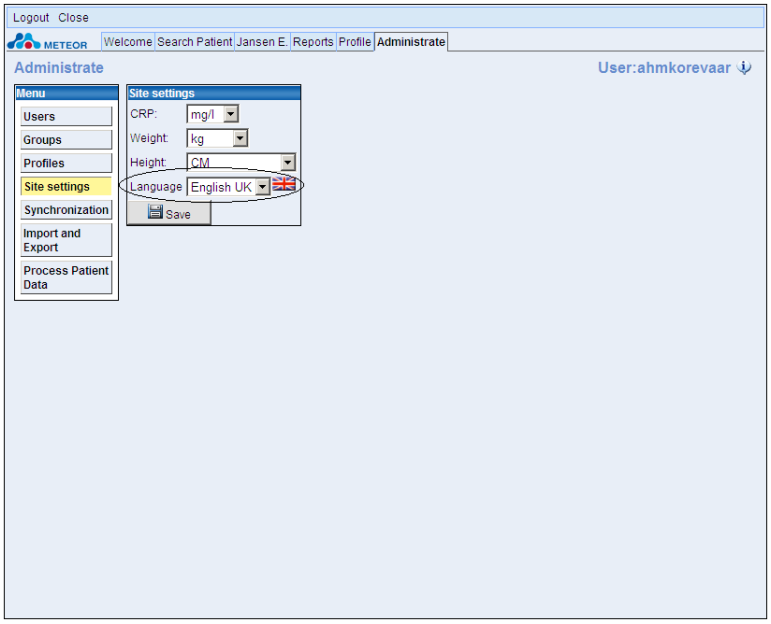


4 Language settings

METEOR is available in 5 different languages: English, French, Spanish, Dutch and Portuguese.

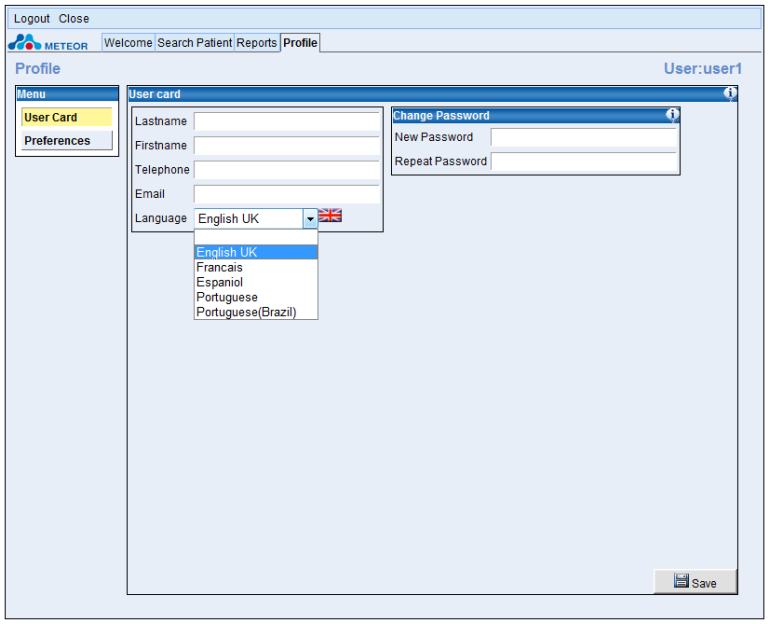
4.1.1 Administrator language setting

The administrator has the right to set a default language for every user of this site. When the administrator accesses “Administrate” in the navigation tabs and selects “Site settings” in the menu on the left he can set the preferred language.
Then click “Save”.



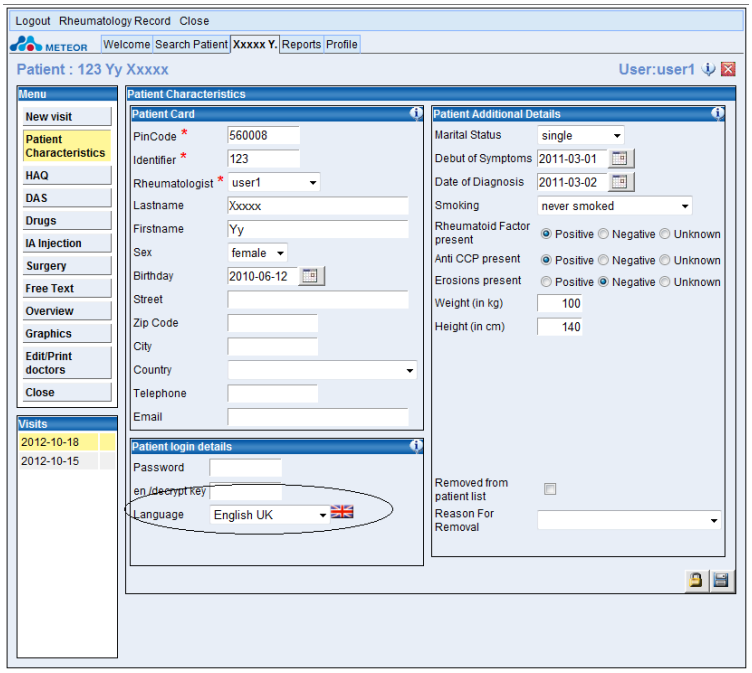
4.1.2 User language setting.

Every user can select his language preference from a drop down list by clicking the “Profile” tab and selecting “User card” in the menu on the left.
Then click “Save”.



4.1.3 Patient language setting

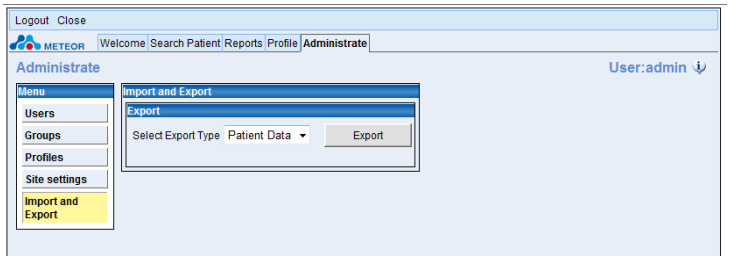
It is possible to set a language for every individual patient.
A user with “Patient Administrator” rights can select a language from a drop down list in the “Patient Characteristics” screen under “Patient log in details’ .
Then click “Save”.



5 Download site data.

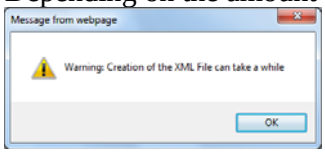
Every participating hospital owns its own data and can at any time download and use these data for research purposes.

The site **administrator** has the right to download patient data of his site in a XML format.
Click “Administrate” in the task bar, then click “Import and Export” button in the menu.
The following screen will appear.

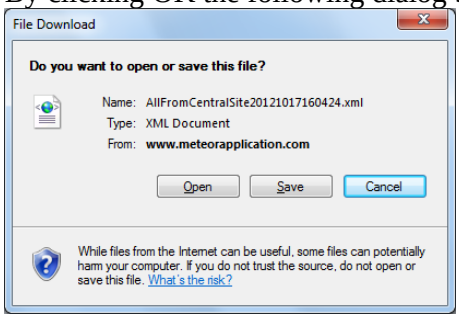


Select Patient Data and click “Export”.

Depending on the amount of data the following pop up may appear.



By clicking OK the following dialog box is displayed



with options to open, save or cancel.