

## CHEMOCARE® PROCEDURE: CCP001

### ChemoCare® Instructions for Pharmacy Staff

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## Introduction and background

ChemoCare® is the electronic prescribing system which has been adopted for the prescribing of chemotherapy for malignant disease at UCLH.

This document provides a guide to pharmacists and medical technical officers setting up and to senior pharmacists checking new chemotherapy regimens on ChemoCare®.

It will be necessary to refer to other related documents:

UCLH Procedure for Setting up Clinical Trial Protocols on ChemoCare®  
NLCN Procedure for setting up NLCRN adopted clinical trials

## Responsibilities

Setting up and double-checking regimens for prescribing on ChemoCare® is the responsibility of the Cancer Services Pharmacy team at UCLH.

A double-check will also be required by a suitable member of consultant medical staff prior to any regimen being released for prescribing on ChemoCare®.

Courses and protocols will only be released for prescribing by senior members of the Cancer Services Pharmacy team (band 8a or above), and only once all appropriate validation of the set-up has occurred.

## Procedure

The procedure will be split into 4 sections:

- A) Prior to setting up a new regimen
- B) Setting up courses and protocols
- C) Validation of courses and protocols
- D) Release of regimens for prescribing

### **A) Prior to setting up a new regimen**

The request to set up a new chemotherapy regimen on ChemoCare® must come from a consultant oncologist or haematologist.

The requesting consultant should supply any available references containing information relevant to the regimen. This would include the schedule of drugs, doses and administration advice for the regimen.

Any regimen must be compatible with local prescribing guidelines prior to being set up.

For example:

- All drugs contained within the regimen must be locally approved for the intended indication(s) by the UCLH Use of Medicines Committee (UMC)
- The regimen should be contained within the relevant North London Cancer Network Tumour Board Guidelines or be on the agenda for discussion/addition

## **B) Setting up courses and protocols**

There are potentially two components to build when setting up a new chemotherapy regimen on ChemoCare®: courses and protocols.

The course set-up represents a single cycle or phase of treatment.

The protocol set-up involves attaching courses together in a series to make up a whole treatment plan which will be followed via decision points.  
For example AML 16 or UKALL 2003.

Setting up a protocol is not appropriate in some cases.  
Treatments given as 'one-offs' (such as conditioning regimens or salvage regimens) are good examples of where only the course set-up is required.

Detailed instructions for setting up courses and protocols on the current version of ChemoCare® are given in appendices 1 and 2.

## **C) Testing and validation of courses and protocols:**

### **Courses**

Each new course should be tested by allocating it to a dummy patient and screening the resulting prescription against the regimen reference.

Once the course has been tested a validation document is produced by clicking on the button 'Print Cycle Definition' on the 'Course Modification' screen.

The pharmacist setting up the course should sign on the *Regimen Entry* line on the printout. Another pharmacist should then double-check the set-up and if satisfied sign on the line below (marked *Regimen..... Pharmacist QA* on the printout).

The final double-check should be by a medical consultant who treats the tumour type or patient population.

Once satisfied with the set-up they should countersign on the *Regimen Verified* line.

## Protocols

In addition to the validation of all the courses within a protocol (described above), the set-up of the protocol itself must also be double-checked.

A screen-dump of the chemo tree must be printed out and countersigned by the pharmacist who set up the protocol and the consultant validating the regimen. This ensures the courses are in the correct order and that decision points are in the correct places.

In addition, all of the text within the protocol set-up should be printed out within a word document, checked and countersigned.

NB the protocol set-up may also be printed automatically from within the Tree View of Protocol Setup.

## **D) Release of regimens for prescribing:**

Releasing of any regimen for prescribing on ChemoCare® should only be undertaken by a senior cancer services pharmacist (band 8a or above) and should only be done when all validation documents have been checked and counter-signed by an appropriate medical consultant.

Particular attention should be paid to releasing individual courses. As much as possible chemotherapy prescribed on ChemoCare® should be allocated as part of a protocol.

Individual courses should only be released when it is inappropriate for them to be incorporated into a full treatment protocol.

## Appendix 1: course set-up in ChemoCare® version 4.5p

To set up a new course, choose 'Course Library' from the drop-down 'Pharmacy' menu at the top of the screen and click on 'New'. This is the screen you will see:

There are 2 tabs: **General** and **Cycle Definition**

### Information to enter on the "General" tab

There are several fields that require completion:

**Course:** this is the first field you must enter. This field contains only a maximum of 16 characters so it can be difficult to name a course appropriately.

Things to consider:

- Will prescribers need to allocate the course as a single cycle ('off protocol') or will it be part of a protocol?

*Single course* – it is essential to name the course such that the prescriber can tell **exactly** what they're allocating from the 16 character name. This is because only the course names are listed when you click the 'off-protocol' button on allocation.

If there is to be several similar courses, for example, 3 or 4 that contain only single agent cisplatin, the important differences (such as dose, indication or both) must be included in the course name.

NB in ChemoCare® version 5 the supplementary text is also displayed at the point of 'off-protocol' allocation.

*Part of a protocol* –the prescriber will be less reliant on identifying the contents of the course from the course name but will be directed from within the protocol.

You will however need to consider what other courses you will need to set-up for the protocol; this is essential in order to come up with a consistent naming system (always bearing in mind that you are restricted to 16 characters).

The course name should ideally begin with a reference to the protocol name.

NB You cannot use a course name already in existence.

**Supplementary Text:** the text entered in this box appears on the prescription in the box called 'Course Name'. There is more room than in the 'Course' box but concision is still required. As a guide the amount of text that will fit in the 'Supplementary Text' box on the prescription corresponds to the length of the 'Course' box in the set-up.

**Full Description:** there is no requirement to enter anything in this box. At **no point** does the prescriber see this information during allocation. They will see it only if they look at the course via the 'Regimes' box on the Patient Review screen. It is also printed on the 'Cycle Definition' validation document.

Therefore, and only as an aid to validation enter no more than basic cycle information in this box: drug doses, routes, days of administration and cycle length etc.

For example, with CHOP:

Cyclophosphamide 750mg/m<sup>2</sup> IV infusion in 250ml NS over 30 mins on day 1  
Doxorubicin 50mg/m<sup>2</sup> IV bolus on day 1  
Vincristine 1.4mg/m<sup>2</sup> (max 2mg) IV bolus on day 1  
Prednisolone 100mg orally once each day on days 1 to 5 inclusive

21 day cycle; maximum 8 cycles

**Clinical Details:** information entered in this box will appear in the 'Additional Prescribing Notes' box on the front page of the prescription.

This should include advice on required anti-emetics and other supportive care, extravasation risk, administration details of variable infusion rate drugs and anything else that should be drawn to the attention of nursing, medical and pharmacy staff.

To do this you need to type:

ADD NOTE="....."

(with the information required being entered between the quotation marks)

Similarly,

INTRATHECAL NOTE="....." will appear on the IT prescription

LUMENS="....." will appear in the Type of line/No. of Lumen box on the prescription.

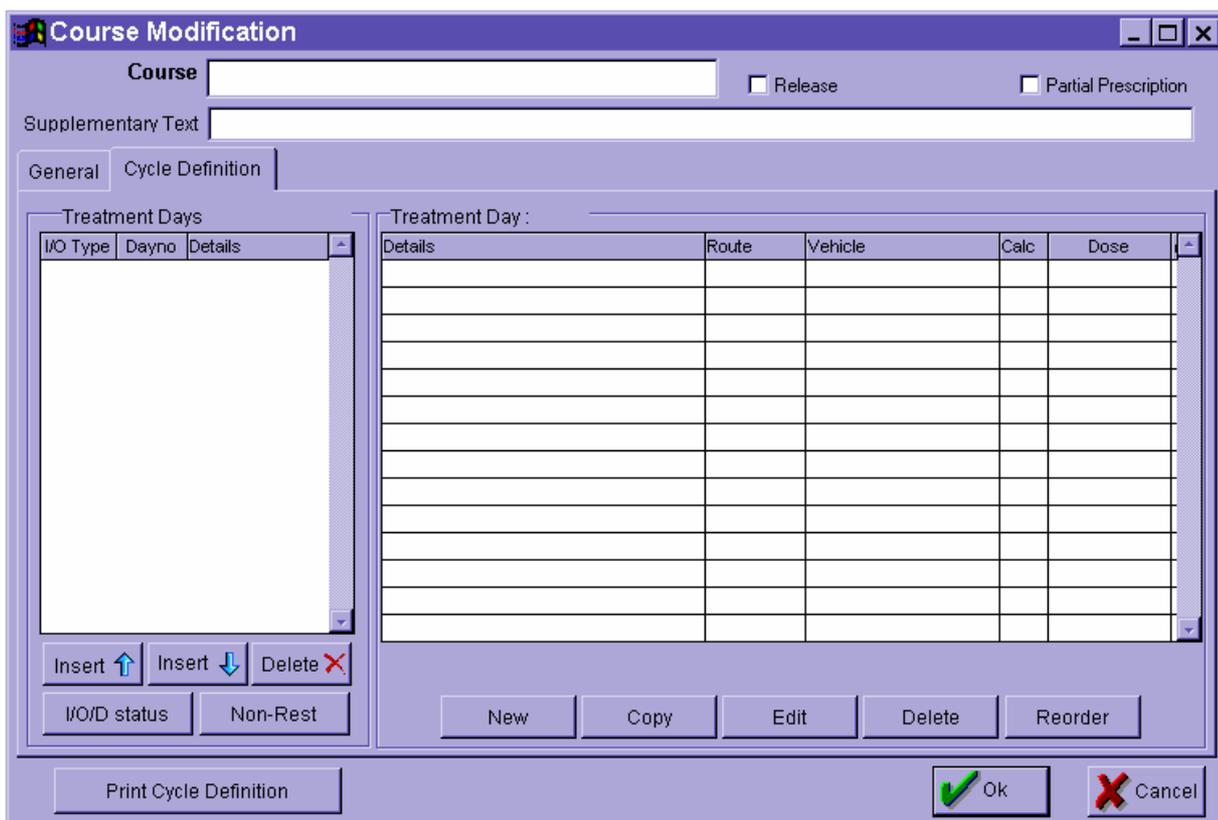
Depends on the chemotherapy being given, examples are therefore:

LUMENS="SINGLE LINE"  
 LUMENS=" DOUBLE LINE"  
 LUMENS="TRIPLE LUMEN"

**Speciality Setup:** choose whether the course is for Haematology, Oncology or Paediatric use (you can choose more than one option)

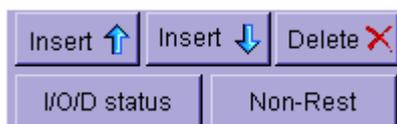
**Information to enter on the "Cycle Definition" tab**

- If you click on the 'Cycle Definition' tab, you will see the following screen:



This is the screen where you set up all of the days, drugs and critical tests

- Use these buttons to add, delete, view or change the status of days in the cycle definition:



**Insert:** pressing the 'Insert ↓' button will add treatment days to the cycle definition. Do this first and keep adding until you reach the total number of days required in the cycle, typically 21 or 28 days.

Then add a 'Review' to the last day of the treatment cycle (see below).

Pressing the 'Insert ↑' button allows the addition of negative days, e.g. for transplant conditioning regimens.

**Delete:** deletes a day if too many have been added or the course length needs shortening

**I/O/D status:** changes the status of a day

I = inpatient  
O = outpatient  
D = daycase  
X = location X

For each different status within a cycle, the prescriber will be asked to provide a treatment location (daycare, ward etc) when they allocate the treatment.

Location X days do not appear on the chemolist. The review day (last day of the cycle) and any days without chemotherapy (e.g. antiemetics, fluids only) should be set to location X.

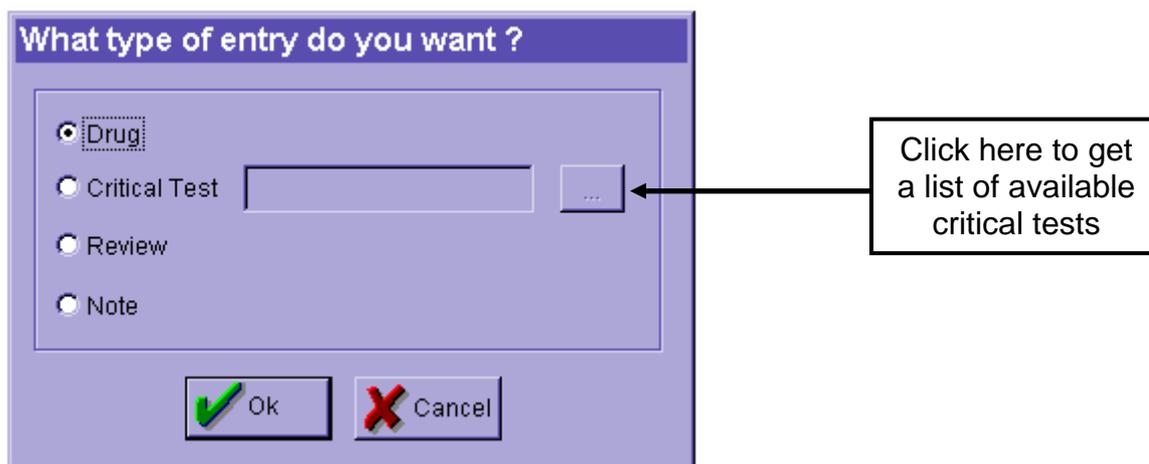
**Non-Rest:** clicking on this button allows you to either look at all treatment days ('**Show All**'), just those with drugs on ('**Drug Only**') or those days that aren't blank ('**Non-Rest**').

- Once you have added all the days you require, you can use these buttons to add critical tests and drugs to the individual days:



**'New':**

New Drugs, Critical Tests, a Review or Notes (comments that appear on the prescription attached to a particular dose of drug) may be added:



Adding a Review to the last day of the course set-up sets the cycle length and should be done first. The cycle length dictates when the next cycle starts if more than one is allocated at a time. For example, if the cycle length is set as 21 days the next cycle will start on day 22.

Once a Review has been added to the final day of the cycle (and its status changed to location X), then Drugs, Critical Tests and Notes may be added, starting on day 1.

**Critical Test:** when adding a Critical Test, clicking on the box (see above) shows you a list of all those available. Critical Tests added to the course definition will appear with every allocated cycle.

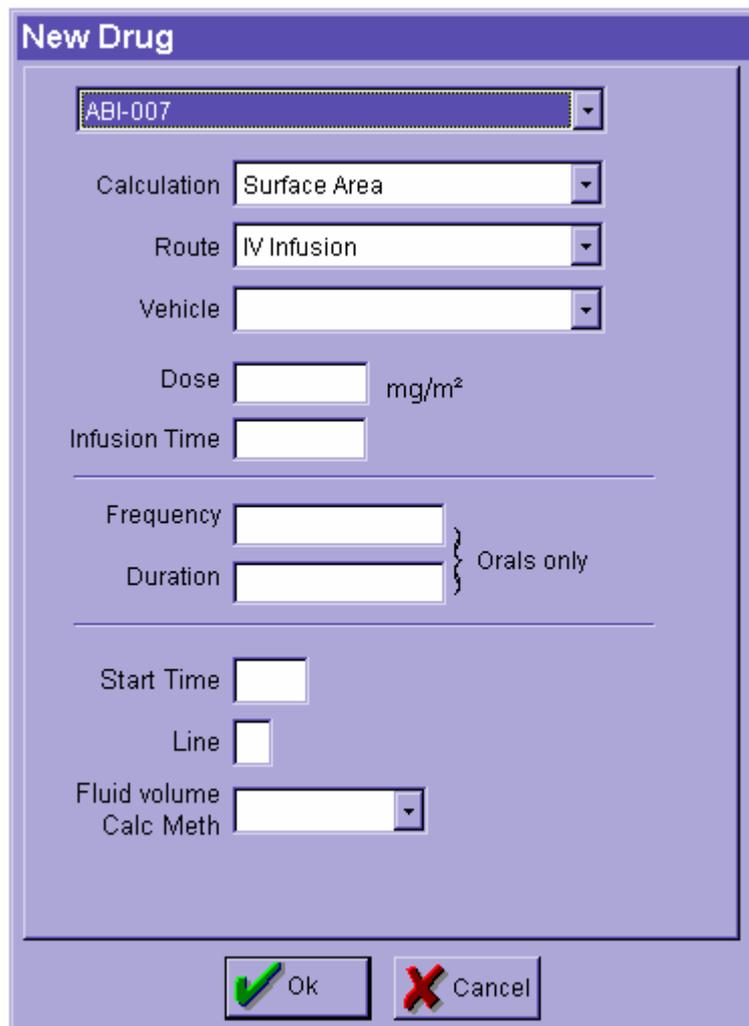
Clinical trial recommendations should be followed where appropriate.

If it is unclear from the name if a test is appropriate or not, the details can be checked in the Critical Tests set-up function. This is found in the 'Pharmacy Setup' from the drop-down 'Pharmacy' menu under 'Critical Tests'.

Here are displayed the 'Validity Period' (the number of days old that a result is allowed to be) and the upper and lower limits of the acceptable range for that result.

A new Critical Test may be required if there isn't one that exactly matches requirements.

**Drug:** when adding a new drug to a treatment day the following screen is displayed:



For most drugs it is not necessary to fill in all of these boxes.

The required drug should be chosen from the drop-down menu at the top.

For any box with a drop-down menu, the choices presented are filtered so they should be relevant to the drug being added.

If you the option you want is **not** on offer you may need to go to the drug set-up and make it available.

*Calculation:* how the drug dose is to be calculated.

Possible options are Surface Area, Weight, Flat, GFR and Age.

If Age is chosen as the method of calculation, this will also need to be set this up for this course in the 'Drug Formulary'.

*Route:* how the drug is to be administered.

If there are two apparently similar options, for example 'SC Bolus' and 'SUBCUT. BOLUS' it probably means that one of them is set-up to appear on the IV script (each dose on an individual line, no duration stated, nurses can sign to administer etc) and one is set-up to appear on the oral script (one line only, duration stated, nowhere for nurses to sign).

In this example, the latter is used for GCSF, where there is little demand for a separate line on the prescription for each dose.

*Vehicle:* only needs to be completed for infusions or vinca alkaloids.

The volume of vehicle is chosen further down (see below).

In some instances, there may be two apparently identical vehicles available.

For example: Saline 0.9% and \*Saline 0.9%.

The asterisk is the difference and means that this fluid will follow the small-bag set-up.

The small-bag set-up should **only** be chosen if you intend to set the volume of infusion fluid according to the surface area of the patient.

The main use is therefore for hydration in paediatric protocols, 3000ml/m<sup>2</sup>/day for example. In this instance the small-bag set-up will round the calculated dose to the nearest multiple of whole infusion bags to make administration convenient.

The small-bag set-up (how infusion volumes are rounded) can be viewed under 'Small Bag Infusions' in the 'Pharmacy Setup'. The set-up should not be altered.

*Dose:* to the right of this box is shown an indication of how the drug dose will be calculated. The required dose should be entered into the box. How this figure is then manipulated depends on what option is selected in the 'Calculation' box (see above):

'Calculation'	'Dose' (mg)	Example variable	Actual dose (mg)
Flat	100	-	100
Surface Area	100	1.75m <sup>2</sup>	175
Weight	100	70kg	7000
GFR	5	80ml/min	525
	6	80ml/min	630
Age	Depends on the Age banding set-up		

*Infusion Time:* only needs to be completed for infusions

All times should be entered in the format xxM, xxH or xxD.

So, 30M = thirty minutes, 02H = two hours and 04D = 4 days.

**Orals only:**

These boxes only need to be completed for drugs that will appear on the oral prescription chart (includes all oral drugs and GCSF).

*Frequency* and *duration* are both free type boxes, but you only have 10 characters in each field so abbreviations are usually required; TDS, QDS etc.

**Start Time:**

As for *Infusion Time* (see above), all times are in the format xxM, xxH or xxD.

*Line:* for complicated regimens with two or more drugs administered at the same time, different lumens may be allocated to different doses.

The convention at UCLH has been to use letters of the alphabet; lines A, B, C etc

*Fluid volume Calc Meth:* only needs to be completed for infusions.

The volume of infusion fluid (already chosen) in which the dose will be administered is entered here. The options include Fixed, Sa or Dose.

Fixed – a specified, fixed infusion volume (in the *Fluid volume* box that appears)

Sa – a specified infusion volume per  $m^2$  (in the *Fluid volume* box that appears); this is useful for hydration regimens, especially in paediatrics

Dose – ChemoCare® will choose a volume based on the patient's final drug dose. This is useful for drugs whose infusion volume is dictated by the drug concentration. Etoposide is probably the best example and choosing this option will automatically put doses greater than 200mg in 1000ml saline etc.

The suitability of an existing Dose set-up (or creation of a new one) can be checked under the in the 'Drug Formulary'.

**Adding an additive:**

Some drugs can be added to others, for example potassium and magnesium to infusion fluids or bags of cisplatin. Example of additive set up:

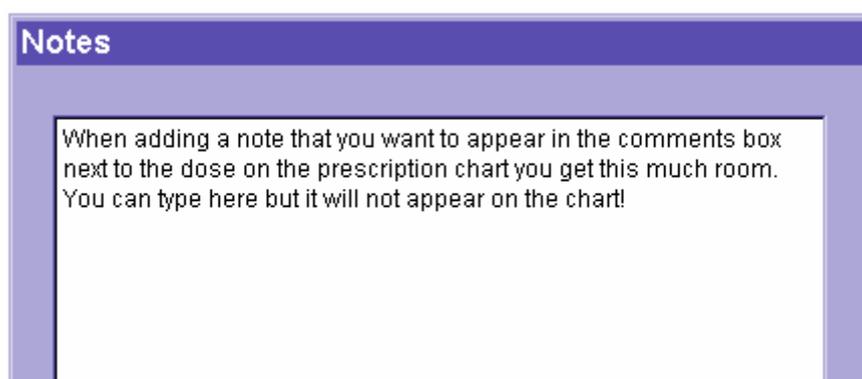
The screenshot shows a software interface for entering drug information. The title bar reads "New Drug". Below it, there is a dropdown menu containing "POTASSIUM CHLORIDE". Underneath are four rows of fields: "Calculation" with a dropdown set to "Unit/L", "Route" with a dropdown set to "IV Infusion", "Vehicle" with a dropdown set to "ADDITIVE", and "Dose" with a text box containing "20.00" and the unit "mmols/L" to its right. The final row is "Infusion Time" with an empty text box.

More than one drug/electrolyte can be added to another in this way.

**Review:** add to the last day of the cycle

**Note:** notes may be added that will appear next to a particular dose in the comments box on the prescription. The length of a comment is restricted, concision is recommended.

In general, when typing in the 'Notes' box, only get 2 lines worth of information will actually fit in to the box on the prescription:



### 'Reorder':

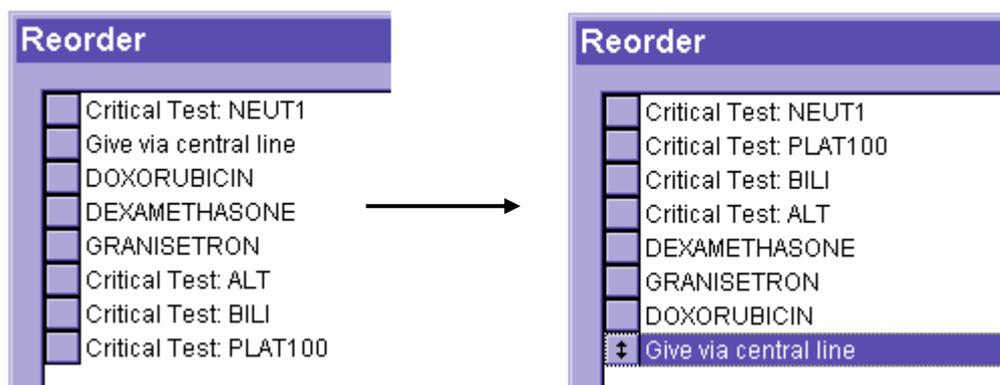
'Reorder' is an essential tool.

As drugs, fluids, notes and critical tests are added to the course set-up they will not necessarily appear in the desired order on the prescription chart.

Clicking on 'Reorder' allows all lines on a treatment day to be moved into the desired order.

Critical tests should be at the top, pre/post hydration and anti-emetics can be placed appropriately and any notes should be underneath the correct drugs.

Dragging the boxes to the left of the drugs etc up and down will move the lines until everything is the correct order:



### ‘Delete’:

Allows the deletion of a drug, critical test, note or review.

The target line should *always* be positively selected by left clicking on it before clicking on delete. Otherwise the top line may be deleted by default.

Critical tests and notes are deleted immediately.

When deleting a drug, the set-up details will first be shown; click OK to confirm the deletion.

Only one line may be deleted at a time in this way.

### ‘Edit’:

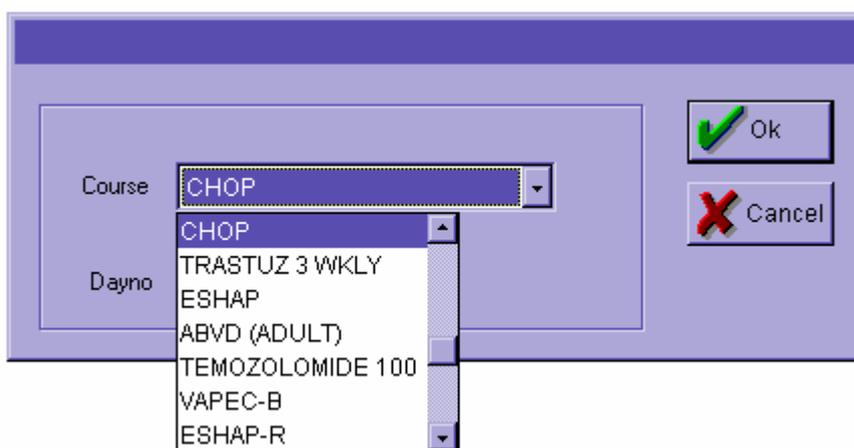
Allows a drug, critical test, note or review to be edited.

The target line should *always* be positively selected by left clicking on it before clicking on edit.

Otherwise the top line will be selected for editing by default.

### ‘Copy’:

This is a potentially time-saving device that allows a whole day of treatment to be copied, either from another course that is already set-up or from within the same course. Clicking on ‘Copy’ displays this box:



### Copying a day from a different course:

The drop-down menu lists **all** of the courses currently set up on ChemoCare®, listed in alphabetical order.

Typing in the first few letters of the course you are after will take you there.

You also need to choose the day of the course that you want to copy over.

### Copying a day from within the same course:

Follow the same procedure as above but note that ChemoCare® will not allow you to copy from another day within the same course unless the course has been saved since that day was set up.

For example: if days 2 to 5 are identical, set up day 2, save the course (by clicking on the Ok button). Re-enter the course and now you can go to days 3, 4 and 5 and copy day 2.

Any changes to a particular day's set-up must be saved before that day can be copied.

### **Testing/releasing the course set-up:**

A new course should always be tested by allocating it to a test patient and producing a prescription. This helps spot any obvious errors, missing drugs or fluids and ensures that additives or notes are all in the right places.

Two steps are involved in order to release a course:

- 1) Tick the 'Release' box on the Course Modification screen
- 2) Choose a diagnosis via the 'Indications Setup' box. A particular diagnosis is added by expanding the diagnosis tree. Add the Diagnosis to the 'Indications Setup' by highlighting it and clicking on Select.

NB When the completed and checked course is eventually released, each diagnosis that the course may potentially be allocated to must appear in this box.

If a course has been released for testing, it **must** be unreleased immediately after allocation to the test patient in order to prevent it being prescribed for a real patient.

### **Partial prescriptions**

The 'Partial Prescription' box must be ticked if there are critical tests on a day other than day one and the course is split up into segments.

The critical tests pre day 15 in ABVD are a good example.

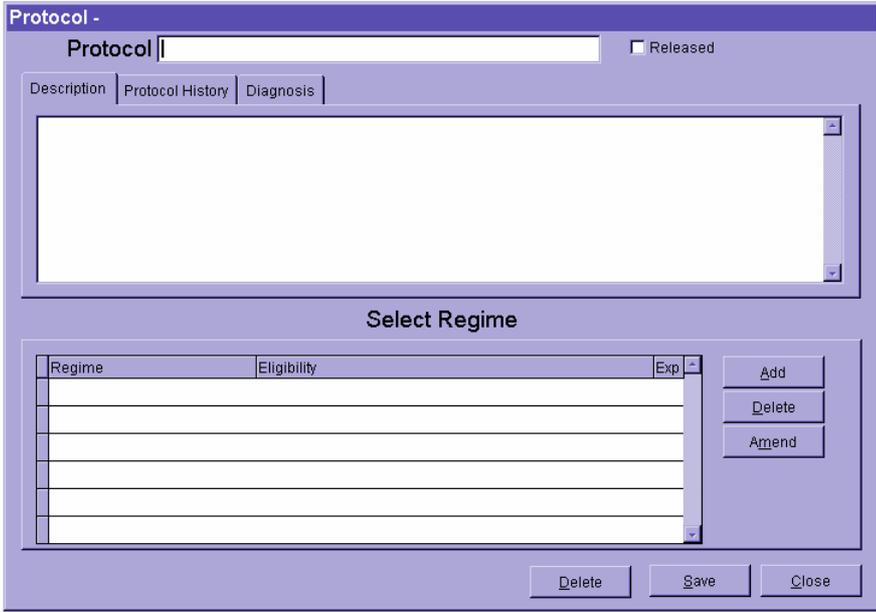
If the 'Partial Prescription' box is not ticked in this case, the prescriber will confirm/authorise a whole month of treatment at a time based on the critical test results on day 1 only; the critical tests on day 15 will be ignored.

## Appendix 2: protocol set-up in ChemoCare® version 4.5p

The protocol set-up involves bringing two or more courses together to form a whole treatment plan that will be followed by prescribers, via decision points.

It is especially useful for clinical trials and is less complicated than course set-up.

To set up a new protocol, choose 'Protocol setup' from the Pharmacy drop-down menu and click on Screen view. Clicking on 'New' will produce this screen:



Enter the name of the Protocol in the box at the top.  
The protocol name can be up to 30 characters in length.

There are three tabs at the top of the initial screen:

### **'Description':**

Anything typed in this box will be displayed when someone allocates the protocol to a patient. There is unlimited space but the most important information should be entered first.

When setting up a trial with several arms it is useful to put information here that may guide the prescriber to choose the correct arm.

For less complicated regimens, a brief summary of the chemotherapy along with details of cycle length and number of cycles (or maximum number of cycles) will suffice.

In addition this statement is included as standard for adult regimens across the NLCN, unless the protocol is for a clinical trial containing its own recommendations:

“For recommendations on dose modifications for patients with impaired renal or hepatic function refer to the following BOPA (British Oncology Pharmacy Association) guidelines or seek advice from a pharmacist:

Dosage Adjustment for Cytotoxics in Renal Impairment

Dosage Adjustment for Cytotoxics in Hepatic Impairment”

**‘Protocol History’:**

In this box is entered:

*For a clinical trial* - the name, date and version of the trial protocol

*For a non-trial regimen* – the original reference from which the regimen was taken

**‘Diagnosis’:**

Similar to the process of releasing a course, a particular diagnosis may be added by expanding the diagnosis tree.

NB When the completed and checked protocol is eventually released, each potential diagnosis that the protocol may need to be allocated to must appear in this box.

**Adding treatment arms to a protocol:**

Clicking the ‘Add’ button enables the addition of an arm to the protocol.

This enables the protocol to be built up from individual courses.

The number of arms required will depend on the protocol; whereas some trials may need 5 or 6 arms a simple regimen such as CHOP or CMF may only need one.

Clicking on Add gives you this screen:

**Protocol - ,New Regimen -**

Regimen Name  Eligibility

Description | Long Eligibility | Courses

Decision Point	Eligibility

Add  
 Delete  
 Amend  
 Stop  
 Copy  
 Paste  
 Save    Cancel

*Regimen Name:* this is the name of the arm. It should be named carefully such that it is easily distinguishable from any other arms that may need setting up.

*Description:* whatever is entered here will appear when clicking on the decision point at the **end** of this arm. It should therefore include any information that will guide prescribers at the end of the arm. For example, to help them choose the next treatment arm or assess whether the patient should continue treatment.

*Eligibility:* this will appear next to the arm name when the prescriber is allocating treatment. It should act as a guide that will help people to choose (eg “Randomised to receive gemtuzumab”).

NB space is restricted in this field as well.

*Long eligibility:* this field may be left blank.

*Courses:* clicking on this button allows the addition of courses to the arm of the protocol. When the protocol is allocated a decision point will appear after the last course in the arm. For example, if patients need reviewing after two courses before continuing treatment, there should be two courses in the first arm.

For a clinical trial the arm should stop when a randomisation is reached

The buttons on the right of this screen allow the addition of further arms (they will appear at the decision point that appears **AFTER** this arm).

They may also be deleted or amended.

You can specify eligibility for each subsequent arm that is added.

Make sure you save any changes and test the protocol by allocating it to a test patient.

### **Testing/releasing the protocol set-up:**

A new protocol should always be tested by allocating it to a test patient.

This helps spot any errors such as missing courses or decisions points in the wrong place.

Two steps are involved in order to release a protocol:

- 1) Tick the ‘Release’ box on the Protocol set-up screen
- 2) Add a diagnosis via the ‘Diagnosis’ tab. A particular diagnosis is added by expanding the diagnosis tree. Add the Diagnosis by highlighting it and clicking on ‘Select’.

NB When the completed and checked protocol is eventually released each diagnosis that the protocol may potentially be allocated to must appear in this box.

If a protocol has been released for testing, it **must** be unreleased immediately after allocation to the test patient in order to prevent it being prescribed for a real patient.