



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



NCIS Training Guide

Pharmacist Verification

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Background

All medications that are to be prepared or dispensed in NCIS.Med require pharmacist verification.

Pharmacist verification can be seen as analogous to the clinical check of a SACT prescription by a pharmacist. As NCIS is an end-to-end system that includes prescribing, preparation/dispensing and administration there is no requirement to generate a separate worksheet and labels in a separate pharmacy system. For this reason Pharmacist Verification may also be seen as analogous to the worksheet generation step as the appropriate product is chosen and dose rounded as required.

This guide explains the Pharmacist verification process as well as indicating where recommended information for screening is visible.

Pharmacist Verifying a Medication

Main medications (indicated by the yellow bar and bold text) require pharmacist verification before they can be prepared or dispensed. Medications must be physician verified before they can be pharmacist verified. The Cisplatin in figure 1 below is ready to be pharmacist verified.

The screenshot displays a medication administration chart for 'Cycle 1 Cisplatin 1 Day' on Wednesday, 04 Sep 2019. The chart includes a timeline from 07:35 to 10:00. Medications listed are Ondansetron Solution for injection/infusion 8mg, Dexamethasone Solution for injection/infusion 12mg (1 x 8mg + 1 x 4mg), OLANzapine Tablet 10mg, and Cisplatin 84.42mg (40mg/m² BSA Dubois) in 1000mL NaCl 0.9% by intravenous infusion. The Cisplatin entry is highlighted with a yellow bar and bold text, indicating it is ready for pharmacist verification. The chart also shows administration instructions and renal impairment criteria.

Time	Medication	Status
07:35	Ondansetron Solution for injection/infusion 8mg • Division: 1 x 8mg by intravenous injection	PHYSICIAN-VERIFIED
07:40	Dexamethasone Solution for injection/infusion 12mg • Division: 1 x 8mg + 1 x 4mg by intravenous injection	PHYSICIAN-VERIFIED
07:45	OLANzapine Tablet 10mg • Tabs: 1 x 10mg PO	PHYSICIAN-VERIFIED
08:00	Cisplatin 84.42mg (40mg/m² BSA Dubois) in 1000mL NaCl 0.9% • by intravenous infusion	PHYSICIAN-VERIFIED
10:00	1000mL NaCl 0.9% by intravenous infusion	PHYSICIAN-VERIFIED

Figure 1 - Medication for Pharmacist Verification

Click on the Status Arrow of the medication and select PHARMACIST-VERIFIED (figure 2)

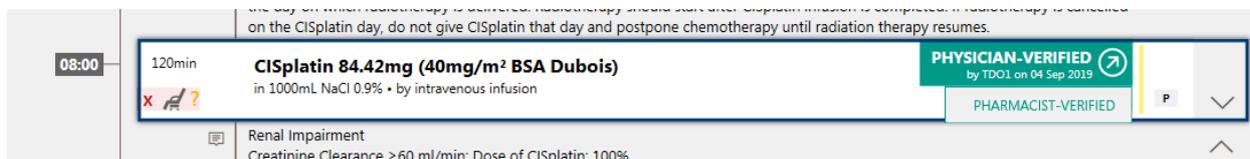


Figure 2 Click PHARMACIST-VERIFIED

You will be asked to define the product you wish to use (this can be changed later if required). Where there is a preferred product for the Preparation Site (pharmacy) this will appear first in the list as shown in figure 3. If there is no preferred product or if you wish to change the product select the desired product from the drop down list (figure 4). Note that for products that for dose banded products that are to be dispensed (i.e. not prepared in an aseptic unit) it is necessary to choose a product at this point and change to the dose banded product in the pharmacist verification screen.

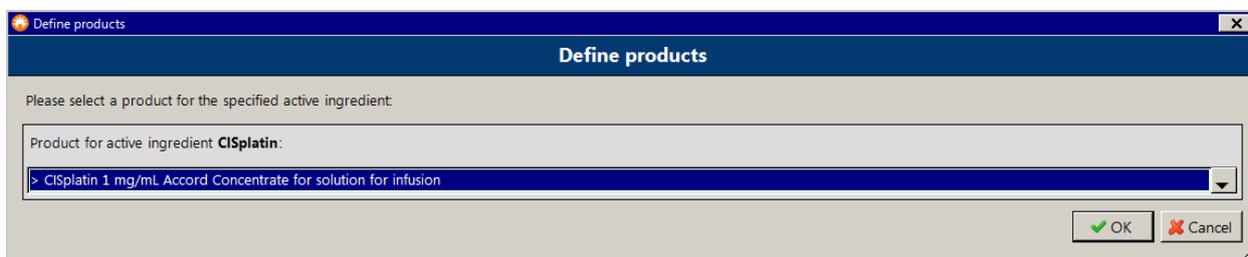


Figure 3 - Define Products with preferred product visible

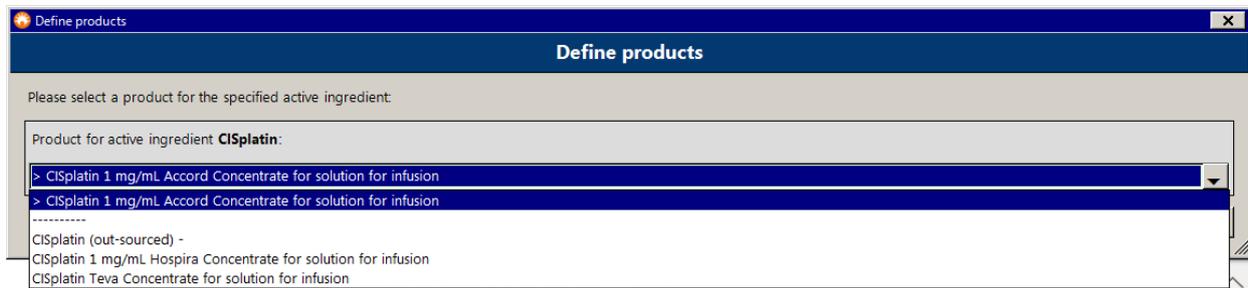


Figure 4 - Define Products with all available products visible, note the preferred product is preceded by > symbol

Decision support rules will now appear if applicable – please refer to the NCIS Decision Support Training Guide for details about which rules are applied at this point.

The “Long-form” Pharmacist verification window appears (figure 5). It is now possible for the pharmacist to choose a more appropriate dose for preparation or dispensing (if that is the agreed local workflow), adjust the fluid volume or type to another compatible fluid and deviate the stability (refer to the NCIS Reference Guide how NCIS Manages Stabilities for more information)

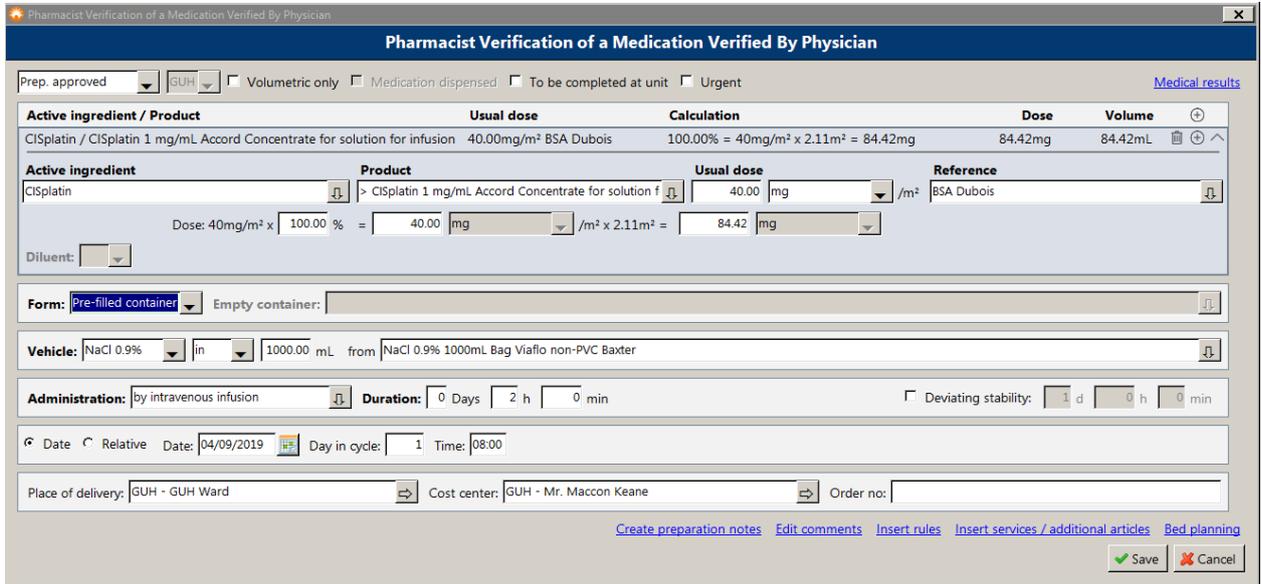


Figure 5 - Long Form Pharmacist Verification Window

Figure 6 below shows the above medication with the dose rounded to 84mg and the fluid changed to 500ml.

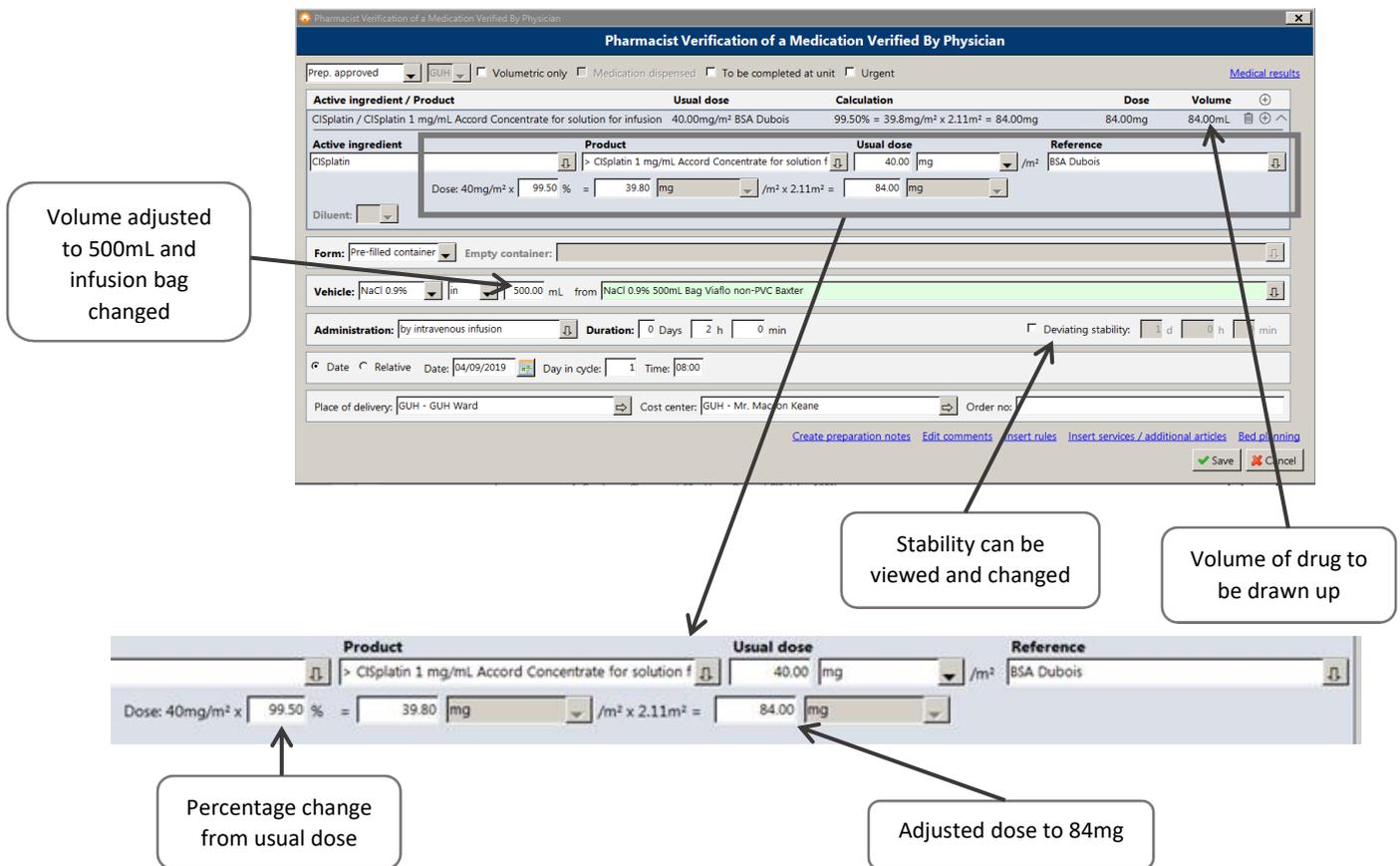
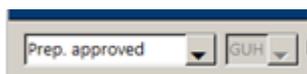


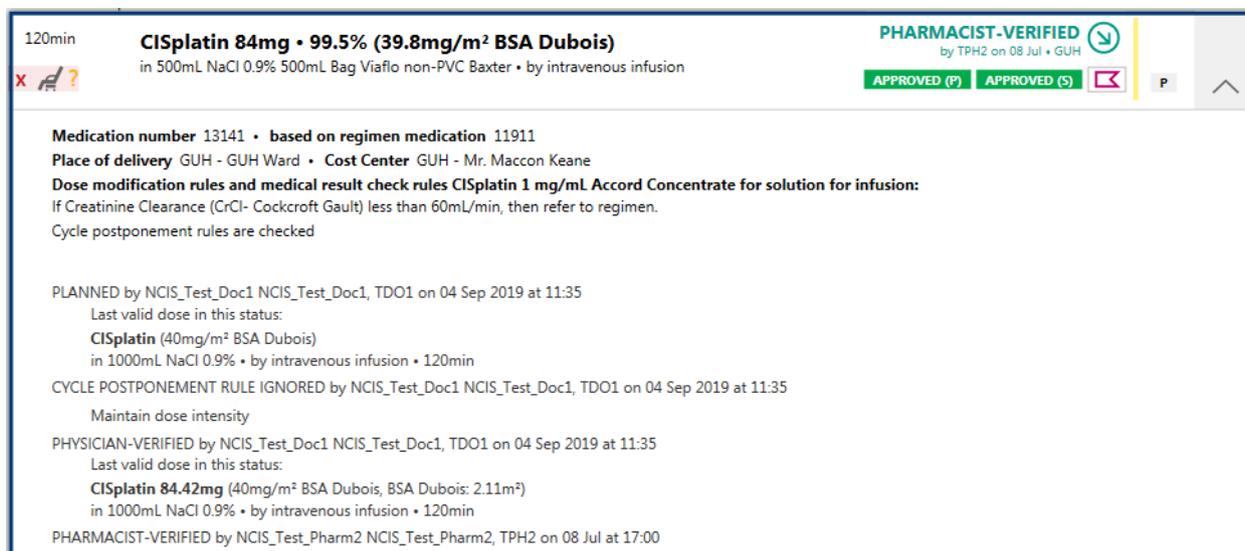
Figure 6 - Long form verification window with adjustments



Depending on the type of medication it is also possible to which process the medication is approved for (note the medication is approved in the users assigned Prep Site):

- Not approved: The medication is only verified by the pharmacist. It is not possible to create a parts list in Set up preparation. **DO NOT SELECT THIS OPTION AS THE MEDICATION WILL NOT BE ASSIGNED AN APPROPRIATE PREPARATION SITE**
- Only set up preparation: The medication is confirmed by the pharmacist and it is possible to create a parts list in Set up preparation. However complete preparation of the medication is prevented.
- Preparation approved: Medication is released for preparation and can be edited further in set up preparation (this is the default setting for medications which are configured to be prepared).
- Dispense medication: Medication is released for dispensing and can be dispensed in the Dispense Products screen (this is the default setting for medications which are configured to be dispensed e.g. oral products, dose banded products)

Figure 7 now shows the medication with the PHARMACIST-VERIFIED status set. It is important to note that the main text in the medication box refers to the medications current status - in this case Cisplatin 84mg in 500mL NaCl which is 99.5% of the planned dose in PHARMACIST-VERIFIED status. By clicking the arrow at the right of the medication it is possible to see the history of the medication at all statuses – as can be seen the medication was PHYSICIAN-VERIFIED at 84.42mg in 1000mL NaCl and was changed by NCIS_Test_pharm2 during Pharmacist verification.



120min **Cisplatin 84mg • 99.5% (39.8mg/m² BSA Dubois)** PHARMACIST-VERIFIED
in 500mL NaCl 0.9% 500mL Bag Viaflo non-PVC Baxter • by intravenous infusion by TPH2 on 08 Jul • GUH

APPROVED (P) APPROVED (S)

Medication number 13141 • based on regimen medication 11911
Place of delivery GUH - GUH Ward • Cost Center GUH - Mr. Maccon Keane
Dose modification rules and medical result check rules Cisplatin 1 mg/mL Accord Concentrate for solution for infusion:
If Creatinine Clearance (CrCl- Cockcroft Gault) less than 60mL/min, then refer to regimen.
Cycle postponement rules are checked

PLANNED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35
Last valid dose in this status:
Cisplatin (40mg/m² BSA Dubois)
in 1000mL NaCl 0.9% • by intravenous infusion • 120min

CYCLE POSTPONEMENT RULE IGNORED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35
Maintain dose intensity

PHYSICIAN-VERIFIED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35
Last valid dose in this status:
Cisplatin 84.42mg (40mg/m² BSA Dubois, BSA Dubois: 2.11m²)
in 1000mL NaCl 0.9% • by intravenous infusion • 120min

PHARMACIST-VERIFIED by NCIS_Test_Pharm2 NCIS_Test_Pharm2, TPH2 on 08 Jul at 17:00

Figure 7 - Medication Detail View

Pharmacist Clinical Verification of a Medication

Recommendation 59 of the NCCP Oncology Medication Safety Review (2014) is that chemotherapy prescriptions should be checked by a pharmacist, who has demonstrated their appropriate competence and is locally authorised/accredited for the task. The report also lists the recommended minimum pharmacist checks to be undertaken, this section of the guide lists those checks and indicates where the information can be obtained in NCIS.

Note – *this document is intended as a guide only to indicate where pertinent information may be available. Local workflows in conjunction with policies and procedures should be in place to ensure a robust checking process for SACT. As with any electronic system there are multiple ways to achieve this and this document is not intended to be prescriptive.*

Checking Item	Location in NCIS
1. Has the drug or regimen been prescribed in line with legislation and local prescribing policy?	
a. Check the prescriber details and signature are present and confirm they are authorised to prescribe cancer medicines as appropriate	Therapy Plan Detail (fig 8) - Created by (user who planned regimen) - Cost Center (primary consultant) Cycle Details (fig 10) Medication Details (fig 11) - User who Physician Verified each medication
b. Check that the prescription is clear, legible, and unambiguous and includes all details required for dispensing, labelling and administration	Therapy Plan Detail (fig 8) Regimen Overview (fig 9) Cycle Details (fig 10) Medication Details (fig 11)
2. Check the prescription against the protocol and treatment plan:	
a. Ensure that the regimen has local approval e.g. clinical governance and financial approval and/or is included on a list of locally approved regimens	Therapy Plan Detail (fig 8) - Regimen designation at creation time (regimen used to create patients plan)
b. Where there is access to either clinical notes, treatment plan or electronic record, on first cycle check the regimen is the intended treatment and is appropriate for patient’s diagnosis, medical history, performance status and chemotherapy history.	Therapy Plan Detail (fig 8) - Diagnoses (diagnosis from Therapy Form in NCIS.Chart) NCIS.Chart - This information may be populated in NCIS.Chart depending on local workflows.
3. Check patient details:	
a. Check patient demographics (age, height and weight) have been correctly recorded on prescription, as appropriate	Patient Data Tab (fig 13) Patient Info Banner (fig 13) Medical Results Tab (fig 14) - Hover over medical results for details -

Checking Item	Location in NCIS
4. Check administration details. This will include the following as appropriate/ relevant	
a. Checking there are no known drug interactions (including with food) or conflicts with patient allergies and other medication(s), where patient's existing medication history is available	Allergies - Patient Data Tab (fig 13) - Allergies to medications in the NCIS drug file can be recorded in NCIS.Med Interactions - NCIS.Chart - Regular medication may be populated in NCIS.Chart depending on local workflow. Note: There is no interaction checker in NCIS.
b. Checking the timing of administration is appropriate, i.e. interval since last treatment and/or start and stop dates for oral chemotherapy	Regimen Overview (fig 9) Cycle Details (fig 10)
c. Checking appropriate supportive care is prescribed	Cycle Details (fig 10) Medication Details (fig 11)
d. Checking method of administration is appropriate.	Cycle Details (fig 10) Medication Details (fig 11)
5. Check Calculations:	
a. Check all dose calculations and dose units are correct and have been calculated correctly according to the protocol and any other relevant local guidance, e.g. dose rounding / banding as appropriate. There should be a general maximum dose variation agreed locally and ideally this should be less than 5% (in circumstances where a variation of 5% is not a measurable dose, an agreed dose variation of 10% could be considered). If there is an agreed dose variation policy locally, any protocols where dose variation is prohibited must have this information explicitly detailed in that protocol.	Cycle Details (fig 10) Medication Details (fig 11) Pharmacist Verification Screen (fig 12) - Percentage deviation is change from the usual dose.
b. Check prescribed dose is in line with previous dose reductions	Cycle Details View (fig 10) - Easily move between cycles using the arrows in the top right of the screen  - If the dose differs by >5% from previous cycles a warning message will be presented when clicking Save in the Pharmacist Verification Screen
c. Check BSA is correctly calculated if needed for dose calculation. There should be local agreement for frequency of monitoring and checking patient's weight	Medical Results Tab (fig 14) - Hover over medical results for details
d. Check cumulative dose and maximum individual dose as appropriate	Cumulative Dose Tab (fig 15)
6. Check Laboratory Results as appropriate	

Checking Item	Location in NCIS
a. Check laboratory values - FBC, U&E's and LFT's are within accepted limits, if appropriate	Medical Results Tab (fig 14) - Where a laboratory interface has been implemented at your site 8 medical results will populate here (see NCIS Guide for Medical Results) - Hover over medical results for details
b. Check doses are appropriate with respect to renal and hepatic function and any experienced toxicities	Cycle Details View (fig 10) - Post medication comments list relevant dose reductions from NCCP National Regimens
c. Check other essential tests have been undertaken, if appropriate	NCIS.Chart - This information may be populated in NCIS.Chart depending on local workflow Regimen Overview (fig 9) - Pre regimen comments list baseline and regular tests required from NCCP National Regimens
7. For cyclical chemotherapy, no more than one cycle of medication will be issued at a time.	Achievable by Physician Verification of individual cycles
8. Sign and date prescription as a record of verification and/or issue of cancer medicines as appropriate.	Pharmacist Verification Screen (fig 12) - Clicking Save applies the PHARMACIST VERIFIED status to the medication

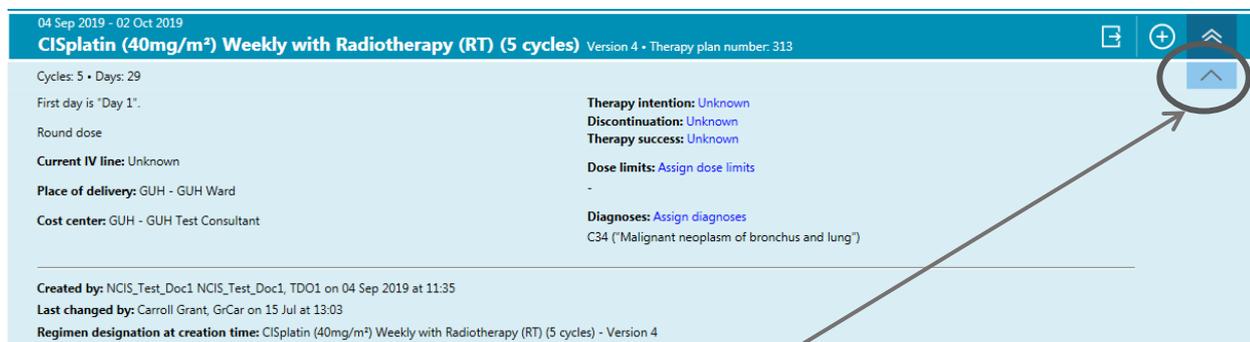


Figure 8 – Therapy Plan Details Tab – Click small blue arrow to display

04 Sep 2019 - 02 Oct 2019
Cisplatin (40mg/m²) Weekly with Radiotherapy (RT) (5 cycles) Version 4 • Therapy plan number: 313

Cycles: 5 • Days: 29

REIMBURSEMENT STATUS:

- 04 Sep 2019 - 04 Sep 2019
Cycle 1 Cisplatin 1 Day
Distance: 7 days after Cycle 1 Cisplatin
- 11 Sep 2019 - 11 Sep 2019
Cycle 2 Cisplatin 1 Day
Distance: 7 days after Cycle 2 Cisplatin
- 18 Sep 2019 - 18 Sep 2019
Cycle 3 Cisplatin 1 Day
Distance: 7 days after Cycle 3 Cisplatin
- 25 Sep 2019 - 25 Sep 2019
Cycle 4 Cisplatin 1 Day
Distance: 7 days after Cycle 4 Cisplatin
- 02 Oct 2019 - 02 Oct 2019
Cycle 5 Cisplatin 1 Day

Figure 9 - Regimen Overview – Click blue double arrow to display

04 Sep 2019 - 04 Sep 2019
Cycle 1 Cisplatin 1 Day

Cycle postponement rules: If NEUT less than 1x10(9)/L, then postponement by 7 days • If PLT less than 100x10(9)/L, then postponement by 7 days

Time	Medication/Treatment	Status
07:30	5min Aprepitant Capsule 125mg • Caps: 1 x 125mg PO	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019
07:35	5min Ondansetron Solution for injection/infusion 8mg • Division: 1 x 8mg by intravenous injection	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019
07:40	5min Dexamethasone Solution for injection/infusion 12mg • Division: 1 x 8mg + 1 x 4mg by intravenous injection	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019
07:45	5min OLANzapine Tablet 10mg • Tabs: 1 x 10mg PO	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019
08:00	120min Cisplatin 84.42mg (40mg/m² BSA Dubois) in 1000mL NaCl 0.9% • by intravenous infusion	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019
10:00	60min 1000mL NaCl 0.9% by intravenous infusion	PHYSICIAN-VERIFIED by TDO1 on 04 Sep 2019

Figure 80 - Cycle Details View – Click brown double arrow to display

120min **CISplatin 84.42mg (40mg/m² BSA Dubois)**
 in 1000mL NaCl 0.9% • by intravenous infusion

PHYSICIAN-VERIFIED
 by TDO1 on 04 Sep 2019

Medication number 13141 • based on regimen medication 11911
 Place of delivery GUH - GUH Ward • Cost Center GUH - Mr. Maccon Keane
 Dose modification rules and medical result check rules :
 If Creatinine Clearance (CrCl- Cockcroft Gault) between 45mL/min and 60mL/min, then modify to 75%. •
 If Creatinine Clearance (CrCl- Cockcroft Gault) less than 45mL/min, then modify to 0%. •
 If Creatinine Clearance (CrCl- Cockcroft Gault) less than 60mL/min, then refer to regimen.
 Cycle postponement rules are checked

PLANNED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35
 Last valid dose in this status:
CISplatin (40mg/m² BSA Dubois)
 in 1000mL NaCl 0.9% • by intravenous infusion • 120min
 CYCLE POSTPONEMENT RULE IGNORED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35
 Maintain dose intensity
 PHYSICIAN-VERIFIED by NCIS_Test_Doc1 NCIS_Test_Doc1, TDO1 on 04 Sep 2019 at 11:35

Figure 11 - Medication Details View – Click grey arrow to display

Pharmacist Verification of a Medication Verified By Physician

Prep. approved Volumetric only Medication dispensed To be completed at unit Urgent

Active ingredient / Product	Usual dose	Calculation	Dose	Volume
CISplatin / CISplatin 1 mg/mL Accord Concentrate for solution for infusion	40.00mg/m ² BSA Dubois	100.00% = 40mg/m ² x 2.11m ² = 84.42mg	84.42mg	84.42mL

Active ingredient: CISplatin
 Product: CISplatin 1 mg/mL Accord Concentrate for solution for infusion
 Usual dose: 40.00 mg /m² BSA Dubois
 Calculation: Dose: 40mg/m² x 100.00 % = 40.00 mg /m² x 2.11m² = 84.42 mg

Vehicle: NaCl 0.9% in 1000.00 mL from NaCl 0.9% 1000mL Bag Viaflo non-PVC Baxter
 Administration: by intravenous infusion Duration: 0 Days 2 h 0 min
 Date: 04/09/2019 Day in cycle: 1 Time: 08:00
 Place of delivery: GUH - GUH Ward Cost center: GUH - Mr. Maccon Keane

Figure 9 - Pharmacist Verification Screen

Mr. EURO JOHN • d.o.b. 15 Aug 1976 43.9 Years • Patient no.: GM1234583 • GUH - GUH Ward

Sorting: Name Soc. Sec. # Pat. #

Gender: Male Title: Barcode: GM1234583
 Last name: EURO Soc.Sec.:
 First name: JOHN Patient no.: 12638000004
 Maiden name: Local patient ID: GM1234583
 D.o.b.: 15/08/1976 Deceased on: Blocked

Unit assignment Active ingredient:
 Cumul. doses List of drug allergies New Edit Delete
 Drug allergies Active ingredient
 Case assignment PACLitaxel
 Address
 Comments
 Warnings
 IV line
 Local patient IDs

Figure 10 - Patient Data Tab showing Drug Allergies and Patient Info Banner (patient info banner visible at all times)

Today			Therapies	Compact	Complete	Patient data	Medical results	Diagnoses	Cumul. doses
Period: One month (from 15/06/2020 to 15/07/2020) Medical result group: General results <input type="checkbox"/> Display canceled values									
	Current								
Height	185cm	New							
Weight	87kg	New							
BSA Dubois	2.11m ²								
BSA Mosteller	2.11m ²								

Figure 11 - Medical Results Tab

Today			Therapies	Compact	Complete	Patient data	Medical results	Diagnoses	Cumul. doses
Calculate the following active ingredients									
<input type="radio"/> All <input checked="" type="radio"/> Only with maximum dose <input type="radio"/> Only for active ingredient:									
Calculate the following medications									
<input type="checkbox"/> Physician-verified <input type="checkbox"/> Pharmacist-verified <input type="checkbox"/> Prepared/dispensed <input checked="" type="checkbox"/> Administered <input checked="" type="checkbox"/> Administered externally									
Therapy plan date: Until today (from to 15/07/2020) Calculate									
Active ingredient	First administration	Maximum dose	Reached relative	Reached absolute	%				
DOXOrubicin	13/03/2020			294mg					
DOXOrubicin	13/03/2020	450mg/m ² = 843.45mg	156.86mg/m ²	294.01mg	34.9%				

Figure 12 - Cumulative Dose Tab