should have been performed in patients prior to dronedarone treat-
ment (GROUP A), those who started the treatment before the alert
(group B), and finally patients who discontinued this semester
(GROUP C). In group B patients we checked whether the ongoing
controls specified in the alert had been done. Similarly, in Group A
patients we checked whether the start of treatment controls had
been done (renal and hepatic function before and the week of the
start of treatment). Serum creatinine concentration was considered
valid as a cheque of renal function; transaminase levels were suit-
able for the liver function test. Selene (clinical history management
software) and Agora Plus (primary integrated medical record-
hospitalisation management software) were used to retrieve the
serum concentrations.

Results We examined 72 clinical histories. Group A contained
17 patients. Only 5% had liver and kidney function tests as required
by the Competent Authority. In group B (48 patients), 31.2% had
none of the controls required. Only 6.2% of patients had a creat-
nine cheque. Only 4.1% of patients had a liver function cheque. In
Group C with 7 patients (two deaths), 71.4% had no analytical con-
trols of any kind, and in only 14.2% were renal function tests
performed.

Conclusions The degree of compliance with tests required by the
Health Authority in patients taking dronedarone is very low. It
seems necessary to review and improve the system of drug alerts to
physicians, and the pharmaceutical care of patients seen in primary
healthcare. Computer systems such as the Agora Plus that integrate
primary and hospitalisation data are critical for this type of moni-
toring.

No conflict of interest.

Conclusions This study describes the most frequent CPOE prob-
lems. Communication and collaboration with physicians and nurses
are the key to reducing avoidable adverse drug events and to safe-
guarding CPOE.

No conflict of interest.

### MOST FREQUENT DRUG-RELATED EVENTS DETECTED BY PHARMACOLOGICAL ANALYSIS OF COMPUTERIZED PHYSICIAN ORDER ENTRY AND PROPOSED SOLUTIONS

**Background**

In 2012, Toulouse University hospital implemented a Computerized Physician Order Entry (CPOE) system in two digest-
tive surgery departments (41 inpatient beds). Clinical pharmacists
in the wards contribute to safeguarding the medication process by
reviewing prescriptions.

**Purpose**

To highlight recurrent and avoidable drug-related prob-
lems identified by pharmaceutical analysis of CPOE and to raise
physicians’ awareness regarding these prescription problems.

**Materials and Methods**

From April to July 2012, Pharmaceutical Interventions (PIs) concerning prescription problems were recorded in
the CPOE according to the codification defined by the working
group of the French Society of Clinical Pharmacy. We extracted
the following data from the CPOE: drugs, type of problems and PIs. We
identified the main prescription problems and drugs involved. After
data analysis, preventive measures were submitted to the
physicians.

**Results**

2596 prescriptions were analysed and 450 Pharmaceutical Interventions (PIs) were accepted by physicians (18.5%). Main pre-
scription problems concerned analgesics (52 PIs made): inappropri-
ate administration and dosage errors; heparins (31 PIs): dosage
errors; antiemetics (24 PIs): dosage errors and drug-drug interac-
tions; antibiotics (16 PIs): inappropriate prescription. To prevent
these problems, a multi-disciplinary group was set up with physi-
cians, nurses and pharmacists. This group has reviewed standardised
order sets and has developed a pocket guide to help new residents
while prescribing.

**Background**

A communications system was designed after notification of two errors in two months, in intrathecal and intraventricular chemotherapy in paediatric oncohaematology: prescribing by protocol, consultation sheet standardised and computerised; transcription using the Farmis integrated system
for chemotherapy and preparation centralised in the pharmacy
after standardisation, and administration with a double cheque.

Functions were established and detailed in each process to all
groups involved.

**Purpose**

To conduct a retrospective observational descriptive
study to check compliance with the intrathecal and intraventricu-
lar rules at each level: prescription, transcription, preparation, distrib-
ution and administration and to analyse any change in the errors
made with intrathecal and intraventricular chemotherapy before
and after the new system was implemented.

**Materials and Methods**

Each of the processes in the system was tracked, during the year after the intervention – July 2011. Prescrip-
tions were analysed through electronic medical records, Farmis,
nursing and pharmacy records.

Medicines error reporting to the Safety Commission was
monitored during the year after the implementation. The error rate
was determined by comparing the two months prior to the
intervention.

**Results**

167 prescriptions were checked, 153 intrathecals and 34 intraventriculars. The professionals involved were monitored
100% in all processes, except the administration checklist by neuro-
surgeons, which was only 62.5% checked. The error rate reported by
number of prescriptions went from 0.14 in the previous two months
to 0.006 in the year after intervention.

**Conclusions**

There has been high system monitoring by all profes-
sionals involved. The number of medicines errors became lower in the
post-intervention period. Thus, centralization and standardisa-
tion of intrathecal and intraventricular chemotherapy has helped
increase patient safety.

No conflict of interest.

### MULTIDISCIPLINARY MONITORING OF PSYCHIATRIC MORBIDITY OF HCV-INFECTED PATIENTS TREATED WITH INTERFERON AND RIBAVIRIN

**Background**

Treatment of hepatitis C virus (HCV) infection with pegylated interferon and ribavirin may induce psychiatric disorders,
which may result in poor adherence and response to antiviral
treatment.

**Conclusions**

This study describes the most frequent CPOE prob-
lems. Communication and collaboration with physicians and nurses
are the key to reducing avoidable adverse drug events and to safe-
guarding CPOE.

No conflict of interest.
Purpose We aimed to describe the incidence of neuropsychiatric disorders in a cohort of HCV-infected patients treated with interferon and ribavirin, and their impact on treatment adherence and viral response rate (SVR).

Materials and Methods Data from a cohort of HCV patients who visited an outpatient pharmacy service (OPS) included all adult patients mono-infected with HCV who had completed treatment in 2010. Monitoring of neuropsychiatric disorders was assessed at weeks 0, 4, 12, 24, 48, and 72 through self-administered questionnaires Hospital Anxiety and Depression Scale (HADS) and General Health Questionnaire (Goldberg). Adherence to treatment was assessed by counting drugs dispensed and patient reporting. Virological response was determined by the physician according to standard criteria.

Results Of the 76 patients included, 19 (25%) had a pre-existing psychiatric disorder, mostly depression and anxiety. The incidence of medically-confirmed neuropsychiatric disorders was 35% (n = 25), with a peak of abnormal results in the tests in week 12. Patients with and without pathological scores did not differ in baseline characteristics, except for pre-existing psychiatric disorder (60.0% vs. 7.8%, respectively (p < 0.001). Antidepressants and/or anxiolytics were prescribed to 48% of patients with medically confirmed disorders (n = 12). Overall, 45% of patients achieved an SVR. Strict adherence (96% vs. 90%; p = NS) and SVR (59% vs. 52%; p = NS) were similar in patients with or without medically confirmed disorders.

Conclusions Patients often develop neuropsychiatric disorders during interferon therapy. Neuropsychiatric side effects had a non-significant effect on adherence to treatment and attainment of SVR. Multidisciplinary monitoring provided during the treatment of hepatitis C can contribute to early detection and management of neuropsychiatric disorders and to improve integrated patient care.

No conflict of interest.

Background Non-formulary drugs are prone to cause medication errors due to their less common use in the daily routine on the ward. Therefore non-formulary drug (NFD) management in the hospital pharmacy includes checking the dose and indication which is usually very time-consuming. In 2010 the drug information centre had to deal with 12,903 prescriptions for NFDs.

Purpose Loss of relevant drug information at the interface between pharmacy and ward has been observed in some cases. Therefore a survey was performed to detect information gaps. Did the pharmacist’s recommendation reach the medical staff?

Materials and Methods During a period of four weeks all NFD prescriptions were documented concerning the type of medicine. If a treatment-relevant intervention (e.g. dose correction) was made the trainee pharmacist visited the ward to clarify if the pharmacist’s advice was received. In addition the medical staff were interviewed about the general procedure of information transfer within the ward staff.

Results 1158 NFDs were ordered. Out of these 261 required extensive action with pharmacist intervention. 256 interventions were accepted on the ward and only 5 were rejected. In only one case out of these the pharmacist’s information had to be resupplied to the ward as it had not reached the staff. The survey showed a very high acceptance (98.1%) of the drug information provided. 83 drugs within the ATC Code “antibiotics for systemic use” were particularly counselling-intensive. Dosing problems were the most frequent drug-related problem (52%). Information transfer within the ward turned out to be highly inhomogeneous.

Conclusions The pharmaceutical advice offered to the ward was accepted to a very high percentage. To prevent information loss on the ward a standardised system for information transfer amongst the staff needs to be established.

No conflict of interest.