Use of outdated measurements during chemotherapy treatment (14HDC01771, 28 June 2016)

District health board ~ Oncology ~ Chemotherapy treatment ~ Adverse comment ~ Right 4(1)

A 51-year-old woman was diagnosed with ovarian cancer. At that time she weighed 84kg. She was seen by an oncologist at a district health board (DHB1), and agreed to receive neo-adjuvant chemotherapy with paclitaxel and carboplatin.

As the woman did not live in the DHB1 region, she travelled to her nearest public hospital's (DHB2) oncology clinic chemotherapy unit for her treatment. An oncologist from DHB1 attended twice a month.

The dose of carboplatin is based on an assessment of the level of the patient's kidney function. DHB1 uses a computer based calculator, the Aesculapius programme, which calculates the carboplatin dose based on the patient's weight and serum creatinine level. At the time of the woman's treatment, the chemotherapy staff nurses documented the patient's height and weight only at the initial visit, and did not note the weight again. When the patient was seen in the oncology clinic, the oncologist noted the weight in the clinical file but, as the Aesculapius programme was not readily available to the consultant while at DHB2, the input into the computer system depended on the oncologist entering the information when he or she returned to DHB1.

The woman had one cycle of paclitaxel/carboplatin, which was poorly tolerated. She underwent a total abdominal hysterectomy and bilateral salpingo- oophorectomy. The surgery was uneventful.

Five months later the woman's weight was 70.8kg. The oncologist planned to resume chemotherapy. A CT scan was performed, which showed no evidence of disease, and the woman then declined further chemotherapy. It was decided to monitor her progress and not administer further chemotherapy at that time. Four months later the woman's weight was 72.9kg. She had a CT scan, which showed further progression of the disease. The woman was treated with oral low-dose etoposide.

A year later, the woman's weight was 65.6kg, and further disease progression was evident on a CT scan. The oncologist advised the woman to stop etoposide and try single agent carboplatin treatment.

The oncologist calculated the woman's first dose of single agent carboplatin. The Aesculapius prescription form shows that the calculation of the dose of 600mg was based on her levels from 2012, which were prepopulated into the Aesculapius programme (weight of 84kg and creatinine of 90mmol/L). The woman received this treatment and at the woman's next consultation, the oncologist recorded that the effect of the carboplatin seemed to be favourable. Further doses of 600mg carboplatin were administered.

The woman was due for her next cycle of carboplatin, but her blood counts were too low, so she did not receive it. She was experiencing pain and fatigue. The oncologist recommended a change to gemcitabine, and calculated a dose of 1950mg of

gemcitabine based on a weight of 84kg. The prescription noted that the woman's creatinine was then 66mmol/L.

A chemotherapy nurse noticed that the woman had been receiving chemotherapy based on a weight of 84kg, some 20kg more than her then actual weight of 65kg. The oncologist directed that the woman's dose of gemcitabine be reduced to 75% of the dose she had been receiving because of the difficulty she was having with cytopenia. The oncologist planned to send a new order sheet for chemotherapy with the updated weight. There are no clinical notes from the oncologist about the change in dosage. Over the next months the woman's condition deteriorated, and she died.

The following factors contributed to the woman receiving a dose of carboplatin calculated on the basis of her original measurements than her current measurements, owing to systemic issues at DHB1:

- Changes in patient information, on which prescriptions for chemotherapy treatment were based (such as weight and creatinine levels), could be recorded only in the chemotherapy treatment computer system at DHB1, where it was based, and not by oncologists working at off-site clinics.
- There were insufficient safeguards to identify the use of historic data, and whether the weight and creatinine levels on the day of delivery differed from that data. The oncologists were unable to update patient details remotely, and the patient's weight was not displayed prominently (or consistently) in the clinical file, which meant that it was not necessarily brought to the clinician's attention at clinic appointments.

Accordingly, DHB1 did not provide services to the woman with reasonable care and skill and breached Right 4(1). Adverse comment is made about the frequency with which the woman was reviewed by a specialist while receiving chemotherapy.

Adverse comment is made about the oncologist not ensuring that the calculations for treatment, which he signed off, were correct. The oncologist was aware that the woman's weight was decreasing; however, he failed to ensure that the Aesculapius programme was updated when further doses of carboplatin were calculated.

Adverse comment is made about the lack of systems in place at DHB2 to check that the data relied on was correct, prior to administering chemotherapy treatment.

The Commissioner recommended that DHB1:

- provide a written apology to the woman's husband for its breach of the Code.
- report to HDC with a detailed update on the effectiveness of the changes made as a result of this case, including how clinicians' ability to access the Aesculapius programme remotely is affecting their service delivery; the results of the review of both DHBs' models of service, and an assessment of the effectiveness of the changes made to its service delivery following the review.

The Commissioner recommended that the oncologist report to HDC on how the ability to access the prescribing software remotely has affected his practice.

The Commissioner recommended that DHB2 report to HDC on the effectiveness of the changes it has made, including the new practice by DHB2 chemotherapy staff of weighing patients prior to treatment, and notifying a clinician at DHB1 if a discrepancy is detected against the script. The update should also provide details on the changes made to Aesculapius, whether an onsite physician has been appointed for the outreach clinics, and whether clinicians at those clinics have adequate access to electronic databases, including the Aesculapius programme.