NICE advice

Chemotherapy dose standardisation

Key therapeutic topic
Published: 28 February 2018
nice.org.uk/guidance/ktt22

Options for local implementation

- Chemotherapy dose standardisation, where hospital trusts move to a system of dose banding, has the potential to offer considerable benefits for patients, providers and commissioners.
- NHS England's Medicines Optimisation and Chemotherapy Clinical Reference Groups are co-ordinating a national approach to chemotherapy dose standardisation with the objective that all NHS England commissioned providers of chemotherapy move to prescribing and supplying a range of intravenous anticancer therapy in accordance with a nationally approved set of dose bands.
- A Commissioning for Quality and Innovation (CQUIN) scheme for nationally standardised dose banding for adult intravenous anticancer therapy is in place to encourage uptake.

Evidence context

Chemotherapy dose standardisation is a system where doses of intravenous anticancer therapy calculated on an individualised basis are rounded up or down to predetermined standard doses.

Historically, intravenous chemotherapy doses have been calculated for individual patients based on weight or body surface area. This has led to a large number of similar, but not identical, products being made as bespoke orders within compounding units. These small product differences significantly increase time and costs of preparation and costs of drug wastage (NHS England CA2 nationally standardised dose banding for adult intravenous anticancer therapy). There is no robust evidence to suggest that standardised doses affect toxicity or clinical outcomes.

It is estimated that NHS England spends approximately £1.5 billion on the routine commissioning of chemotherapy, with medicine costs being the largest proportion of this spend (80%). There is also a high rate of annual growth in these costs of approximately 8% per year (NHS England CA2 nationally standardised dose banding for adult intravenous anticancer therapy).

Standardisation of chemotherapy doses, where hospital trusts move to a system of dose banding, offers an avenue for achieving improved value in this area and benefits for patients, providers and commissioners. The discrete dose bands lie within 6% of the patient's calculated dose for standard chemotherapy drugs and 10% for biological drugs (NHS England how to use the NHS England dose banding tables). Available products can then be standardised to match the recommended doses.

Intended benefits of chemotherapy dose standardisation

For patients

- Fewer dose calculation errors.
- Reduced patient waiting times – chemotherapy is ready to give.
- Facilitation of administration of chemotherapy on any chosen day.
- Supports treatment of patients closer to home.

For providers

- Reduced bespoke pharmacy preparation workload.
- Maximises opportunities for financial efficiency through outsourcing of standardised chemotherapy product.
- Fewer dose calculation errors.
- Reduction in prescription alterations.
- Quicker dispensing through use of pre-prepared doses.

For commissioners

- Same doses used across every provider in England.
- Reduced cost through:
  - reduced wastage (by reuse of cancelled doses and avoidance of incomplete vial usage during production)
  - outsourcing of standardised chemotherapy products using standard product specifications.

Implementation of chemotherapy dose banding has been taking place, to variable degrees, in hospital trusts within England for the previous 10 years, and most providers of chemotherapy will already be dose banding to some extent. However, there is still considerable variation in both the methods of dose banding used and the range of drugs that dose banding has been applied to. An NHS England survey of NHS Providers found that 90% of the 94 trusts who responded were dose banding at least 1 intravenous anticancer therapy. But for the 20 most commonly dose-banded drugs, on average just 30% of trusts were dose banding (personal communication; NHS England June 2017). In Scotland, where dose banding of intravenous anticancer therapy has been established for a number of years, it has been estimated that 60–70% of all intravenous anticancer therapy is administered as dose-banded preparations (NHS England CA2 nationally standardised dose banding for adult intravenous anticancer therapy).

Linking closely to the efficiency and productivity review undertaken by Lord Carter, which recommends elimination of waste through a consistent approach to patient care, there is significant potential for the adoption of a single standardised set of doses for a range of intravenous anticancer therapy across England. NHS England is supporting the standardisation of chemotherapy doses via the chemotherapy dose standardisation initiative developed by the Medicine Optimisation and Chemotherapy clinical reference groups, and the Commissioning for Quality and Innovation (CQUIN) scheme.

There are currently 54 chemotherapy drugs with approved dose-banding tables.

Alongside standardised doses, the next step of the initiative is to standardise chemotherapy products by diluent, volume and labelling. This is the precursor to accessing ready to administer chemotherapy from the generic and NHS manufacturers.

Implementation support

The following implementation support is available from the NHS England Chemotherapy Dose Standardisation Steering Group by emailing jill.lockhart1@nhs.net.

- A patient information leaflet for chemotherapy dose standardisation.
- A FAQ document for the chemotherapy dose standardisation project which provides information on:
    - the overall approach and methodology for developing national dose-bands
    - expert involvement and stakeholder engagement
    - delivery and measurement
    - the CQUIN scheme.
- A measurement toolkit, which has been collated to bring together case studies, information and suggestions for measuring the impact of chemotherapy standardisation. This covers the following:
    - guidance on managing the sourcing and supply of ready-to-administer chemotherapy doses for the NHS; a 'how-to' guide from the Specialist Pharmacy Service endorsed by the British Oncology Pharmacy Association (BOPA), and a case study
    - impact on regional contracting and the tendering process; learning from the North of England framework
    - benefits of dose standardisation on the pharmacy service and measuring financial savings; a case study
    - benefits from vial sharing; a case study and financial savings report
    - measurement of waste; case studies
    - recommendations for identifying waste points in the chemotherapy process and for calculating waste and the impact of dose standardisation
    - toolkits and recommendations for measuring use of capacity in the administration of intravenous anticancer therapy and the impact of dose standardisation
    - impact on patient experience and staff satisfaction; a case study

- role of the senior pharmacy technician; a case study.

NICE's position statement supporting chemotherapy dose standardisation outlines how NICE is working with NHS England to support the project, and to ensure that NICE processes, tools and resources are suitably aligned.

Practice examples and shared learning

The NICE shared learning example chemotherapy production: reducing patient waiting times and increasing efficiency describes how one trust identified and addressed service inefficiencies. Implementation of changes including dose banding, and use of outsourced pre-filled bags reduced the daily waiting times of people attending clinics for injected chemotherapy.

Prescribing data, metrics or supporting resources

The selection of metrics to support key therapeutic topics is overseen by the NHS England Medicines Optimisation Intelligence Group, and work is ongoing in this area. At this point, the following metrics or supporting resources have been identified by this group to support this topic.

As outlined under implementation support, a measurement toolkit has been developed by the NHS England Chemotherapy Dose Standardisation Steering Group, which includes recommendations for measuring impact. The project group are working closely with the Hospital Pharmacy and Medicines Optimisation Project team at NHS Improvement and the systemic anti-cancer therapy (SACT) dataset team at Public Health England to develop suitable comparators and metrics.

It is intended that all NHS England commissioned providers of chemotherapy move to prescribing a range of intravenous anticancer therapy in accordance with a nationally approved set of dose tables; and a CQUIN scheme is in place to encourage uptake. Providers will be expected to:

- have the principles of dose banding accepted by their local oncology and haematology teams
- have the drugs and doses outlined in the dose banding tables approved by their local formulary committees
- have intravenous anticancer therapy prescribed in accordance with the doses of drugs listed in the national dose banding tables
- agree and adopt standardised product definitions for the purchasing of 'off-the-shelf' products.

Trusts signed up to the CQUIN scheme are required to submit data according to CQUIN requirements (supported by a data reporting template).

About this key therapeutic topic

This document summarises the evidence base on this key therapeutic topic which has been identified to support medicines optimisation. **It is not formal NICE guidance.**

For information about the process used to develop the key therapeutic topics, see the integrated process statement.

ISBN: 978-1-4731-2863-7