NICE National Institute for Health and Care Excellence

Putting NICE guidance into practice

Resource impact report:
Carfilzomib with dexamethasone and lenalidomide for previously treated multiple myeloma (TA695)

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Summary

NICE has recommended carfilzomib plus lenalidomide and dexamethasone as an option for treating multiple myeloma in adults if they have had only 1 previous therapy which included bortezomib.

We estimate that around:

- 3,100 people with multiple myeloma are eligible for treatment with carfilzomib plus lenalidomide and dexamethasone each year.
- around 620 people will initiate treatment with carfilzomib plus lenalidomide and dexamethasone from year 2 onwards once uptake has reached 20% and that around one third of these people will discontinue treatment within the year due to unacceptable toxicity or continued disease progression, as shown in table 1.

Table 1 Estimated number of people in England having recommended carfilzomib plus lenalidomide and dexamethasone

	2021/22	**2022/23**	**2023/24**	**2024/25**	**2025/26**
Uptake rate for carfilzomib (%)	10	20	20	20	20
Total number of people initiating carfilzomib plus lenalidomide and dexamethasone in year 1	**309**	**617**	**617**	**617**	**617**
Population having carfilzomib plus lenalidomide and dexamethasone each year (year 1 full dose)	206	411	411	411	411
Population discontinuing carfilzomib plus lenalidomide and dexamethasone in year 1 (half dose)	103	206	206	206	206
It is assumed that everyone receiving a full dose in year 1 will receive one cycle of treatment in year 2.					

This report is supported by a local resource impact template because the list price of carfilzomib and lenalidomide have discounts that are commercial in

confidence. The discounted prices of carfilzomib and lenalidomide can be put into the template and other variables may be amended.

This technology is commissioned by NHS England. Providers are NHS hospital trusts.

1 Carfilzomib with dexamethasone and lenalidomide

1.1 NICE has recommended carfilzomib plus lenalidomide and dexamethasone. as an option for treating multiple myeloma in adults, only if:

- they have had only 1 previous therapy, which included bortezomib, and
- the company provides carfilzomib according to the commercial arrangement.

1.2 Multiple myeloma is a relapsing and remitting disease with periods of severe symptoms that need treating. Treatment options for multiple myeloma after 1 previous treatment depend on what that treatment was and whether a stem cell transplant is suitable. If a stem cell transplant is suitable, treatment options include daratumumab with bortezomib and dexamethasone.

2 Resource impact of the guidance

2.1 We estimate that around:

- 3,100 people with multiple myeloma are eligible for treatment with carfilzomib plus lenalidomide and dexamethasone each year
- around 620 people will initiate treatment with carfilzomib plus lenalidomide and dexamethasone from year 2 onwards once uptake has reached 20% and that around one third of these people will discontinue treatment within the year due to unacceptable toxicity or continued disease progression.

2.2 The current treatment and future uptake figure assumptions are based on clinical expert opinion and data from Blueteq and are shown in the resource impact template. Table 2 shows the number of people in England who are estimated to have

carfilzomib plus lenalidomide and dexamethasone by financial year.

Table 2 Estimated number of people having carfilzomib plus lenalidomide and dexamethasone using NICE assumptions

	2021/22	2022/23	2023/24	2024/25	2025/26
Uptake rate for carfilzomib (%)	10	20	20	20	20
Total number of people initiating carfilzomib plus lenalidomide and dexamethasone in year 1	**309**	**617**	**617**	**617**	**617**
Population having carfilzomib plus lenalidomide and dexamethasone each year (year 1 full dose)	206	411	411	411	411
Population discontinuing carfilzomib plus lenalidomide and dexamethasone in year 1 (half dose)	103	206	206	206	206
It is assumed that everyone receiving a full dose in year 1 will receive one cycle of treatment in year 2.					

2.3 This report is supported by a local resource impact template. Carfilzomib and lenalidomide have commercial arrangements which make them available to the NHS with a discount. The size of the discounts are commercial in confidence. The discounted prices of carfilzomib and lenalidomide can be put into the template and other variables may be amended. It is the companies responsibility to let relevant NHS organisations know details of the discounts.

Savings and benefits

2.4 Carfilzomib plus lenalidomide and dexamethasone gives longer periods of remission and people live longer, compared with lenalidomide plus dexamethasone. This treatment benefit appears to continue for up to 6 years.

3 Implications for commissioners

3.1 This technology is commissioned by NHS England. Providers are NHS hospital trusts.

3.2 Due to daratumumab with bortezomib and dexamethasone being part of the Cancer Drugs Fund, the impact of a reduction in its use as a result of this technology is not included in this report and accompanying template as this assesses the impact on routine commissioning only.

3.3 If daratumumab with bortezomib and dexamethasone is approved into routine commissioning when TA573 is reviewed, then this may impact on the currently estimated uptake of carfilzomib plus lenalidomide and dexamethasone and the latest resource impact tool and report should be referred to instead.

3.4 Carfilzomib plus lenalidomide and dexamethasone falls within the programme budgeting category 02I – Cancers and tumours, cancer haematological.

4 How we estimated the resource impact

The population

4.1 Around 5,100 adults were diagnosed with multiple myeloma in England in 2018 (Cancer registration statistics for England, 2018). Table 3 shows the details of the population with multiple myeloma who are be eligible for treatment with carfilzomib with dexamethasone and lenalidomide.

Table 3 Number of people eligible for treatment in England

Population	Proportion of previous row (%)	Number of people
Total population		56,286,961
Adult population		44,263,393
Incidence of multiple myeloma[1]	0.01	5,061
Proportion of people who are treated with bortezomib first line[2]	61	3,087
Total number of people eligible for treatment with carfilzomib	100	3,087
Total number of people estimated to initiate treatment with carfilzomib each year from year 2[3]	20	617

[1] Source: Cancer registration statistics England 2018

[2] Source: NICE TA586

[3]Source: NHS England / Clinical expert opinion

Assumptions

4.2 The resource impact template assumes that:

- The average course of treatment with carfilzomib is 14 cycles (the mean number of treatments in the Aspire trial) and each cycle is 28 days long.
- Carfilzomib is provided in 10mg, 30mg and 60mg vials and is administered intravenously.
- Carfilzomib is administered as:
  - 20mg per m/2 of body surface area on days 1 and 2 of cycle 1
  - if the first dose is tolerated, the carfilzomib is increased to 27mg per m/2 of body surface area on days 8, 9, 15 and 16 of cycle 1
  - this is followed by 27mg m/2 of body surface area on days 1, 2, 8, 9, 15 and 16 of cycles 2 to 12
  - 27mg per m/2 of body surface area is then administered on days 1, 2, 15 and 16 of cycle 13 and 14.

- For all cycles, the most relevant tariffs for administration are SB13Z, deliver simple parenteral chemotherapy at first attendance (£319). This also covers the administration of lenalidomide. This is followed by SB15Z deliver subsequent elements of a chemotherapy cycle (£319) (National tariff).
- The average course of treatment with lenalidomide (when taken with carfilzomib and dexamethasone) is 14 cycles and each cycle is 28 days long.
- Lenalidomide is taken orally as one 25mg tablet on days 1 to 21 of each cycle.
- The tariff for the first 14 cycles of administration of lenalidomide is covered by the tariff payment for carfilzomib. The remaining 8 cycles of administration (when lenalidomide is the sole chemotherapy drug administered) is covered by the tariff, SB11Z deliver exclusively oral chemotherapy (£127) (National tariff).
- The average course of treatment with dexamethasone (when taken with carfilzomib plus lenalidomide is 22 cycles and each cycle is 28 days long.
- Dexamethasone is taken orally as one 40mg tablet on days 1, 8, 15 and 22 of each cycle.
- There is no administration tariff associated with dexamethasone.
- It is assumed that 33.4% of people will discontinue treatment with carfilzomib plus lenalidomide and dexamethasone in year 1 due to due to unacceptable toxicity or continued disease progression. It has been assumed that these people will receive 6 months treatment with carfilzomib plus lenalidomide and dexamethasone and then have 6 months treatment with lenalidomide plus dexamethasone.
- Carfilzomib plus lenalidomide and dexamethasone is supported by a range of low-cost concomitant medications.

- The average course of treatment with lenalidomide (when taken with dexamethasone) is 12 cycles and each cycle is 28 days long.
- Lenalidomide is taken orally as one 25mg tablet on days 1 to 21 of each cycle.
- For all cycles, the most relevant tariff of administration is SB11Z deliver exclusively oral chemotherapy (£127).
- The average course of treatment with dexamethasone (when taken with lenalidomide) is 12 cycles and each cycle is 28 days long.
- Dexamethasone is taken orally as one 40mg tablet on days 1, 8, 15 and 22 of each cycle.
- There is no administration tariff associated with dexamethasone.
- Lenalidomide plus dexamethasone is supported by a range of low-cost concomitant medications.
- Daratumumab with bortezomib and dexamethasone is recommended for use within the Cancer Drugs Fund and is not considered established practice and therefore cannot be a comparator for carfilzomib plus lenalidomide and dexamethasone. Please see TA573 for further information.
- The average course of treatment with daratumumab is 34 administrations. This is 21 cycles in year 1 and 13 cycles in year 2. It is administered intravenously.
- Cycles 1-3 are 21 days long with 3 administrations. Cycles 4-8 are 21 days longs and are 1 administration and from cycle 9 it is a 28-day cycle with 1 administration.
- For the first 9 cycles, the most relevant tariff for administration is SB14Z, deliver complex chemotherapy, including prolonged infusional treatment, at first attendance (£478). This is followed by SB15Z deliver subsequent elements of a chemotherapy cycle for all other administrations (£319) (National tariff).
- The average course of treatment with bortezomib is 32 administrations. This is 8 cycles in year of 21 days with 4

administrations per cycle. The cost of administration is covered by the SB14Z element of the administration of daratumumab.

- The average course of treatment with dexamethasone is 64 administrations. This is 8 cycles in year 1 of 21 days with 8 administrations per cycle. The cost of administration is covered by the SB14Z element of the administration of daratumumab.

Other factors

4.3 Treatment with carfilzomib plus lenalidomide and dexamethasone will not continue beyond 18 cycles because further treatment will not be commissioned by NHS England after this period.

4.4 The use of carfilzomib plus lenalidomide and dexamethasone is likely to see a decrease in infusions by year 3 of around 17,000 chemotherapy administrations intravenously. This is shown below in table 4 (Tariffs SB13Z, SB14Z, SB15Z). The large drop in year 3 of SB15Z (year 2 treatments) is because it is anticipated that there will be no people receiving daratumumab plus bortezomib and dexamethasone.

4.5 There will be an increase the number of chemotherapy administrations that are oral medications only by 19,000. This is shown below in table 4.

Table 4 Estimated number of people having administration of chemotherapy

	Current practice	2021/22	2022/23	2023/24	2024/25	2025/26
SB13Z Deliver more complex parenteral chemotherapy at first attendance (this includes the admin of an oral medication) (year 1)	0	3,343	6,686	6,686	6,686	6,686
SB15Z Deliver subsequent elements of a chemotherapy cycle (year 1)	11,577	16,201	32,403	32,403	32,403	32,403
SB11Z Deliver exclusively oral chemotherapy	13,892	16,671	31,282	32,927	32,927	32,927
SB14Z Deliver complex chemotherapy, including prolonged infusional treatment, at first attendance	28,943	20,839	0	0	0	0
SB13Z Deliver more complex parenteral chemotherapy at first attendance (this includes the admin of an oral medication) (year 2)	0	0	205	411	411	411
SB15Z Deliver subsequent elements of a chemotherapy cycle (year 2)	17,366	17,366	13,120	1,234	1,234	1,234
Total	71,778	74,420	83,697	73,661	73,661	73,661

About this resource impact report

This resource impact report accompanies the NICE guidance on carfilzomib with dexamethasone and lenalidomide for previously treated multiple myeloma and should be read with it.