

BDA Policy statement: Safer eating with Neutropenia

Summary

This BDA Policy Statement provides guidance for the provision of consistent advice on food safety and food hygiene for neutropenic haematology patients. It provides evidence/best practice guidance for haematology patients undergoing chemotherapy/CAR-T treatment as well as those with more profound neutropenia undergoing stem cell/bone marrow transplantation. This is a guideline for those units who chose to continue to advise dietary restrictions during neutropenia. It is not intended for people with neutropenia of a non- haematological cause.

Introduction

After chemotherapy and stem cell transplantation, patients are at a greater risk of infection from bacteria or fungus in food. This is for the following reasons:

- The white blood cells (neutrophils) that would usually fight food poisoning bacteria are at a low level. This is called neutropenia.
- The gut lining which acts as a barrier between bacteria and the bloodstream is damaged by chemotherapy and radiotherapy. This makes it easier for bacteria to cross into the blood stream.

The 'Neutropenic Diet' has remained a controversial area across Haematology Units in the UK. The evidence for dietary restriction during immunosuppressive therapy and/ or neutropenia is limited and some institutions have removed restrictions without any corresponding increase in infection rates (8). Due to concerns regarding inconsistent and inappropriate dietary advice during neutropenia, the Haematology Group of the British Dietetic Association established recommendations that were first published in 2011 and have been updated every 2 years.

Aims

To standardise food safety & food hygiene advice provided to haematology patients undergoing treatment throughout the United Kingdom using evidence/best practice guidelines.

Objectives

To enable dietitians working with haematology patients to confidently advise about food safety & food hygiene advice for neutropenic patients.

Recommendations

Following our literature search, which includes articles published in the last 5 years, we have gathered the following recommendations for our patient group.

Food Safety & Hygiene Guidelines:

Evidence supports the use of food safety guidance including; food preparation, storage and good hygiene practices as well as being mindful of the way we cook our food. Below are some helpful tips for food safety, taken from The Royal Marsden 'Food Safety information' booklet (2019).

- Avoid contamination of food by ensuring you wash and dry your hands before touching or eating anything.
- Never touch your mouth or nose when preparing food. Cover any cuts on your hands before preparing food.
- Do not allow raw and uncooked foods to mix – use separate storage shelves and different chopping boards
- Sanitise hands, chopping boards, knives, and utensils using hot water after touching raw meat, fish or vegetables.
- Always cover food to prevent contamination.
- Never overload your fridge or freezer - this can increase temperature, making food unsafe to eat.
- Defrost food in the fridge, not at room temperature.
- Be aware of shared utensils such as tongs at buffets, these may have been handled by many people and may have contaminated food.
- When shopping, buy chilled and frozen foods last to limit the time they are kept at warmer temperatures.
- Avoid bruised fruit and vegetables or damaged packages or tins.
- Always check 'use by dates' and 'best before dates' before buying or eating food.
- Always keep pets away from food preparation areas as they may carry bacteria even when well.
- If storing cooked food, ensure it is cooled at room temperature before placing in fridge or freezer.
- Never refreeze thawed food.
- Avoid reheating rice and takeaway food as harmful bacteria can survive the heating process.
- When eating out, check the food hygiene rating of restaurants and takeaways, using the following links depending on location in the UK.
- [Food standards agency: food hygiene ratings](#)

FOODS YOU CAN EAT	FOODS TO AVOID
CHEESE, MILK AND OTHER DAIRY PRODUCTS - All hard pasteurised cheeses such as cheddar, Stilton & Parmesan - Soft pasteurised cheeses such as cottage cheese, mozzarella, feta, cream cheese, paneer, labneh, ricotta, halloumi, goats' cheese without a white coating on the outside (rind) and processed cheese spreads - Thoroughly cooked soft unpasteurised cheeses, until steaming hot. - Thoroughly cooked soft cheeses with a white coating on the outside, until steaming hot. - Thoroughly cooked soft blue cheeses, until steaming hot. - Pasteurised milk, yoghurt, cream and ice cream. Consider hygiene certificate of provider before having soft ice cream.	CHEESE, MILK AND OTHER DAIRY PRODUCTS - Mould-ripened soft cheeses with a white coating on the outside, such as brie, camembert and chèvre (unless cooked until steaming hot). - Soft blue cheeses such as Danish blue, gorgonzola and Roquefort (unless cooked until steaming hot). - Any unpasteurised cows' milk, goats' milk or sheep's milk. - Any foods made from unpasteurised milk, such as soft goats' cheese. - Probiotic drinks & yogurts or supplements e.g. Kefir, Yakult, Actimel, Proviva - check label on yogurts. - Unpasteurised ice cream.

EGGS - Raw, partially cooked and fully cooked British Lion eggs (eggs with a lion stamp on them). - Supermarket brands: mousse and mayonnaise, which will use British Lion eggs. - Eggs that are not British Lion, as long as the whites and yolks are cooked thoroughly until solid.	EGGS - Raw or partially cooked eggs that are not British Lion stamped. - Duck, goose or quail eggs, unless cooked thoroughly until the whites and yolks are solid.
VEGETABLES / FRUIT - Ensure all fruit/ vegetables & salads are washed (including prepacked ready washed salad). - Sprouted seeds - cook all sprouted seeds until they're steaming hot throughout before eating. - Sushi – vegetable and rice options.	VEGETABLES / FRUIT - Damaged/bruised fruit and veg. - Sprouted seeds – uncooked.
FISH - Cooked fish and seafood. - Cooked shellfish, such as mussels, lobster, crab, prawns, scallops and clams from reputable seller and well cooked.	FISH - Smoked fish such as smoked salmon and trout. - Sushi with raw fish.
MEAT AND POULTRY - Meats such as chicken, pork and beef, as long as they're well-cooked with no trace of pink or blood; be especially careful with poultry, pork, sausages and burgers. - Cold, pre-packed meats such as ham and corned beef. - Salami and pepperoni cooked. - Pasteurised pâté in a jar.	MEAT AND POULTRY - Raw or undercooked meat. - All types of pâté, including vegetarian pâté (unless pasteurised). - Salami and pepperoni - unless cooked.

OTHER

- Black pepper / herbs and spices – pre packed fresh sealed jars from supermarket.
- Super market bought sealed packages e.g. Cereal, nuts, dried fruits, biscuits.

OTHER

- Black pepper / herb and spices – loose bought products from deli / farm shops.
- Avoid loose bought 'refill stations' for e.g. cereals, nuts & dried fruits.

References

1. Arjun Gupta, M.D., Brown, T.J., Singh, S., Sen, A., Agrawal, D., Li, H.C., Moriates, C., Johnson D.H., Sadeghi, N., 2019. Applying the 'COST' (Culture, Oversight, Systems Change, and Training) Framework to De-adopt the Neutropenic Diet. *The American Journal of Medicine*. 132(1), pp. 42-47. Available from: <https://doi.org/10.1016/j.amjmed.2018.08.009>
2. Ball, S. Brown T. Das, A Khera, R. Khanna, S. Gupta A (2019) Effect of neutropenic diet on infection rates in cancer patients with neutropenia. A meta-analysis of randomized controlled trials. *American Journal of Clinical Oncology* 2019; 42: 270-274
3. Borriello, S.P., Hammes, W.P., Holzapfel, W., Marteau, P., Schrezenmeir, J., Vaara, M. & Valtonen, V, 2003. Safety of probiotics that contain lactobacilli or bifidobacteria. *Clinical Infectious Diseases*. 36(6), pp. 775-780. Available from: [10.1086/368080](https://doi.org/10.1086/368080)
4. Brown, T. Mukhija, D. Premnath, N. Venkatraman, A. Nagpal, S. Gupta, A. (2019) Dissemination of information on neutropenic diet by Top US cancer centers: Inline with evidence? *Nutrition and Cancer*
5. Food Standards Scotland, 2022. Food safety. Available from: <https://www.foodstandards.gov.scot/consumers/food-safety>
6. FSA, 2016. New advice on eating runny eggs-FSA. Institute of food science and technology. Available from: <https://www.ifst.org/news/new-advice-eating-runny-eggs-fsa-0>
7. Heng, M.S., Barbon Gauro, J., Yaxley, A. & Thomas, J, 2019. Does a neutropenic diet reduce adverse outcomes in patients undergoing chemotherapy? *European Journal of Cancer care*. 29(1), pp. 1-8. Available from: [10.1111/ecc.13155](https://doi.org/10.1111/ecc.13155)
8. NHS Inform, 2022. Eating Well in Pregnancy. Public Health Scotland. Available from: <https://www.nhsinform.scot/ready-steady-baby/pregnancy/looking-after-yourself-and-your-baby/eating-well-in-pregnancy>
9. NHS UK , 2020 Foods to avoid in Pregnancy <https://www.nhs.uk/pregnancy/keeping-well/foods-to-avoid/>
10. Sonbol, M.B., Jain, T., Firwana, B., Hilal, T., Deleon, T., Murad, A., Murad, M.H. & Khera, N., 2019. Neutropenic diets to prevent cancer infections: updated systematic review and meta-analysis. *BMJ Support Palliat Care*. 9(4), pp. 425-433. Available from: [10.1136/bmjspcare-2018-001742](https://doi.org/10.1136/bmjspcare-2018-001742)
11. Wolfe, H., Sadeghi, N. D Agrawal, Johnson, D. A Gupta Things we do for no reason: Neutropenic Diet *Journal of Hospital Medicine*

Acknowledgements

This document has been written by the Committee of the Haematology Subgroup of the Oncology Group of the BDA and Dr Teresa Inkster (Microbiologist, Glasgow Queen Elizabeth University Hospital). It is based on a literature review and appraisal of relevant resources by the subgroup in 2022, it supersedes previous published guidance from 2020.