

# **Cancer Treatment in the Next 70 Years**

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As we celebrate the 70th Birthday of the NHS, it is natural to look back over that time and consider the next 70 years. In 1948 the mainstay of cancer treatment was radical surgical excision, with some access to radiotherapy. Both treatments were destructive and disfiguring, with patients suffering severe side effects.

The earliest cytotoxic chemotherapy was discovered accidentally when victims of Mustard Gas release, during WW2, were found to have low levels of lymphoid cells; a type of immune cell that multiplies in Lymphoma. This led to extensive trials of toxic chemicals to find other chemotherapy agents. Most cytotoxic chemotherapy is not specific and also kills normal cells; causing distressing side effects such as hair loss, sickness and infertility.

Incremental treatment improvements are reducing the side effects of cancer treatment: surgery is less extensive and destructive while precise CT scan planning has reduced organ damage from radiotherapy. New drug development is no longer down to accidental discovery as greater understanding of cellular biology and genetics identifies the weak points in cancer cells which are vulnerable to new treatments.

Immunotherapy, a totally new class of cancer treatment, emerged in the 90s when antibodies, components of the immune system, were modified and used as treatments - such as Herceptin for Breast Cancer. They target cancer cells with relatively little impact on healthy tissues, meaning there are fewer side effects compared to chemotherapy, so this approach is likely to dominate cancer treatment in the future. Adapting a patient's own immune cells as a treatment is a promising new development but, due to the labour-intensive nature of the process, is very expensive.

As we are living longer, and cancer risk increases with age, it is estimated that there will be a 50% increase in cancer diagnoses in 20 years time. Keeping up with this disease burden in diagnosis and treatment will become an ever greater struggle so prevention is definitely better than cure.

Some prevention is medical, such as vaccinating against Human Papilloma Virus to reduce the risk of cervical and oral cancers, but most relates to lifestyle.

The lifestyle issues relating to cancer are similar to those for other dangerous conditions such as diabetes, heart disease, stroke and dementia:- smoking, drugs, alcohol, diet and exercise. Most people know the danger of smoking but fewer are aware that obesity is the second commonest cause of cancer. Changing our lifestyle is difficult, especially as we are bombarded by advertising for junk-food and supermarket promotions for unhealthy foods rather than fruit and vegetables.

We need a more comprehensive 'Health in ALL Policies' approach to decisions regarding food standards, school meals, sports facilities, or the design of town centres to encourage walking and cycling. Considering the impact of each decision, at all levels of government, on the Health and Wellbeing of our citizens could prevent, not just cancer, but many chronic conditions. As well as reducing the strain on healthcare services, ageing well would grant us a good quality of life in our later years.