

Cancer in the workplace: What does the future hold? Pt2

WillisTowersWatson

Article 5 of 7

This series of articles will explore some of the key innovations in oncology that are expected to turn the tide in the fight against cancer. They will also review the impact of these advances on employee benefit plans that often include cancer related coverage.

What the series will cover:

We will start by exploring why innovation is happening in this field and outlining the progress of current breakthroughs, followed by a review of what to expect in the future and the value of new advances in cancer care to insured employee benefits. We will also review the impact of COVID-19 on cancer services including screening, diagnoses and treatment.

Key points

- Innovations in cancer care are no longer limited to conventional biological and molecular research. Technological and digital advances are paving the way for a new era in cancer management.
- Collaborations including wearable technology, artificial intelligence, telemedicine and more offer the potential to reshape cancer treatment and significantly improve the quality of life for patients.
- The need for effective remote monitoring of recovery, health and wellbeing has been accelerated by COVID-19.

Wearable technology

- Researchers at the University of Michigan have developed a 3D printed prototype of a wearable blood scanning device, that can identify circulating tumour cells with 3.5 x more sensitivity than standard biopsies. Based on early stage studies, the device could sample 1-2% of blood rather than the 0.2% usually collected from blood biopsies. Using this type of blood scanning regularly could build a detailed map of cancer progression over a period of time.
- A study funded by Janssen Pharmaceuticals uses wearable biosensors and artificial intelligence to proactively recognise adverse events from cancer therapies. By streaming data collection using cloud technology, the patient can be remotely monitored and physiological changes tracked. The study aims to personalise cancer care and improve the patient experience, reducing the impact of side effects from cancer therapy and improving treatment success.
- Researchers at the University of California have developed an early version of smart bandages that can detect enzyme biomarkers associated with skin cancers. These bandages contain technology capable of assessing skin moles from above and under the skin which could prove valuable for widespread early detection.

Clinical decision support software

- Decision support software helps to optimise clinical decisions by combining data from electronic health records. However, decisions can be subjective and with limited personalisation for the specific cancer and patient.
- The PreciGENE™ platform is an example of an advanced system that provides molecularly driven combination therapy options to oncologists. This technology uses DNA, RNA and protein data from biopsies, comparing insights with curated databases. DNA provides the code for the cell's activities, while RNA (Ribonucleic Acid) converts that code into proteins to carry out cellular functions.
- The functional impact of each molecular mutation is identified, as well as pathways that can be pharmaceutically targeted. The platform also uses a proprietary rule-based algorithm to rank combinations of therapies tailored to the patient's profile, taking account of recommendations from medicine authorising and guideline developing bodies.

Artificial intelligence (AI)

- The use of AI to accurately and independently determine a patient's treatment pathway without an oncologist's input is still in its early days, as results from early AI systems have been mixed.
- Improvements in how AI combines, interprets and uses data from research, guidelines, patient characteristics, genetic tests and scans could enable better patient outcomes.
- The integration of AI in other areas of cancer management has progressed with greater success. An AI driven tool developed at MIT has been able to produce significant pre-diagnosis discovery results, predicting the development of breast cancer up to 5 years in advance. This tool could help optimise screening initiatives and abolish the outcomes of late detection and diagnosis.

The effect of COVID-19 on cancer

- COVID-19 had created extreme pressures on delivering cancer services due to the localised, complex and intensive nature of cancer management.
- Studies show that there has been up to a 16% increase in avoidable deaths [https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(20\)30388-0/fulltext](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(20)30388-0/fulltext)
- Cancer patients are highly vulnerable. Early studies have shown that 39–54% of cancer patients infected by COVID-19 required an admission to intensive care unit or had died after being infected. The same studies also predict a worse prognosis when cancer patients receive antitumor therapy or surgery. *Alhalabi O, Subbiah V. Managing Cancer Care during the COVID-19 Pandemic and Beyond [published online ahead of print, 2020 Apr 27]. Trends Cancer. 2020;S2405-8033(20)30135-7. doi:10.1016/j.trecan.2020.04.005*
- In a more recent study 800 patients with a diagnosis of cancer and symptomatic COVID-19 were analysed and in total, 52% of patients had a mild COVID-19 disease course, 28% of patients died and risk of death was significantly associated with advanced patient age. Further evidence is needed to conclusively associate mortality of cancer patients with a COVID-19 infection. [https://www.thelancet.com/journals/lanonc/article/PIIS0140-6736\(20\)31173-9/fulltext](https://www.thelancet.com/journals/lanonc/article/PIIS0140-6736(20)31173-9/fulltext)
- The need for effective remote monitoring of recovery, health and wellbeing has been accelerated by COVID-19. Whilst ad-hoc measures have been adopted to fill gaps, research is continuing into the application of digital health wearables and trackers for remote monitoring of cancer patients to help anticipate the need for intervention before symptoms occur.
- Equally, patient self-management, education and awareness are important aspects of rehabilitation. Studies are being conducted into the role of gamification and consumer-grade learning tools to enable patients to play a more proactive role in their care.
- Virtual reality has been tested in clinical trials and demonstrated significant results with cancer patient pain management, promoting improved mental health and providing engaging patient education. As research into the clinical value of virtual reality progresses, such tools may be accessible and prescribable under care guidelines.

What to expect in the next article?

- An overview of cancer in the workplace and its impact on employees
- Outline of how employers can benefit from innovation in cancer care and management
- Impact of COVID-19 on early diagnosis, treatment and claims trend expectations



To find out more information and guidance in supporting employees during the coronavirus crisis, please contact your Willis Towers Watson consulting team who can help you.

WillisTowersWatson

E enquirieshealthbenefits@willistowerswatson.com

Willis Towers Watson, The Courtyard, Hall Lane,
Wincham, Northwich, Cheshire CW9 6DG

T 01606 352035

F 01606 330699

Willis Towers Watson, 51 Lime Street, London,
EC3M 7DQ

T 0203 124 6000

F 0203 124 8223

Towers Watson Limited (trading as Willis Towers Watson) is authorised and regulated by the Financial Conduct Authority (FCA). FCA number: 432886.

Registered Office: Watson House, London Road, Reigate, Surrey RH2 9PQ, United Kingdom.

wtw-healthandbenefits.co.uk | willistowerswatson.com

Some of the information in this publication may be compiled from third party sources we consider to be reliable, however we do not guarantee and are not responsible for the accuracy of such. The views expressed are not necessarily those of Willis Towers Watson. Copyright Towers Watson Limited. 2020. All rights reserved.