

# CANCER: the emperor of all maladies

## Husam Khalil

6th Year Medical Student  
School of Medicine  
University of Auckland

Husam, is a 6<sup>th</sup> year medical student studying in North Shore Hospital. His interests include cardiology and oncology. An avid foodie, Husam also enjoys a game of football or tennis.

“CANCER: The Emperor of all Maladies” is a three part documentary initially released in March 2015. Directed by Barak Goodman, this fascinating documentary follows up on the Pulitzer Prize winning book written by author, Siddhartha Mukherjee. The piece takes the viewer on a journey through time, beginning with an ancient discourse of cancer, through to the development of novel treatments researched today. Alongside this, the audience is drawn into the personal lives of several patients diagnosed with cancer to experience the irrevocable highs and lows on their individual journeys. This provides a touching insight into this disease which all doctors will inevitably encounter at some point in their careers.

We hit the road on the discovery of cancer in Part 1, titled “Magic Bullets.” Goodman begins, by citing an ancient Egyptian physician whose note regarding the earliest records of cancer treatment simply stated; “There is none.” The audience is then looped through in time and introduced to past flawed hypotheses. I was intrigued in particular by a previous fluid theory; the belief that an imbalance of “melancholia”, one of the body’s four essential fluids could have been the cause of cancer.

From this point, Goodman explains the innovative and experimental developments made in discovering chemotherapy. Focusing mostly on Dr. Sydney Farber, who despite the opposition of his peers decided to trial aminopterin in children with the previously incurable disease, leukaemia. He shocked the medical world in 1947 when he observed clinical and haematological remission in these subjects, thereby paving the way for modern chemotherapy. The focus on surgical therapy comes next by the radical, yet flawed, views of Mr William Halsted. The discovery that tumours were simply collections of abnormal cells meant the logical next step was to surgically excise the culprit. I was captivated as I was introduced to this perfectionist with a hard and fast belief that “cutting more meant curing more”, which culminated in the radical mastectomy. While it was somewhat successful, it left many women deformed and subject to remission when the cancer was non-localized. Finally, radiotherapy is briefly touched on citing the young medical student who founded the treatment, and how he succumbed to the disease himself through overexposure to said radiation.

Although the viewer’s introduction to these three modalities is certainly the strength of this episode, it perhaps omits the progression to current surgical and radiotherapy treatment in favour of telling the narrative of Farber and his partnership with Mary Lasker in promoting research and passing the national cancer act, something I personally found less stimulating. In spite of this, the episode allowed an appreciation of the dedication which two scientists showed on their mission scouring thousands of natural and synthetic chemicals for anything which might have positive oncological outcomes. Overall I found this episode inspiring, it added to my admiration of the ongoing medical research and work performed behind the scenes in the medical world.

Part 2, “The Blind Man and the Elephant”, progresses from portraying how treatments were developed into explaining the science behind the causes of cancer. The episode’s strong point is the way it perfectly presents three primary routes; chemical, viral and genetic – each of which is delved into on the way to discovering more about the “emperor of all maladies”. The viewer is then introduced to the oasis of knowledge surrounding discovery of the oncogene and the pathogenesis of cancer which were utilised by pioneers to develop targeted cancer treatments still employed today. Throughout this episode, we also hear the account of a highly respected surgical oncologist struck by the very disease she spends her whole life curing. Whilst this gives us only a glimpse of the manner a bilateral breast cancer diagnosis can turn a life upside down, it also superbly highlights the sobering nature of cancer and that nobody, including medical professionals, are safe from its reaches.

We conclude in Part 3, “Finding the Achilles Heel.” Scientists have now gained more knowledge from unravelling the human genome, discovering tumour suppressor genes and learning of cancer’s ability to develop resistance to certain targeted therapy. With this, the finale served to highlight how each cure for cancer came with an added layer of complexity. Goodman brilliantly demonstrated the theory behind scientific concepts such as karyotyping and targeted drugs through the use of graphical demonstrations that take the viewer inside the laboratory. This simplified the technical concepts and showed how this new found information served to kick-start attacking cancer through combination therapy that is individualised to each patient.

Also tacked onto this episode is the development of a new innovative treatment, immunotherapy. As promising as they initially build it up to be, the viewer is brought back to reality when introduced to Emily, a young leukaemia patient whose parents agree to trial new immunotherapy drugs in a last-ditch hope of saving their daughter's life. We are shown that while many new therapies come with much hope, scientists are ultimately still experimenting. Consequently, Emily has a near death reaction trialling this treatment when her IL-6 levels skyrocket leaving her in need of ICU support and a quick-thinking doctor to save her life. Whilst the astronomical cost of many of these drugs was touched upon, it could have been discussed in greater depth by the documentary. In saying that though, America's differing health structure makes the discussion regarding cost and accessibility less applicable to a New Zealand audience. Particularly with the ethical dilemma surrounding Pharmac's funding of costly cancer drug, "Perjeta" being the centre of recent controversy.

The enormity of cancer makes covering all bases in 6 hours nigh on impossible and as a result, made some omissions inevitable. However, Goodman's attempt to systematically take the viewer through the scientific breakthroughs is the forte of this documentary. The incorporation of presidential speeches and past news footage was another technique I found added to the reality of the problem at hand. I believe Goodman's use of real patients gives a peek of what impact this atrocious disease can have not only on an individual but an entire household. Having personally experienced this catastrophic situation in my own family, I cannot see a way in which any director could demonstrate in entirety the debilitation this causes to an individual without truly going through this journey. Nevertheless, Goodman's efforts at introducing the audience to a disease that leaves most people shivering in their spine is extremely commendable. In summary, I would recommend this for students interested in uncovering the basics of cancer in a methodical and entertaining way. This piece was made for viewing with the general public in mind and might further stimulate enthusiasts to delve deeper into the intricacies of the "emperor of all maladies".

---

## WANT TO SEE YOUR NAME IN PRINT?

The New Zealand Medical Student Journal is a biannual medical journal written and edited by medical students from all four clinical schools in New Zealand. We publish:

- Original research articles
- Literature reviews
- Features articles
- Book / app reviews
- Conference reports
- Summer studentship reports

Submissions that will be of interest to medical students are invited.

Candidates applying onto vocational training schemes after graduation are rated highly by most Colleges if they have published in a peer-reviewed journal previously. Email us at: [nzmsj@nzmsj.com](mailto:nzmsj@nzmsj.com) for more information

# NZMSJ

New Zealand Medical Student Journal  
Te Hautaka o ngaa Akongaa Rongoaa