

Systems Approach to Cancer in Practice – Bringing Data(r) to Life

DR NINA FULLER-SHAVEL
INTEGRATIVE MEDICINE DOCTOR, SCIENTIST, EDUCATOR
MB BCHIR MA HONS (CANTAB) IFMCP DIPIM PG CERT DIPION RYT200

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A little about me

- ▶ Degrees in Natural Sciences and Medicine from the University of Cambridge
- ▶ Postgraduate degrees in nutrition and integrative medicine and additional qualifications in functional medicine (IFMCP), Western herbal medicine, yoga and mindfulness
- ▶ Fellow of the College of Medicine, Co-Chair of the British Society for Integrative Oncology (BSIO), member of MASCC and UKASCC
- ▶ Director of Synthesis Clinic – an award-winning multidisciplinary integrative medicine practice specialising in women's health and integrative cancer support
- ▶ Research interests in precision cancer medicine (current MSc at the University of Oxford) and integrative oncology
 - ▶ Presentations at multiple international conferences
 - ▶ Research Committee member and abstract reviewer for ECIM 2021; Member of the Editorial Board for the new Nutritional Medicine Journal; participant in SIO guideline development
- ▶ Educator – training for medical and nutrition professionals in integrative medicine and integrative oncology

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Session content

- ▶ Systems Approach to Cancer as a practical framework
- ▶ How can IO and precision oncology work together?
- ▶ Practical applications - case

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Systems Approach to Cancer®

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Systems Approach to Cancer

Case overview

Cancer type and treatment summary

Predisposing factors

Precipitating factors

Key priorities

Mental/emotional/spiritual health and biorhythms

Microbiome balance and GI function

Balanced immune function

Balanced methylation and genomic stability

Systems Approach to Cancer

Effective detoxification

Hormone balance

Mitochondrial and metabolic health

Circulation and tissue architecture

Systems Approach model

Lifestyle review

Sleep	Exercise and Movement	Nutrition	Stress and relaxation	Relationships

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Information used to compile the model for the patient

- ▶ Clinical background – FH, PMH/DH/AH
- ▶ Current clinical status – tumour information (stage/grade/molecular profiling), current treatment, side effects, current biochemistry
- ▶ Pharmacogenetics and nutritional genomics

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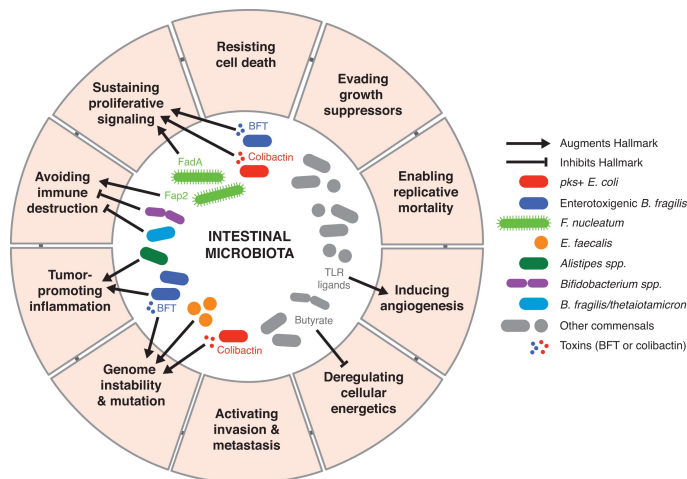
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Systems approach breakdown

- ▶ Healthy microbiome balance and GI function
 - ▶ Includes looking at oral, GI, vaginal etc microbiomes as relevant to the case
 - ▶ Supporting healthy GI function relevant in all cancers to ensure not only good nutrient absorption but also support normal microbiota-immune interactions
- ▶ Balanced immune function
 - ▶ Aim to decrease inflammation and oxidative stress while supporting immune surveillance and a balanced specific anti-tumour response
 - ▶ Role of TME – tumour micro-environment
- ▶ Effective detoxification
 - ▶ Reduce load – air/water/food/cosmetics/home products etc
 - ▶ Promote normal balanced detoxification processes as appropriate to clinical situation and cancer type and without interfering with medications
 - ▶ CYP and phase 2 enzymes, pharmacogenetics

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Looking broader - GI microbiome effects in cancer

Systems approach breakdown



- ▶ Healthy circulation and tissue architecture
 - ▶ Promote normal blood flow, tissue perfusion and healthy coagulation
 - ▶ Support inhibition of angiogenesis and metastasis
- ▶ Mitochondrial and metabolic health
 - ▶ Reduce growth factor drivers, e.g. normalise insulin and IGF-1, PI3K/Akt/mTOR etc
 - ▶ Metabolism – autophagy/mitophagy, glucose/glutamine pathways, Warburg/reverse Warburg

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Systems approach breakdown



- ▶ Hormones
 - ▶ Examining production, transport, tissue sensitivity and detoxification processes and their relevance before, during and after conventional treatment
- ▶ Balanced methylation and genomic stability
 - ▶ DNA repair pathways and relevance in cancer, e.g. BRCA1/2, PARP
 - ▶ TMB, TP53, MDM2 etc
 - ▶ Epigenetic changes are the earliest and most comprehensive genomic aberrations occurring during carcinogenesis - focal hypermethylation and global hypomethylation
- ▶ Mental/emotional/spiritual health and circadian rhythms
 - ▶ Central to how the person is going to cope with diagnosis, treatment and either survivorship or living well with cancer

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Training available

- ▶ Systems Approach to Cancer 6-month online course – currently directed at nutrition professionals (does not cover prescribing), medical training due in second half of 2022 but foundation course suitable for those who want to know more about practical principles
 - ▶ <https://drninafullershavel.thinkific.com/>
- ▶ Systems Approach to Breast Cancer Advanced Practice Module (3 months, online) – requires a foundation course, suitable for both nutrition and medical professionals (prescribing not discussed in-depth specifically because of broad audience)
 - ▶ Multidisciplinary input – clinical oncologist, oncoplastic surgeon, psychologist and CNS, alongside my expertise

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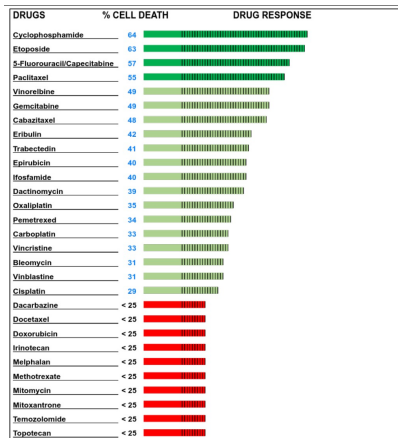
How does precision oncology fit in?

- ▶ Our use of advanced molecular diagnostics
 - ▶ At presentation prior to treatment
 - ▶ Following surgery to guide adjuvant treatment
 - ▶ At progression
 - ▶ Ideally 6-8 weeks after initiating new treatment regimes to look at evolving resistance

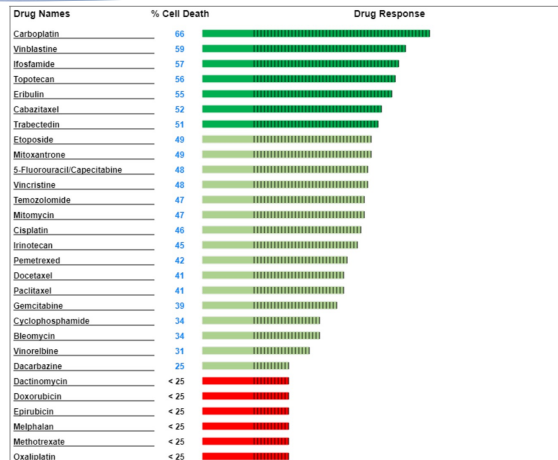
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Example of resistance evolution (6 weeks on EC - TNBC)



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IO and precision oncology collaboration

- ▶ Whenever possible, collaboration and regular communication between IO/IM physician and treating oncologist is important.
 - ▶ In the UK medical letters are a primary form of communication rather than being a part of the MDT formally, although this will hopefully be changing in the private setting over the next few years.
- ▶ Challenges
 - ▶ Poor uptake of advanced molecular diagnostics outside of London/teaching hospitals in the UK
 - ▶ Lack of confidence in understanding reports
 - ▶ Access to treatment – trials are often an opportunity
 - ▶ Guidelines vs personalized care
 - ▶ Off-label and 'non-actionable' information

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Thank you for listening.
Any questions?

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General discussion – intersection of precision and integrative oncology

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