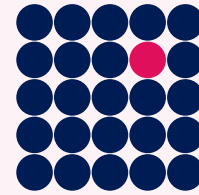


Centre for  
Personalised  
Medicine



CPM

# Centre for Personalised Medicine Annual Report 2017



St Anne's College  
University of Oxford

The Wellcome Trust Centre  
for Human Genetics



## Executive summary

The Centre for Personalised Medicine (CPM) is a partnership between the Wellcome Trust Centre for Human Genetics (WTCHG) and St Anne's College at the University of Oxford. It was formed in 2013 as a communication and engagement vehicle for students, academics, clinicians and the public to explore the benefits and challenges of personalised medicine. The Centre runs engagement events throughout the academic year, from small college-based lectures and seminars through to conference series and public lectures.

Personalised medicine encompasses all aspects of healthcare, from health promotion, risk stratification and screening through to clinical diagnosis, prognosis and treatment, and it is at the cutting edge of modern clinical medicine. The term is typically used to mean the application of new technologies to tailor healthcare at the individual level. Other terms, such as genomic medicine, individualised medicine or precision medicine, are used to refer to similar or identical concepts. The integration of personalised medicine into current practice carries significant clinical, ethical, legal, economic and societal challenges.

This report outlines and reviews the activities of the CPM in Year Four and considers the strategic direction of the Centre for the years ahead. There is significant interest in the work of the CPM and the Director and Steering Group are committed to developing a successful programme of work to fulfil the ambitious aims of the Centre.



## Events overview

Since its inception in October 2013, the CPM has hosted events on a wide range of personalised medicine-related topics:

### 2017

**July** UNIQ Programme for Year 12 students

**June** Intellectual property, ethics and the market in the era of personalised medicine

**May** Pint of Science Oxford

**March** Lecture to Oxford Brookes University MSc Genomic Medicine students

**March** Q&A session with Cancer Research UK

**March** Genomics talk to school children

**March** Personalised medicine in practice seminar 2: Reproductive health

**February** Student debate on medical data sharing

**February** Iris festival of ancient and modern science

**January** Subject family evening on the immune system

### 2016

**November** Personalised medicine in practice seminar series 1: Cancer

**November** Big data research: Governance, security and ethics with Big Data Institute

**November** 3rd CPM annual public lecture with Dr David Altshuler

**October** Freshers' event for St Anne's students

**September** Career workshop with WTCHG on science communication

**September** Personalised medicine: The promise, the hype and the pitfalls conference with Healthcare Values Partnership

**July** UNIQ Programme for Year 12 students

**July** CUHK public lecture with Professor Dennis Lo and Dr Francis Szele, Hong Kong

**June** Big data, ethics and the market conference & workshop

**March** Subject family evening on implementing personalised medicine in the NHS

**January** Student workshop exploring ethical issues in personalised medicine



## 2015

**November** Historical perspectives on the genomic revolution in medicine lecture

**November** Medicine for the 21st century student symposium

**April** Personalized Medicine World Conference with PMWC

**April** 2nd CPM annual public lecture with Anne Wojcicki

**April** Integrating genetics into clinical practice GP education seminar

**March** 2015 Personalised medicine and resource allocation conference

## 2014

**October** 10 years on: Oxford and Chinese University of Hong Kong global collaboration seminar

**October** Personalised medicine: from science to clinical decisions, Hong Kong

**October** Ethical and public health implications of personalised medicine, Hong Kong

**June** Cheltenham Science Festival panel debate

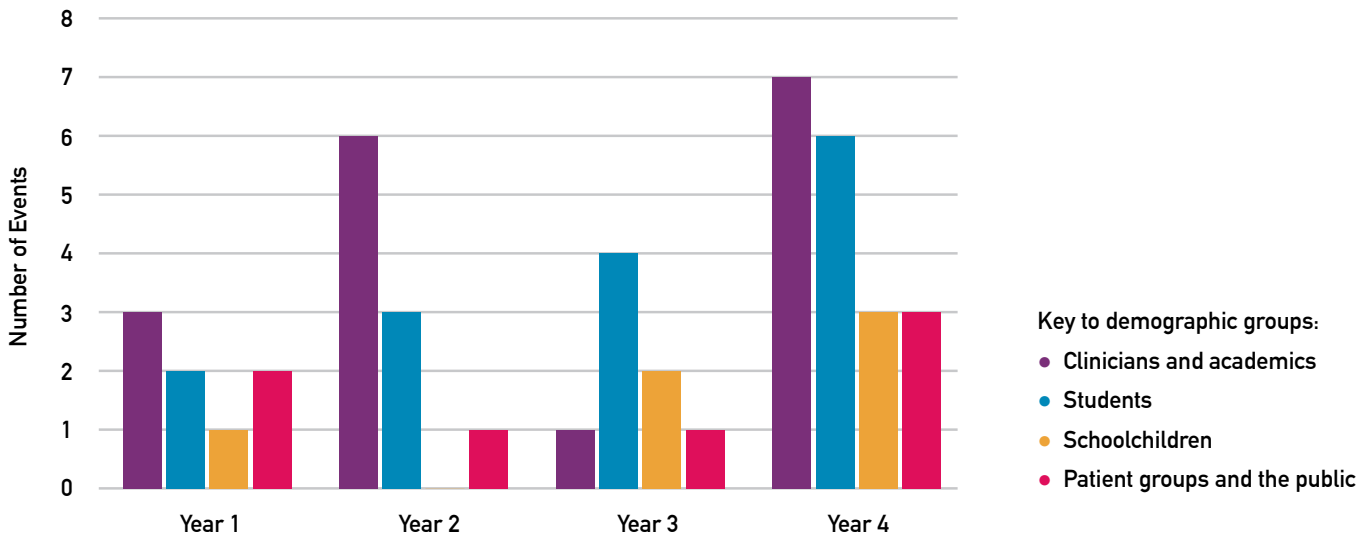
**March** Inaugural CPM annual public lecture with Patrick Vallance

**March** Seminar with Professor Dennis Lo

**January** CPM launch event at WTCHG

## 2013

**November** CPM launch event at St Anne's College



## Year Four activity summaries 2016–17

### Key to demographic groups:

- Clinicians and academics
- Students
- Schoolchildren
- Patient groups and the public

### ***Personalised Medicine: The promise, the hype and the pitfalls*** ● ● September 2016

The CPM was a key partner of the Healthcare Values Partnership in arranging this one-day multidisciplinary conference on the ethical, logistical and humanistic issues surrounding personalised medicine integration in healthcare.

### ***Career Workshop with WTCHG*** ● ● September 2016

The CPM joined forces with the WTCHG to host a career workshop on science communication, with a panel of speakers from the Wellcome Trust, Science Museum and Ludwig Institute. Each panellist gave a short presentation sharing the challenges and rewards they have experienced in their communications positions.

### ***Freshers' event*** ● October 2016

Junior Research Fellow Martijn van de Bunt introduced the CPM to an audience of new Medicine undergraduates, graduate entry medicine, Biochemistry and Biomedical Science students as well as STA Medical Sciences Masters and DPhil graduates at St Anne's College. This brief introduction ensured that all St Anne's students had a direct subject link to personalised medicine and were aware of the CPM, including its activities and benefits.

### ***CPM Annual Public Lecture*** ● ● ● November 2016

In the third annual CPM Annual Lecture, Dr David Altshuler discussed Human genetics and the discovery of new medicines. Dr Altshuler is Chief Scientific Officer of Vertex Pharmaceuticals, a global biotechnology company. This high profile public lecture attracted an audience of over 250 and it concluded with a VIP dinner at the Ashmolean Museum. The event was sponsored by Genomics plc.

### ***Big data research: Governance, security and ethics with the Big Data Institute*** ● ● November 2016

Big data science is heterogeneous and interdisciplinary, bringing together researchers from disparate areas of science, including mathematics, engineering, computational biology, statistics and medicine. The purpose of this one-day crash course was to familiarise students, researchers and other members of staff with the potential governance, security and ethical issues arising from big data research.

### ***Personalised medicine in practice seminar series 1: Cancer*** ● ● November 2016

The first in a seminar series focussed on personalised medicine in cancer, with talks given by leading experts from the UK and overseas. The integration of molecular and sequencing technologies in research has provided significant insight into cancer biology and treatment. The seminar explored scientific advances and highlighted the issues surrounding the personalisation of cancer diagnosis, patient stratification and therapy.

### ***Subject family evening*** ● ● January 2017

The CPM organised another of the St Anne's Subject Family Evenings, run termly for interested students, tutors and other staff from the College. The topic was immune responses in cancer and immunotherapy.

### ***Student debate on medical data sharing*** ● February 2017

"Is medical data sharing a threat to our privacy?" This is a highly topical question with data sharing now achievable on a scale not previously possible. The debate included references to Google DeepMind and the now-defunct care.data scheme and considered whether potential research gains outweigh any potential risk to privacy and the possible threat posed to patient confidentiality with the arrival of tech companies into the health arena.



### **Festival of ancient and modern science ● ●** **February 2017**

This festival was a celebration of science through the ages, from ancient Greece and Rome to the 21st century. The CPM ran a hands-on activity for school-aged children extracting DNA from strawberries as an example of modern scientific research.

### **Q&A session with Cancer Research UK ● March 2017**

An interactive session for members of the public and led by leaders in the field addressed three hot topics in oncology. Simon Leedham explored Why does my friend get drug x but I don't? Professor Tim Maughan, Professor of Clinical Oncology, Clinical Director of the CRUK/MRC Oxford Institute for Radiation Oncology discussed Hits and misses: why do some cancer drugs work better than others? Lastly, Dr Natalie Banner, Policy Advisor, Wellcome Trust introduced Should I be worried about allowing researchers to access my medical data?

### **Personalised medicine in practice seminar 2: Reproductive health ● ● March 2017**

The two-day seminar drew national and international speakers. It focused on methodology developments and discoveries in the field of reproductive science. The topics covered included preimplantation genetic screening, integrated genomics in reproductive traits, model systems and biomarkers in reproductive health, and ethics.

### **Talk to school children ● March 2017**

Simon Leedham gave a talk entitled Genomics: the future of medicine at the Oxford University Schools day, where local sixth formers visited the Old Road campus to learn about Medicine at Oxford University, the application process and the research that is carried out on the site.

### **Lecture to Oxford Brookes University students ●** **March 2017**

Martijn van de Bunt, the CPM's Junior Research Fellow, gave a presentation on Advances in Medical Genomics to a group of MSc Genomic Medicine students at Oxford Brookes University. The presentation taught the study about genetic associations, and then provided two examples of how genomics is currently informing patient stratification and treatment of Hepatitis C and diabetes. The lecture also included a discussion of the challenges of implementing personalised medicine in the context of common diseases.

### **Pint of Science ● ● ● ● May 2017**

The CPM ran two events as part of this popular festival which brings science to the local pub. As part of the "My Body" theme, Dr Leanne Hodson spoke about Following the fat and Dr Cath Green presented Multiple you: A lifetime of genetic change. For the "Tech me out" theme, Dr Nicola Beer explored Beer and CRISPR and Dr Christoffer Nellåker introduced Using selfies to diagnose disease.



## **Intellectual property, ethics and the market in the era of personalised medicine ●● June 2017**

The second of a three-year conference series on Personalised medicine, ethics and the market, this multidisciplinary two-day conference focused on Intellectual Property issues. It brought together academics, practitioners and industry experts to debate ways to promote biomedical innovation in the public interest. The conference discussed ways to address the challenges and opportunities for personalised medicine, including innovation in diagnostics, data sharing and access to clinical trial data, open innovation and the impact of patents on clinical practice. This series is a collaboration between the CPM and the Ethox Centre, University of Oxford.

## **UNIQ ● July 2017**

The CPM contributes to the UNIQ schools programme, where sixth formers from underprivileged schools spend time in Oxford in advance of application for future study. Simon Leedham led two sessions, discussing signalling pathways in cancer and the integration of genomics into the personalisation of healthcare. Students that compete to get onto the UNIQ program have a very high success rate for subsequent admission to Oxford, and feedback from the students is generally excellent.

## **Website and social media ●●●●**

The website has continued to develop and the web sub-group have worked on its content and clarity. The video library has grown as conference film is added. The Steering Group considered creating a new platform for the website with a much more modern feel, and this was agreed upon in Spring 2017. The web sub-group, comprising Professor Cecilia Lindgren and the administrators Catherine Lidbetter and Thea Perry, is working closely with web development company Olamalu to create a new website fit for purpose as the Centre heads into its second half-decade.

**YouTube:** 2,790 video views in the year 4 July 2016 to 3 July 2017. Euan Ashley's talk Towards clinical grade Whole Genome Sequencing was the most viewed with 130 views.

**Website:** There were 1,821 views of the videos embedded in the CPM website in the year ending 5 July 2017. The most popular video was Sally John's lecture The application of human genetics to drug discovery, with 757 views. [www.well.ox.ac.uk/cpm/video-library](http://www.well.ox.ac.uk/cpm/video-library).

**Twitter:** This has been an invaluable tool in Year Four, both in the promotion of the CPM's events and in social networking with interested individuals and groups. It has helped strengthen the Centre's visibility in Oxford, nationally and internationally. @CPMOxford has 285 Followers and had tweeted 448 times by 19 July 2017.

**Education ●●●●** The CPM has continued to provide educational events to all of its identified key audiences. This year has seen an increase in events for patient groups and the general public, such as the collaboration with Cancer Research UK on the Q&A session in March. The Centre also participated in public engagement with the Pint of Science evenings and the Iris festival. It has continued to focus on St Anne's medical students by providing a specific event for them and giving free student places at high-level meetings such as the seminars on Reproductive health and Cancer.

The half-day course in personalised medicine designed for graduate entry Medical students has yet to be implemented but the CPM continues to work closely with CPM Steering Group member Dr Gabriele De Luca, Deputy Director of the Accelerated Course at Oxford Medical School.

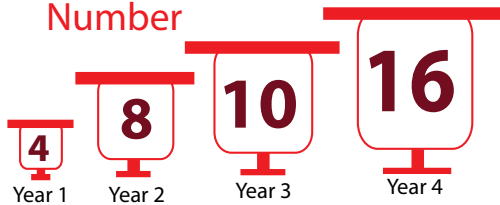
Dr Anna Schuh, a consultant haematologist and Director for Molecular Diagnostics in Oxford, has approached the CPM to ask for its involvement in an exciting new MSc in Precision Medicine at the University of Oxford. The MSc is being designed with a particular focus on cancer, genomics and other omics. It would hope to attract potential future leaders currently at the beginning of their careers to realise the potential for personalised / precision medicine. The MSc would be largely online and would be offered on a part-time or full-time basis.

Finally, the Centre has plans for several educational collaborations with the Biochemistry department, within the University and at St Anne's College specifically, to engage those students with personalised medicine.

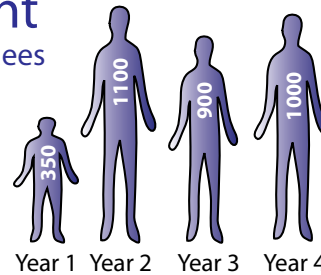


# Year 4 Impact Statement 2017

## Event Number



## Event Attendees



### Mission Statement

Harnessing and integrating the power of new technology to tailor healthcare is at the cutting edge of modern clinical medicine. The CPM was formed to engage clinicians, academics and the public with the benefits and challenges of this integration.



## Social Media



## Collaborations





## Year Five Strategic Plan 2016–17

The Centre will continue to embed itself within Wellcome Trust Centre for Human Genetics and St Anne's College activities, and arrange recurring engagement exercises and new seminar series to reinforce the CPM message and identity across Oxford University. To achieve this, it will continue to seek and develop collaborations with internal partners, such as Ethox, the Healthcare Values Partnership and the Oxford Inflammatory Bowel Disease Masterclass.

In the first 4 years of operation, the CPM has established a presence within Oxford University and steadily increased engagement activity. Whilst continuing this internal activity in Year Five, we would also like to expand the Centre's activity elsewhere.

The CPM will capitalise on established connections with the Chinese University of Hong Kong to organise bilateral personalised medicine meetings in Hong Kong / Macau or Oxford. The inaugural meeting in January 2018, entitled Personalised medicine: A focus on digestive diseases, will establish the connections for an ongoing partnership.



## Year 5 Summary of planned activities

### Key to demographic groups:

- Clinicians and academics
- Students
- Schoolchildren
- Patient groups and the public

### ***Personalised medicine in practice seminar series 3: Inflammatory bowel disease (Oxford Masterclass)*** ● ● **11 & 12 September**

Dr Simon Leedham and Dr Gabriele De Luca from the CPM Steering Group will join a distinguished panel of speakers in a two-day exploration of Personalised care in IBD: the interface between science and practice.

### ***London schoolchildren visit to Oxford*** ● 14 September

Dr Sara Pulit will lead a hands-on science activity as part of an academic taster session for 50 children from a primary school close to Grenfell Tower in London, many of whom lost classmates and relatives in the recent fire. The children will also visit the Museum of Natural History and have a tour of St Anne's College.

### ***WTCHG High Profile Seminar Series*** ● ● 25 September

Professor Dennis Lo, Director of the Li Ka Shing Institute of Health Sciences at the Chinese University of Hong Kong, will talk about his pioneering work in non-invasive prenatal diagnosis.

### ***Evening lecture at the King's Fund on the future of personalised medicine for cancer*** ● 25 September

Dr Simon Leedham will speak about personalised cancer treatment at an evening event run for the Guild of Health Writers. Other talks will explore the 100,000 Genomes Project, immunology in personalised cancer treatment, and a presentation of a case study from South Manchester NHS Trust.

### ***Freshers' event*** ● October

Dr Sara Pulit will explain the scope and purpose of the CPM to an audience of new Medicine undergraduates, graduate entry Medicine, Biochemistry and Biomedical Science students as well as STA Medical Sciences Masters and DPhil graduates. This brief introduction will ensure that all St Anne's students with a direct subject link to personalised medicine will be aware of the CPM and its activities and benefits.

### ***St Anne's Library and Academic Centre formal opening ceremony*** ● ● 20 October

The CPM has been invited to be involved with the formal opening of the new library, the top floor of which houses the CPM's St Anne's base and a number of research institutes. This will provide an opportunity to showcase the CPM's work to the College community and to a wider invited audience through displays, presentations and discussion.

### ***Radley School Science Festival*** ● 21 November

### ***CPM Annual Public Lecture*** ● ● ● 22 November

This year's annual lecture will be given by Clive Brown of Oxford Nanopore Technologies.

### ***CUHK seminar*** ● ● 12 January 2018

Professor Peter Donnelly, Professor Simon Travis and Dr Simon Leedham will travel to Hong Kong to participate in a personalised medicine forum on digestive diseases alongside academics from the Chinese University of Hong Kong (CUHK).



### **Stanley Ho Foundation medical symposium in Macau** ● ● 13 January

Professor Peter Donnelly, Professor Simon Travis and Dr Simon Leedham will present on The future of medicine at the annual Stanley Ho Medical Development Foundation meeting in Macau to local clinicians and academics.

### **Subject family evening: Forensics** ● ● February

As it has done in the past three years, the CPM will organise another of the St Anne's Subject Family Evenings, run termly for all interested students, tutors and other staff from St Anne's College. This time the evening will focus on the advances in Forensics brought about by Personalised Medicine.

### **Student workshop** ● Spring

Following last year's well-received student debate for St Anne's Medical students, the CPM is working with current St Anne's undergraduates to organise a second workshop around a Personalised Medicine-based theme of their choosing.

### **Personalised medicine in practice seminar series 4: Diabetes / obesity** ● ● March

This final seminar in the series will draw in some of its speakers from the Big Data Institute.

### **Oxfordshire Science Festival** ● ● ● June

### **Resource allocation, ethics and the market in personalised medicine conference with Ethox and HERC** ● ● 18 & 19 June

The CPM is also exploring hosting a lecture at WTCHG; collaborating on an event with the new Big Data Institute in Oxford; running an event for the GP community; and starting a new seminar series, this time on the theme of Personalised medicine in the media.

### **Website** ● ● ● ●

The CPM will work closely with web developers Olamalu to create a fresh website.

### **Education** ● ● ● ●

Involvement with the forthcoming MSc in Precision Medicine will continue alongside the busy schedule of educational events. The CPM will continue to lobby for personalised medicine to be included in the medical curricula at the University of Oxford.



## People

**Helen King** joined St Anne's College as its Principal in April 2017. Her previous career was as a police officer, serving most recently with the Metropolitan Police, where she was Assistant Commissioner for Professionalism. Helen is an alumna of St Anne's, having studied PPE in the 1980s before joining the Police under its Graduate Entry Scheme. Helen has started working with the CPM with great enthusiasm and insight, particularly in relation to how the Centre might work with the College to widen access. She co-chairs the Steering Group with **Professor Peter Donnelly** and she has joined the External Advisory Board.

**Dr Martijn van de Bunt** left his role of CPM Junior Research Fellow at St Anne's College in April for a new post in Denmark. His engagement with College communities and enthusiasm in thinking up and supporting events was vital in developing the CPM's programme during his tenure. The JRF post was filled in July by **Dr Sara Pulit**. She is working as a post-doctoral researcher at the Big Data Institute, having completed her PhD in statistical genetics in the Netherlands.

Director of the Centre **Dr Simon Leedham** continued his leadership of the CPM's academic direction. He has promoted the CPM far and wide when speaking at international events such as a lecture to the GESA Australian Gastroenterology Week in August 2017 on the Gold Coast. Programme Coordinator **Catherine Lidbetter** and Administrative Officer **Thea Perry**, based within their new office in the Library at St Anne's College and at the WTCHG, have organised an increasingly broad range of events, maintained and developed the website and provided the public face for the Centre.

Helen King



Dr Sara Pulit



Dr Simon Leedham



## Ongoing funding

The CPM was established and funded for five years with a £450,000 donation from the Stanley Ho Medical Development Foundation. The Wellcome Trust has provided an additional grant to cover the salaries of the Administrative team, as part of a public engagement funding bid by WTCHG. The CPM will require increased funding from 2018 to deliver increasing levels of activity in years 6-10.

Potential funding sources include philanthropic donations. The CPM is working closely with St Anne's College Development Office to approach possible donors. One-off event sponsorship, such as the sum received from Genomics plc for the 2016 annual public lecture, is another income stream to explore. This would be on the proviso that the sponsorship does not impact upon the independent nature of the programme's content. Several industrial partners have expressed an interest in working with the CPM in this capacity.



## Acknowledgements

Mr Patrick Huen and the Dr Stanley Ho Medical Development Foundation

Wellcome Trust

Dame Mary Archer, Chair of the External Advisory Board to the CPM

Professor Peter Donnelly, Director of the Wellcome Trust Centre for Human Genetics, Co-Chair of the CPM Steering Group

Ms Helen King, Principal of St Anne's College

St Anne's College Academic Office

St Anne's College Development Office

Wellcome Trust Centre for Human Genetics Business Manager and Administrative Team

Professor Dennis Lo and colleagues at the Chinese University of Hong Kong





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