

Cancer Grand Challenges

A New NCI Program in Collaboration with
Cancer Research UK (CRUK)

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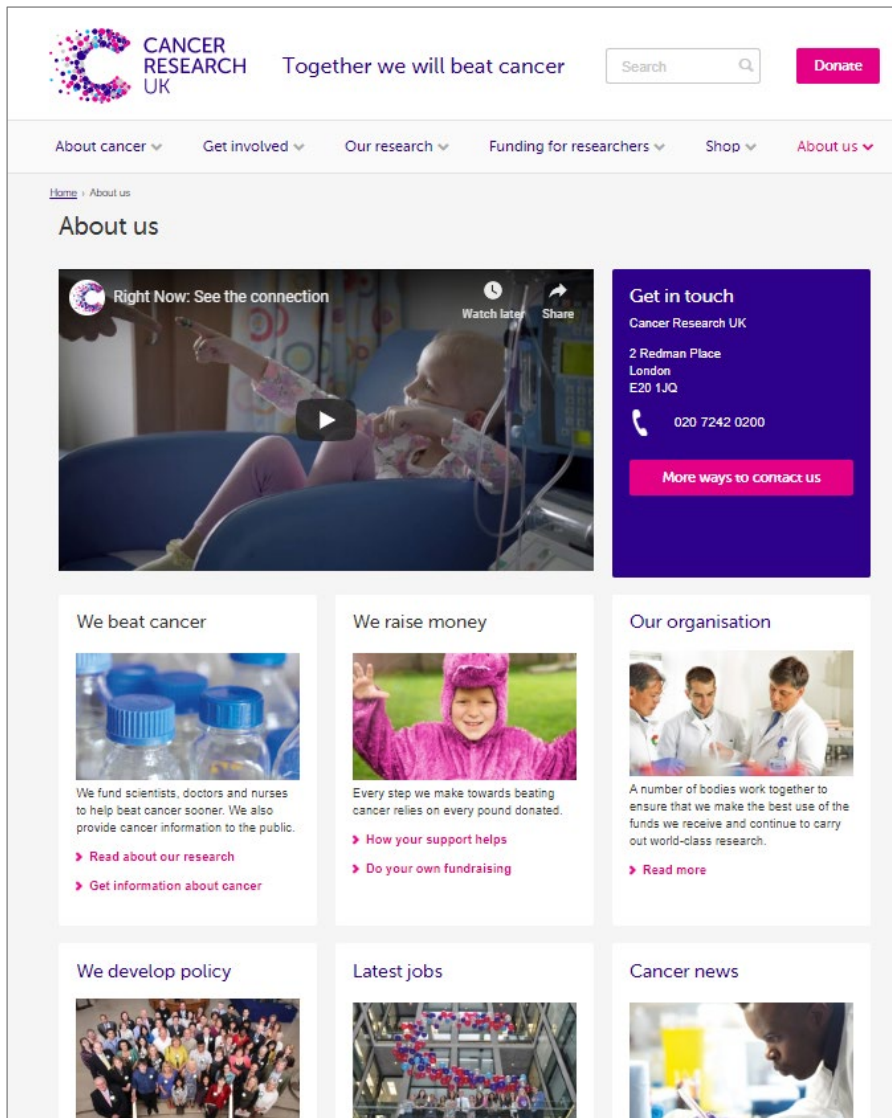
NCI Approaches to Address Specific Problems and Challenges



- Established in 2011 to stimulate research in areas that are perplexing, paradoxical or have not received sufficient attention
- New research questions are developed periodically through extensive engagement with the cancer research community

	Provocative Questions
Investigators	Individual principal investigator (PI) or multi-PIs, foreign participation allowed
Funding Scale	R21 (\$275K); R01 (~\$500K)
Number of Awards	R21 (10-15/year); R01 (25-35/year)
Award Period	R21 (\leq 2 years); R01 (\leq 5 years)

Opportunity: Combine the problem-identification process of the Provocative Questions initiative with a multidisciplinary team-based approach to attack major cancer problems from new perspectives



<https://www.cancerresearchuk.org/about-us>

Cancer Research UK (CRUK)

- World’s largest independent cancer research charity
- £413 million (\$531 million), financial year 2017-18
- Mission to promote public health by research into the causes, diagnosis, prevention and treatment of cancer
- Research funding through various mechanisms:
 - Investigator-initiated grants
 - Training fellowships
 - Research infrastructure (institutes and centers)
- 150+ research partnerships worldwide

“...partnerships enable mutually beneficial research collaborations with like-minded organisations... accelerating progress in the fight against cancer.”

Major Goals

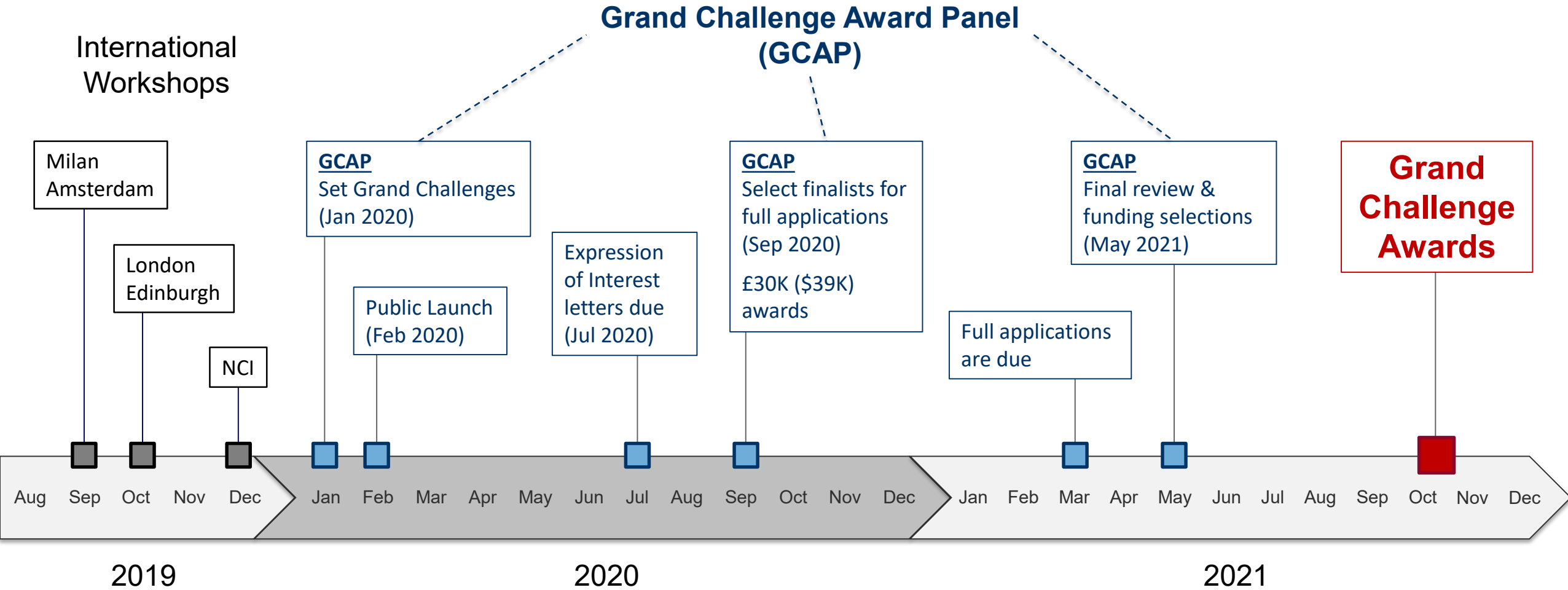
- Identify specific barriers that, if removed, would be transformative and unlock the potential for patient benefit
- Fund a portfolio of novel and innovative research to address the challenges
- Encourage multi-disciplinary approaches and attract new thinking to cancer research
- Train future leaders in cancer research
- Facilitate global collaboration among researchers

	Funded Awards (2017-2019)
Investigators	International teams; 8-15 investigators; 5-8 institutions; 3+ countries (on average)
Funding Scale	~ £20 million (\$26 million)
Number of Awards	3-4 per funding round (biennial)
Award Period	Generally 5 years (flexible)

Previous Grand Challenges Align with NCI Priorities

CRUK Grand Challenge	NCI Scientific Interest (NCI Program)
Map the molecular and cellular tumour microenvironment to define new targets for therapy and prognosis	Establishing a tumor atlas (Human Tumor Atlas Network)
Distinguish between lethal cancers which need treating, and non-lethal cancers that don't	Characterizing screen-detected lesions (MCL)
Develop innovative approaches to target the cancer super-controller MYC	Characterizing RAS oncogenic mutants (Ras initiative)
Define mechanistic rules for combinatorial treatments to overcome resistance and avoid toxicity	Defining the basis for intrinsic and acquired drug resistance (DRSN)
Create novel tumour vaccinology approaches that establish or enhance successful immune responses beyond what is revealed by current checkpoint therapy	Improving immuno-oncology through the identification of new antigens and approaches (IOTN)

Grand Challenge Process



Grand Challenge Award Panel



Sir Paul Nurse, Panel Chair
The Francis Crick Institute, UK



Professor René Bernards
Netherlands Cancer Institute



Professor Suzanne Cory
University of Melbourne, Australia



Professor Brian Druker
Oregon Health and Science University, US



Professor Judy Garber
Dana-Farber / Harvard Cancer Center, US



Professor Ed Harlow
Harvard University, US



Professor David Hunter
University of Oxford, UK



Professor Nic Jones
The University of Manchester, UK



Professor Sir David Lane
A*STAR, Singapore



Professor Crystal Mackall
Stanford University, US



Professor Charles Swanton
The Francis Crick Institute / University College London, UK



Professor Karen Vousden
The Francis Crick Institute, UK

Grand Challenge Portfolio

	PI	Countries (# of investigators)	Title	Funding
Round 1	Greg Hannon	UK, Switzerland, US, Canada and Republic of Ireland (15)	Creating Virtual Reality Maps of Tumors	£20M
	Josephine Bunch	UK (12)	Studying Tumor Metabolism from Every Angle	£20M
	Jelle Wesseling	The Netherlands, UK and US (13)	Preventing Unnecessary Breast Cancer Treatment*	£15M
	Mike Stratton	France, UK and US (8)	Identifying Preventable Causes of Cancer	£16M
Round 2	Thea Tlsty	Canada, Israel, UK and US (14)	A New Way to Tackle Inflammation-Associated Cancer	£20M
	Matthew Meyerson Wendy Garrett	Canada, The Netherlands, Spain, UK and US (14)	Manipulating the Microbiome to Beat Bowel Cancer	£19M
	Stephen Elledge	The Netherlands, UK and US (13)	Understanding Why Cancers Grow in Some Tissues and Not In Others*	£20M
	TOTAL			£131M

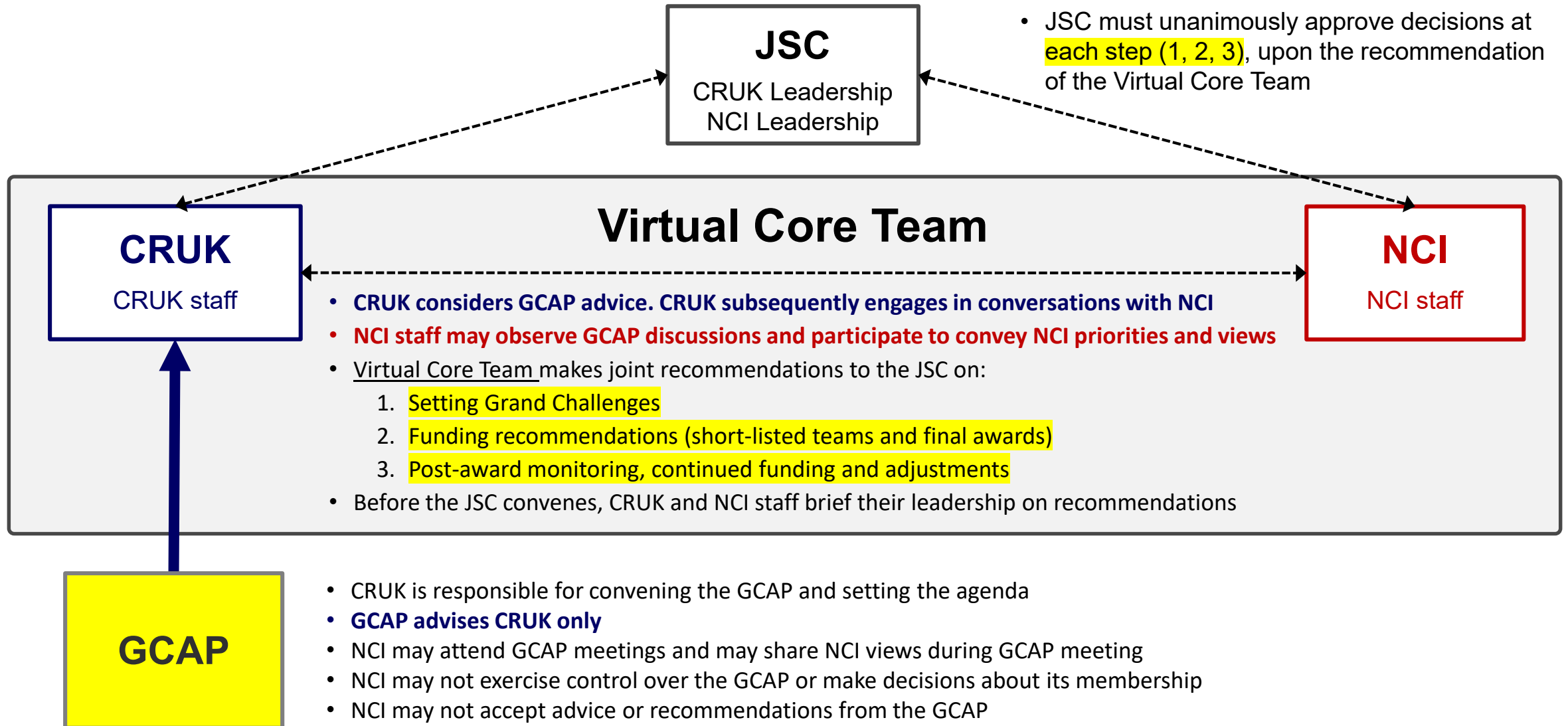
<https://www.cancerresearchuk.org/funding-for-researchers/how-we-deliver-research/grand-challenge-award/funded-teams>

*Co-funded through partnerships

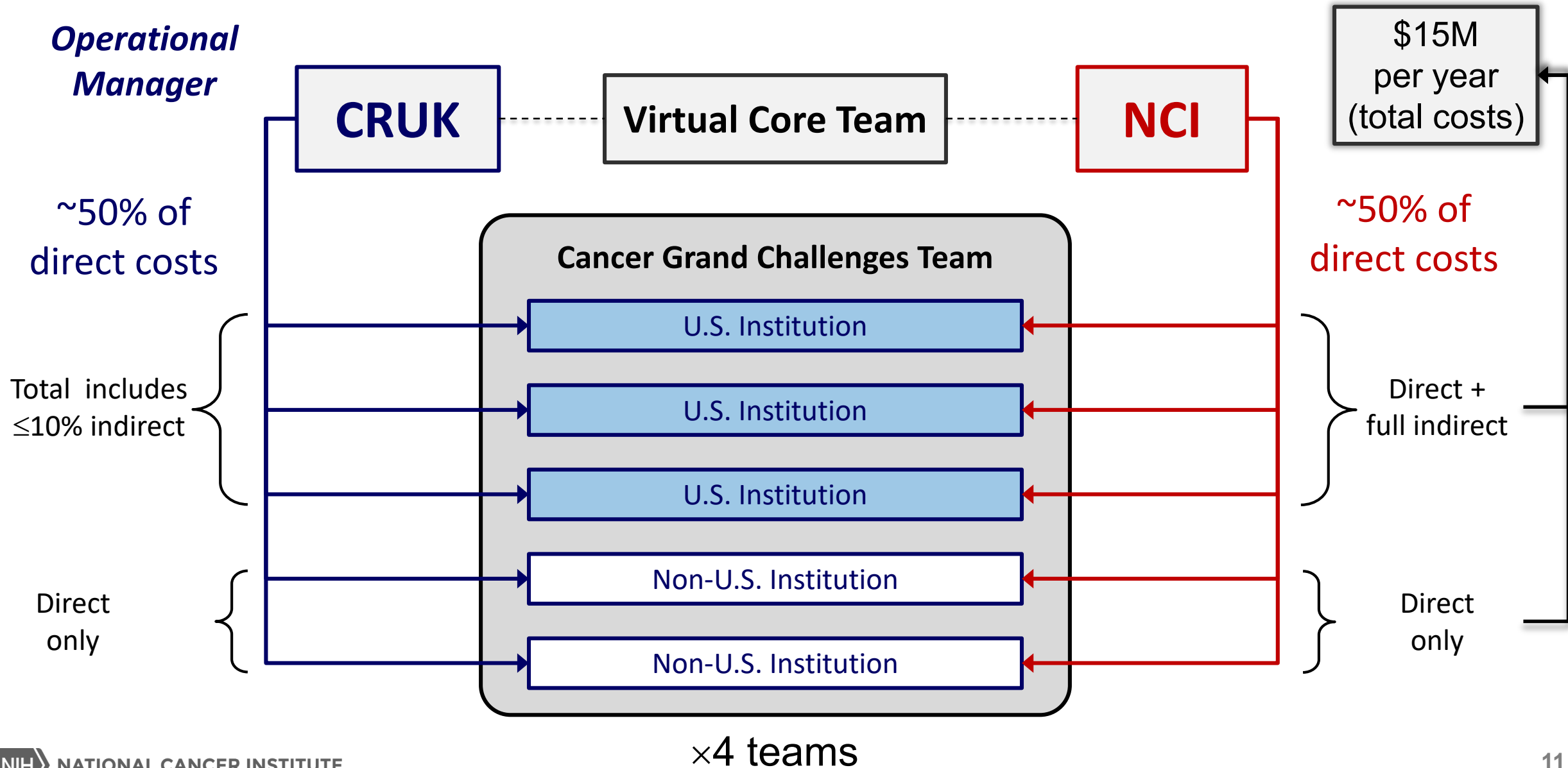
Partnership Agreement with CRUK

- NCI will partner with CRUK to co-fund approximately four Grand Challenge awards per biennial funding round (×3 rounds)
- NCI funding will be awarded using the Other Transactions Authority (OTA) mechanism
- Funded teams will sign a master Funding and Collaboration Agreement (FCA) co-developed by CRUK and NCI
- All decisions regarding the Partnership will be approved by a Joint Steering Committee comprising CRUK and NCI leadership

Governance Model

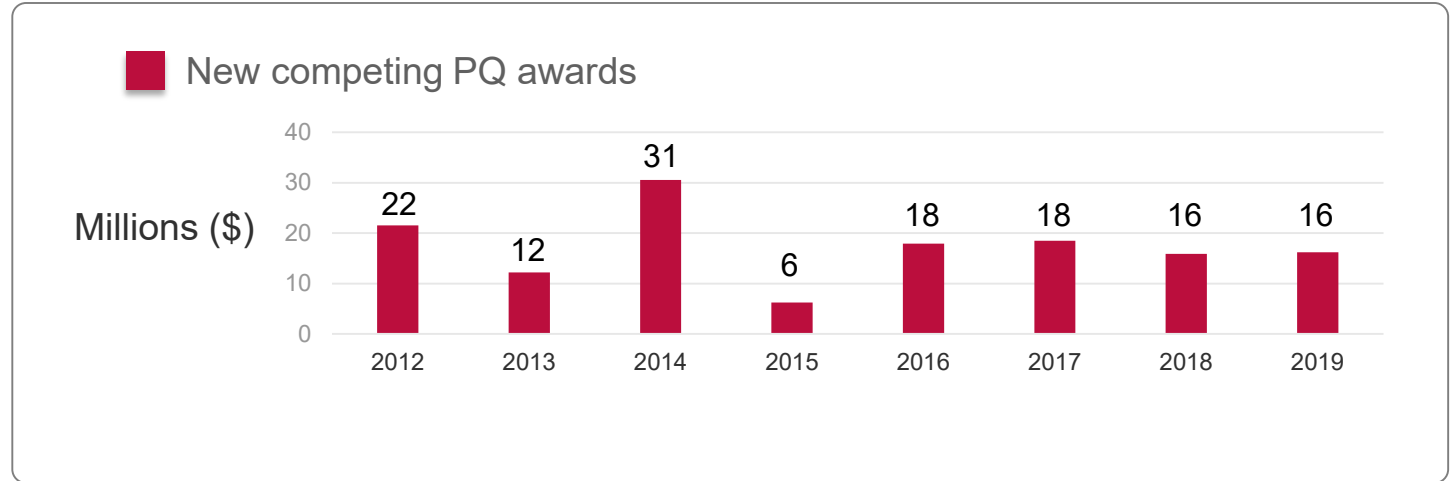
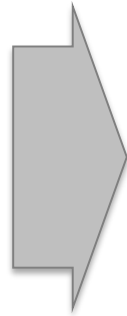


Funding and Operations



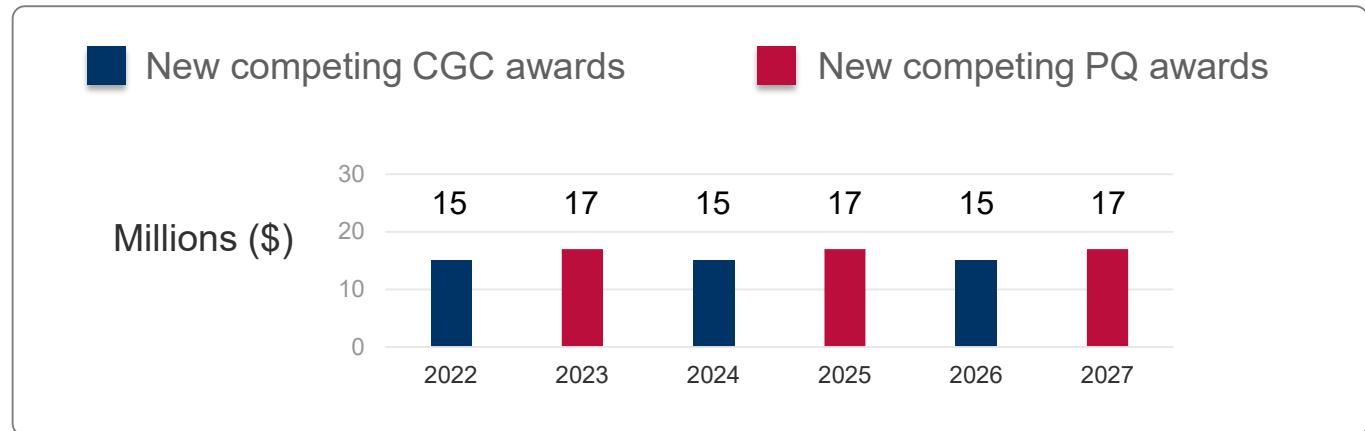
NCI Budget Impact

Provocative Questions (ACTUALS)



Future Estimates

- Cancer Grand Challenge (~\$15M)
- Provocative Questions (~\$17M)
- Alternating years



Looking Ahead

- Grand Challenge is a new approach to identify scientific opportunities and support team-based cancer research
- CRUK and NCI will work collaboratively to develop a program evaluation framework
- Opportunity to further engage with the US cancer research community to advance scientific progress
- NCI Grand Challenge Consultation Workshop (Dec 4)
- Thank you



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