

BEATING CANCER SOONER

OUR RESEARCH STRATEGY

Let's beat cancer **sooner**
cruk.org



CANCER
RESEARCH
UK

OUR VISION

Cancer Research UK's vision is to bring forward the day when all cancers are cured.

Over the last 40 years, cancer survival rates in the UK have doubled. In the 1970s just a quarter of people survived. Today that figure is half.

Our ambition is to accelerate progress and see three-quarters of patients surviving the disease within the next 20 years.





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FOREWORD



The burden of cancer continues to rise nationally and globally. In the UK, more than 330,000 patients are diagnosed with cancer each year. This is forecast to rise to more than 425,000 annually by 2030.

Cancer is a disease of vast complexity and there is much we have yet to learn. However, in recent years, understanding of the disease has improved markedly and significant technological advances have been made. This creates exciting opportunities to develop new diagnostics, therapeutics and prevention approaches which will have a profound impact.

Our supporters give generously in the expectation that we will take advantage of these opportunities, delivering benefits for patients and the public in the short

and long term. We will achieve this by supporting excellent research, as well as by influencing policy and empowering the public to ensure that the outputs of research are adopted.

This strategy sets out Cancer Research UK's priorities for the next several years. We have set an ambitious agenda and will pioneer new approaches and bring new disciplines to bear on the cancer problem. We will continue to support research into all types of cancer, across all age groups, emphasising areas which we believe have

significant life-saving potential. Over the last five years, we have invested more than £1.5 billion in research. Looking forward, we plan to grow our investment substantially, increasing our funding in existing areas, as well as establishing important new areas of research.

The UK research environment provides an ideal platform for making progress. We have excellent researchers based in an academic network of world-leading universities, working in partnership with a single health system. Our progress is dependent on the outstanding individuals and teams who conduct research across the country. It is their curiosity and passion that will ultimately lead us to the answers we need to beat this disease. We welcome their ideas and our strategy will continue to evolve in response.

As we have consulted with the research community in developing this strategy, I have been struck by the sense of excitement and optimism, which spans those directly involved in the research endeavour, to those who use the outputs of that research to deliver better care for patients. While no one underestimates the challenges and barriers we have yet to overcome, there is an overriding belief that the next several years can, and will, transform the outlook for cancer patients.

We could not achieve anything without the generosity of our supporters and the dedication of the cancer patients who selflessly participate in our research. They make the extraordinary possible and enable us to have belief in our vision of bringing forward the day when all cancers are cured.

Harpal S Kumar
Chief Executive
May 2014

EXECUTIVE SUMMARY

Cancer Research UK will achieve its ambitions through a substantial increase in research in priority areas over the next several years. In particular, we will:

- Substantially increase investment to support the earlier diagnosis of cancer
- Increase investment two- to threefold over the next five years in lung, pancreatic, oesophageal cancers and brain tumours
- Continue to invest heavily to understand better what causes and drives cancer and the role of the immune system, including through the establishment of the Francis Crick Institute
- Increase investment in prevention research, including a new centre to support long-term reduction in cancer incidence and continued work on tobacco control
- Continue to discover and develop new therapeutics, surgery and radiotherapy treatments, including increased investment in biological therapies
- Optimise the chance of survival for every individual, through precision medicine approaches

To deliver these priorities, we will:

- Significantly increase investment through funding committees and launch at least four new funding schemes, including a set of grand challenges to address the major questions in cancer
- Encourage collaborative approaches, seeking to increase international partnership and the involvement of non-traditional cancer disciplines, such as engineering and the physical sciences
- Invest heavily in our Centres as a world-class network for the translation of cancer research for patient benefit
- Support and develop the very best researchers, at all stages of their careers

OUR PRINCIPLES

People

We are entirely dependent on the passion, creativity and expertise of the scientists and clinicians we support to achieve our vision.

Our strategy is built on the principle that supporting excellent people is central to doing the highest quality research.

To successfully deliver our new research strategy, we will continue to fund only the best individuals, giving them the autonomy and flexibility to undertake research that tackles the important questions in cancer research. We remain dedicated to the principle that research ideas, approaches and innovations will come from the research community. We will provide our researchers with the right resources, environment and freedom to flourish.

Nearly all of us will be affected by cancer at some point in our lives. We are committed to finding new ways to work alongside our supporters and the public, making sure that every person who wants to join the fight can get involved. We value the important role researchers play in engaging our supporters and the public with their work, through communication, collaboration and involvement.

We have consulted with a broad range of patients and their loved ones to ensure that their views help to shape our priorities. Many patients and survivors volunteer for us in a range of capacities that support our research and influencing activities, including serving as representatives on our scientific funding committees and campaigning for us on policy issues. Over the coming years we will increase the opportunities for people to get involved in our work.

EVERY YEAR MILLIONS OF PEOPLE HELP US TO RAISE VITAL FUNDS TO SUPPORT RESEARCH AND ACCELERATE PROGRESS IN TACKLING CANCER

Partnership

Cancer research requires effective partnership to deliver the greatest impact for patients.

We are one of many players in the global fight against cancer, sharing objectives with a broad range of other organisations. We will seek to develop effective partnerships with all sectors (NHS, commercial, governmental, academic and other charitable organisations) to accelerate progress in research, and to influence policy and inform the public. We will partner with organisations internationally, ensuring that cancer is tackled on the global stage.



Collaboration

Solving the challenges of cancer prevention, diagnosis and treatment will require multidisciplinary collaboration, both within the biomedical arena and with other disciplines.

We believe that increasing interaction between scientific disciplines, including engineering, physical and population sciences has potential to deliver innovation by bringing multiple perspectives to bear on the cancer problem.

Networking across the UK and beyond will also be critical to achieving maximum impact from our research. During the past five years we have strengthened our research environment to support collaboration, particularly through long-term infrastructure investments such as our Institutes and Centres. Moving forward, we aim to further integrate our research, continuing to build a highly functioning network for cancer research.



STRATEGIC FRAMEWORK

Our new strategy will accelerate progress in tackling cancer by focusing our research effort on four key objectives.

Our approach outlines the actions we will take as an organisation to achieve these objectives, including building on areas of significant strength and dramatically increasing our investment in areas where we want to build research capacity.

OUR OBJECTIVES

PREVENT

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DIAGNOSE

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TREAT

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OPTIMISE

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OUR APPROACH

BUILD OUR UNDERSTANDING OF CANCER

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FACILITATE A MAJOR SHIFT IN EARLY DIAGNOSIS RESEARCH

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TACKLE CANCERS WITH SUBSTANTIAL UNMET NEED

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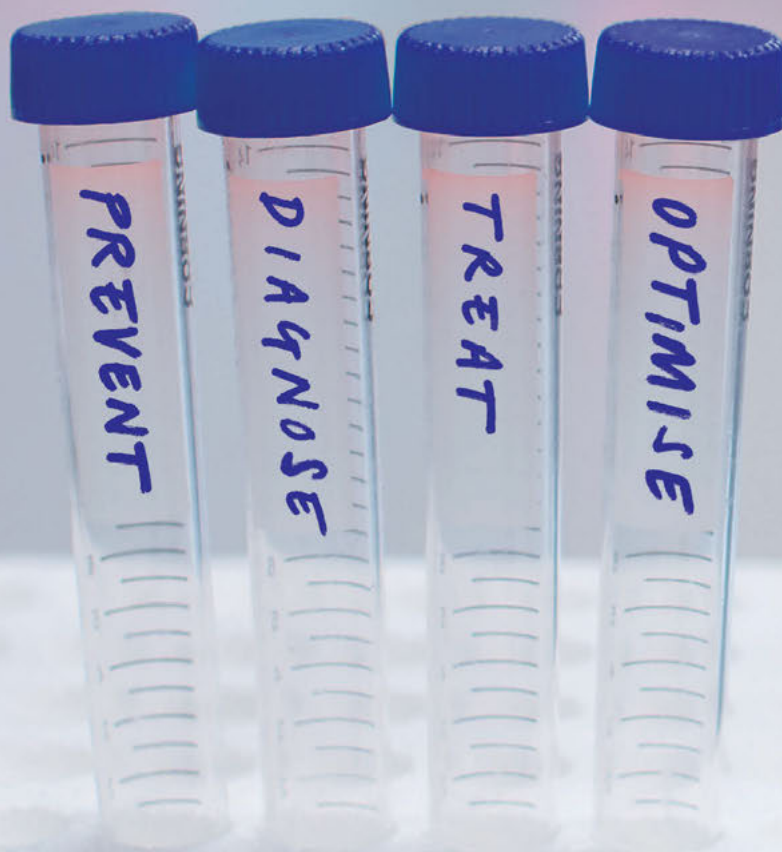
ACCELERATE THE TRANSLATION OF RESEARCH

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DEVELOP THE CANCER RESEARCH LEADERS OF TOMORROW

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OUR OBJECTIVES



WE'RE TACKLING CANCER
ON ALL FRONTS



IN THIS SECTION:

Our objectives

Over the coming years we will support research across these key areas.

- 08 **Prevent:** Reduce people's risk of developing cancer
- 10 **Diagnose:** Diagnose more cancers earlier
- 12 **Treat:** Develop new cancer treatments
- 14 **Optimise:** Make cancer treatments more effective

OUR OBJECTIVES

PREVENT

Reduce people's risk of developing cancer

More than 40% of all cancers diagnosed in the UK are attributed to lifestyle and environmental factors.

Although we now understand the main preventable risk factors for the disease, achieving large-scale behaviour change is a huge challenge.

There is a growing imperative to address the problem of cancer, alongside other diseases with lifestyle risk factors such as heart disease and diabetes, using preventative approaches.

With the range and breadth of our research and policy activities, we will adopt a holistic approach to tackle the challenge of cancer prevention.

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We have a strong body of evidence on the key risk factors associated with cancer and the relative importance of different preventative interventions. Now we need to take full advantage of this insight, identifying and evaluating new approaches to empower people to reduce their risk in the UK and across the world.

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Professor Sir Michael Marmot
Professor of Epidemiology
and Public Health, University
College London

Work towards a tobacco-free UK

Smoking is by far the most important preventable cause of cancer in the world. Smoking rates, although declining in Britain, are still at 20% of the adult population, and around 150,000 children take up the habit every year. Our impact in this area could be dramatic – reducing the number of people smoking by just 1% could save 3,000 lives per year in the UK from cancer alone.

We have a critical role to play in influencing tobacco legislation and changing attitudes to smoking. We already have a strong track record of funding tobacco research, which has underpinned some of the major shifts in policy in recent generations, such as smoke-free legislation. Our ultimate ambition is to see a tobacco-free UK, with an adult smoking rate below 5%.

We will lead an ambitious and coordinated research agenda – supporting behavioural, health services and targeted policy research to continue to reduce the number of people smoking. We will lobby governments and work with international partners to influence tobacco control on the global stage.

Develop and test chemopreventive agents

Along with lifestyle changes, chemopreventive strategies have significant life-saving potential. There is growing evidence to suggest aspirin could join the small number of drugs, such as tamoxifen, which have an established preventative effect against cancer. We need to understand more about aspirin's underlying mechanisms and to identify subsets of patients prone to harmful effects such as upper gastrointestinal bleeding and ulceration.

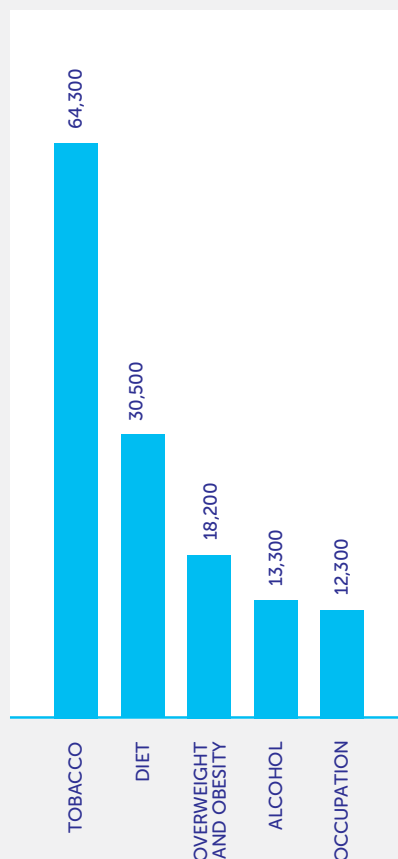
We will play a decisive role in this area, supporting clinical and preclinical studies of aspirin and other chemopreventive agents, to determine optimum dosage and to help identify groups at increased risk of side effects.

WE NEED TO
**PREVENT MORE
CANCERS**

40%

ARE LINKED TO PREVENTABLE
RISK FACTORS

Number of cancers linked to lifestyle factors



Selected lifestyle factors estimated UK 2011

Source: Parkin, The fraction of cancer attributable to lifestyle and environmental factors in the UK in 2010, British Journal of Cancer (2011) 105, S2 – S5

REDUCING THE NUMBER OF
PEOPLE SMOKING BY 1%

COULD SAVE

3,000

LIVES PER YEAR IN THE UK

Empower people to make lifestyle changes to reduce their risk of cancer

To successfully design and implement behavioural change interventions, we need a robust evidence base and rigorous evaluation, based on an in-depth understanding of human behaviour, societal issues and policy implications. We also need to offer the right kind of information and advice to empower people to make positive health choices.

We will help develop, implement and evaluate novel interventions to change behaviour, see page 26. We will bring together epidemiology, health economics, behavioural and policy research. We will also work with experts from other fields, such as social and consumer marketing, to see where we can apply the lessons they have already learned. Through our website, Cancer Awareness Roadshows and campaigns, we will continue to provide crucial information to empower people to make lifestyle changes.

Develop stratified approaches to prevention and screening

As we learn more about the links between genetic, lifestyle, environmental and phenotypic factors, these insights can be used to identify groups of people at the highest risk of developing cancer. This will facilitate the development of stratified prevention and screening strategies and ensure clinicians and public health professionals are targeting those at the highest risk, while reducing over-diagnosis.

We will support research that seeks to apply a range of markers to more accurately define risk in key populations, as a basis for the development of targeted prevention or early detection algorithms.

OUR OBJECTIVES

DIAGNOSE

Diagnose more cancers earlier

Earlier diagnosis of cancer offers the greatest potential for transformational improvements in patient outcomes.

The chances of survival are increased significantly for almost all patient groups if the disease can be diagnosed and treated at an early stage. For example, a patient diagnosed with stage I lung cancer has over 70% chance of survival beyond one year. This drops to less than 15% if diagnosed at stage IV.

In addition, the identification and successful treatment of precancerous lesions can prevent them progressing to cancer in the first place.

We recognise the pressing need to build research capacity across a spectrum of disciplines – basic biological research, diagnostic development, epidemiology, health services research, behavioural research and policy activities.

With the range and breadth of expertise and infrastructure in our portfolio, and our close links with the NHS, we are ideally placed to take a lead in this area.

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Earlier diagnosis is the most promising approach to improve long-term survival of patients with cancer. Research in this area has been revitalised by improvements in technologies to isolate and characterise genomic, proteomic and other biomarkers that correlate with cancer. The challenge now is to discover and develop markers individually, and in combination, to detect cancer earlier in selected populations, overcoming the inherent risk of over-diagnosis and the challenge of cost-effectiveness.

”

Professor Rebecca Fitzgerald
MRC Cancer Cell Unit
University of Cambridge

Help more people get diagnosed earlier

The reasons people delay going to the doctor when they have cancer symptoms are varied, and include lack of awareness of cancer signs and symptoms, fear of a cancer diagnosis or difficulties in securing a GP appointment. In addition, there are often delays between initial patient presentation and their eventual diagnosis. Through the National Awareness and Early Diagnosis Initiative (NAEDI) – which aims to coordinate and support activities and research that promote the earlier diagnosis of cancer – we are already providing leadership in this area.

We will continue to work in partnership with Departments of Health, government and the media to influence policy and develop behavioural interventions addressing the barriers that prevent people going to their doctor when they have cancer symptoms. We will pilot new approaches to speed up diagnosis and continue our work to better understand the current causes of delay.

Enhance the uptake and accuracy of screening programmes

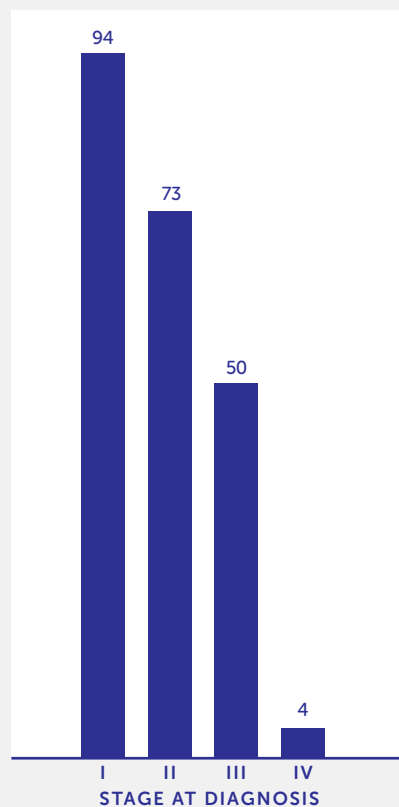
We have contributed to the development of national screening programmes for breast, bowel and cervical cancer, which have already saved thousands of lives. Increasing the uptake of these programmes in the future has the potential to save many more.

The current breast screening programme is unable to differentiate between aggressive tumours requiring treatment and those that ultimately will do no harm, leading to the over-treatment of patients.

We will support research to better understand behaviours related to screening uptake in different segments of the population. What we learn will be effectively translated through our awareness campaigns and policy work. In partnership with the NHS, we will ensure roll-out and uptake of new, effective screening programmes across the UK. We will seek to identify new biomarkers that distinguish cancers that require treatment from those that do not, to help reduce unnecessary treatment for patients with indolent disease.

WE NEED TO INCREASE THE PROPORTION OF CANCERS DIAGNOSED AT AN EARLY STAGE

Stage variation
10 year relative survival for
colorectal cancers (%)



Source: The National Cancer Registration Service
Eastern Office, Year of diagnosis 1996-2000

EVERY 1% INCREASE IN CANCERS DIAGNOSED AT STAGES I OR II COULD MEAN

1,200
MORE PATIENTS
ARE ALIVE FIVE YEARS
AFTER DIAGNOSIS

Develop more effective screening tests

To be effective, screening tests need to be specific and sensitive, distinguishing healthy individuals from cancer cases with a high degree of accuracy. They also need to be cost-effective to support roll-out on a broad basis. There is a range of biomarker types which singly or in combination could potentially be used to detect cancer early enough for successful treatment.

Imaging plays a crucial role in the majority of diagnoses, but is not a cost-effective means of detection on a population-wide basis for most cancers. We therefore need to develop strategies based on biomarkers present in the blood or other bodily fluids, prior to detection and localisation of tumours with imaging.

Technological developments, such as deep sequencing of circulating nucleic acids, improvement in proteomics and in imaging technology, present significant promise. Innovative thinking will be needed to translate novel biomarker discoveries into clinically viable diagnostics and new screening programmes.

We will initiate new research into biomarkers for early detection. We will take a multidisciplinary approach, involving biologists, clinicians, technology experts, physicists, engineers, molecular pathologists and biostatisticians to overcome the barriers to progress.

OUR OBJECTIVES

TREAT

Develop new cancer treatments

Cancer is a complex set of diseases and our approach to therapeutic innovation must therefore cover a breadth of modalities, including drugs, radiotherapy and surgery.

Delivering more effective treatments will require new perspectives, mechanisms and methods, grounded in an ever more detailed understanding of the biology of cancer.

The UK provides an excellent environment for therapeutic innovation, with a strong clinical community, translational infrastructure and the NHS. With our portfolio of basic research and wealth of experience in therapeutic discovery and early clinical development, we are well placed to support this endeavour.

We will continue to invest in this area to increase the number of promising therapeutic agents under development. Through our policy activities we will lobby for more rapid adoption of effective new treatments into the health-care system, working towards a day when every patient can receive curative treatments for their cancer.

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Our ambition in cancer drug development is to redefine how cancer is treated and to accelerate the delivery of the next generation of medicines to patients who need them. Our understanding of the genetic aberrations underlying cancer development and how resistance to therapies develops, underpins the large number of molecules now in development. Academic research plays a critical role in this, with new models of interaction between academia and industry driving ever faster progress.

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Dr Susan Galbraith
AstraZeneca

Lead innovation in radiotherapy and surgery

Surgery and radiotherapy remain the mainstays of treatment and are responsible for saving the most lives from cancer. Both modalities are becoming more tightly targeted to the tumour with fewer side effects. There is an opportunity for continued improvement of both.

Four in 10 people who beat cancer have received radiotherapy as part of their treatment. We identified radiotherapy as a priority in our last strategy and have since made huge strides – in the past five years the number of radiotherapy trials we support has trebled.

Recent advances, including Stereotactic Ablative Radiotherapy, image-guidance techniques and proton beam therapy, have opened up exciting new avenues. There is little industry incentive to carry out the expensive clinical trials required to properly assess these rapidly developing new technologies. We therefore have a vital role to play in supporting innovation, ensuring that effectiveness is robustly assessed.

There continue to be opportunities for innovation in cancer surgery, including less invasive approaches and the use of advanced imaging to more tightly define resection margins. There is also scope to develop more effective treatment regimes by combining radiotherapy and surgery with drugs. Research-active surgeons not only play a vital role in developing and evaluating novel surgical techniques and technologies, but also play a critical role in leading and supporting broader basic, translational and clinical research.

We will support continued growth in radiobiology and radiotherapy research, through the CRUK/MRC Oxford Institute for Radiation Oncology and our involvement in the Clinical and Translational Radiotherapy Research Working Group (CTRad).

We will continue to support innovation through surgery research, and ensure that surgeons have the opportunity to contribute to cancer research more broadly.

WE NEED
INNOVATION
ACROSS ALL TREATMENTS

OF ALL PATIENTS
CURED

40%

WILL HAVE
RADIO THERAPY

49%

WILL HAVE
**SURGICAL
INTERVENTION**

Source: Department of Health (2012). Radiotherapy services in England 2012. Price, P. And Sikora K. (2008) Treatment of Cancer, 5th edn. London: Arnold Hodder.

EVERY YEAR AROUND

33,000

PATIENTS ENTER
TRIALS
WE SUPPORT

NEW AVENUES OF
RESEARCH
COULD
SAVE MORE LIVES

Discover and develop new therapeutics

The sheer number of driver mutations, coupled with tumour evolution and redundancy in signalling pathways necessitates continued innovation in therapeutic discovery. The development of molecularly targeted therapies to exploit the particular genetic vulnerabilities of cancer cells holds promise for continued advances in cancer treatment.

In addition, recent research has highlighted the significant potential of manipulating the immune system to treat cancer. Combining immunotherapies with other targeted therapies holds the potential for remarkable improvements for many patients.

In addition to small-molecule drugs, a range of biotherapeutic approaches, including monoclonal antibodies, cell therapies and viruses, offer potential for future development.

We will make significant investments in therapeutic discovery and development across all modalities. Our approach to therapeutic discovery and development is described on pages 26 and 27.

Focus on high-reward targets

Many of the most commonly mutated cancer genes are currently considered 'undruggable' targets, although some show promising anti-tumour activity when their normal function is restored in preclinical experiments. Despite more than three decades of intensive effort for some of these targets, no effective pharmacological inhibitors have reached the clinic.

We will support renewed efforts to find drugs against these high-profile targets, accepting that the risk of failure for any one approach is high, but recognising the potential to develop new drugs that could benefit a broad range of patients.

OUR OBJECTIVES

OPTIMISE

Make cancer treatments more effective

The wealth of information now available to help characterise tumours provides potential to optimise treatment for each individual patient.

We need to get the most out of new treatments that we develop and those we already have. It is likely that combination approaches will ultimately prove most effective.

Ideally patient treatment decisions will be made on a truly individual basis, both at the initiation of treatment and at the point of recurrence, utilising a more complete understanding of the nature of the tumour and its surrounding microenvironment.

We will support more experimental medicine studies, through Experimental Cancer Medicine Centres (ECMCs) and our extensive clinical trials portfolio to realise our aspiration of making precision medicine a reality in the UK.



New technologies, including genetic sequencing and molecular imaging, tell us that each person's cancer is as unique as their fingerprints, creating an opportunity for more precise treatment. Personalised, minimally invasive surgery and radiotherapy combined with molecularly targeted agents for diagnosis, imaging and therapy, focusing particularly on patients with early stage disease, will dramatically improve our chances of delivering long-term survival.



Professor Gillies McKenna
Director of the CRUK/MRC
Oxford Institute for
Radiation Oncology

Advance our understanding of tumour heterogeneity and evolution

Recent studies have revealed extensive intra- and inter-tumour heterogeneity, which evolves over time – either as part of natural disease progression or accelerated by therapeutic intervention. Developing our understanding of this evolutionary process and how it links to the development of patient relapse will underpin future therapeutic discovery and development and will ensure we can make better use of the treatments we already have.

Building understanding of these areas will require greater insight into the underlying biology, using *in vivo* and *in vitro* models and integrating biomarkers into both early- and late-phase trials. This will depend on new models of collaboration, high-quality tissue samples associated with clinically annotated data and a variety of technologies and capabilities (e.g. functional imaging, deep sequencing, repeat biopsy, liquid biopsy).

We will encourage and facilitate further research in this area.

Develop new combination treatments

While we don't yet fully understand drug resistance, it is likely to be the result of redundancy in signalling pathways and rapid evolution of tumours fuelled by genetic instability. Combinations of therapies, including radiotherapy or surgery as well as different drugs, work by attacking cancers through different modalities or at multiple points in the same pathway.

We will support approaches to investigate novel therapeutic combinations in the lab and in the clinic. We will continue to develop an understanding of how, and in which patient populations, new therapeutic combinations might be used most effectively. We will also work with pharmaceutical companies to explore access to experimental drugs from their pipelines, to enable clinical investigation of such combinations.

Tailor treatment to the individual

Biomarker-based tests present an opportunity to radically improve our ability to tailor treatments to individuals. Stratification of patients 'out' of treatments to which they will not respond will prevent potential harmful side effects. Recent advances in detecting circulating tumour cells (CTCs) and circulating free DNA (cfDNA) as well as improvements in functional imaging, provide the promise for decision-making based on genetic and phenotypic aspects of the tumour, without the need for invasive procedures.

We will ensure that the required capability to perform robust biomarker discovery and validation exists to translate the discovery of new biomarkers into changes in clinical practice. We will play a lead role in the global effort to discover and develop imaging, CTC and cfDNA technologies into clinically viable diagnostics. We will also invest in efforts to establish standardised readouts for immune therapies.

We will continue to support stratified trials and seek to fund innovative trial designs, such as adaptive multi-arm, multi-stage trials and window trials, in partnership with others.

Make precision cancer medicine a reality

Precision medicine is increasingly recognised as the future of cancer therapy. Many questions remain to be answered in order to make it a widespread reality. Through phase 1 of our Stratified Medicine Programme we have demonstrated the feasibility of embedding large-scale molecular analysis in the NHS, to inform treatment decisions across a wide patient population.

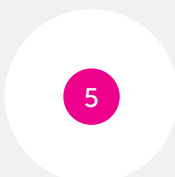
As more targeted therapies become available, there will be an increasing need for clinicians to routinely perform diagnostic testing and interpret complex data sets – and to do all this in a way that can benefit therapeutic choices in real-time.

We will support the NHS in understanding the routes to embedding precision approaches. We will build on our current work to provide the evidence base which enables the long-term adoption of precision medicine in the NHS, including the development of future phases of the Stratified Medicine Programme.

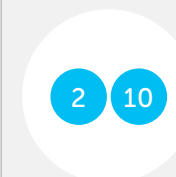
**WE NEED TO
HARNESS OUR UNDERSTANDING
OF HOW EVERY PATIENT AND THEIR CANCER IS DIFFERENT TO
IDENTIFY THOSE MOST LIKELY TO BENEFIT
FROM TREATMENTS**

Redefining breast cancer: The METABRIC study 10 distinct clusters with varying clinical outlooks

EXTREMELY POOR OUTLOOK



POOR OUTLOOK



INTERMEDIATE OUTLOOK



GOOD OUTLOOK



Cluster number and defect

5 CHROMOSOME 17
(HER2 GENE)

2 CHROMOSOME 11
10 CHROMOSOMES 5,
8, 10 AND 12

1 CHROMOSOME 17
6 CHROMOSOME 8
9 CHROMOSOME 8

3 VERY FEW
4 MAINLY IMMUNE
SYSTEM GENES
7 CHROMOSOME 16
8 CHROMOSOME 1 AND 16

Source: The genomic and transcriptomic architecture of 2,000 breast tumours reveals novel subgroups, Nature Volume: 486, Pages: 346–352 DOI: doi:10.1038/nature10983

OUR APPROACH

WE WILL SUBSTANTIALLY
GROW OUR RESEARCH
SPEND OVER THE NEXT
FIVE YEARS

IN THIS SECTION:

Our approach

This section outlines the actions we will take in order to achieve our objectives.

- 18 Build our understanding of cancer
- 20 Facilitate a major shift in early diagnosis research
- 22 Tackle cancers with substantial unmet need
- 24 Accelerate the translation of research
- 28 Develop the cancer research leaders of tomorrow





OUR APPROACH

BUILD OUR UNDERSTANDING OF CANCER

We need to deepen our understanding of the interplay of genes, proteins and the role of the immune system in cancer development and growth. This underpins almost everything we do, from the discovery and development of new therapeutics and diagnostics, to the design of new treatment and prevention strategies.

Cancer biology is an area of strength in the UK and, as the second largest funder of this type of research in the world, we are in an ideal position to drive innovation and progress.

We will continue to invest a significant proportion of our overall budget to strengthen this area. Over the past five years the balance of research we fund has shifted from the investigation of fundamental biological processes, towards more tumour-specific biology. We will continue to support this shift, funding research where there is a clear link to cancer.



OUR APPROACH

1. Establish the Francis Crick Institute
2. Develop our core-funded Institutes
3. Increase our investment in cancer immunology research
4. Invest in our existing funding schemes
5. Launch a new award to support innovation
6. Launch a new funding scheme for engineering and physical sciences

“

We have an unprecedented opportunity to place the UK at the forefront of global biomedical discovery and its translation into new treatments and technologies that benefit patients.

”

Professor Sir Paul Nurse
Director of the
Francis Crick Institute

OUR INSTITUTES

Establish the Francis Crick Institute

We are one of the founding partners of the Francis Crick Institute. The Crick will have the vision, scale and expertise to tackle challenging scientific questions underpinning health and disease.

We will maximise the opportunity that the Crick provides for new multidisciplinary approaches to understanding and tackling cancer. We will also invest in opportunities to link the Crick to clinical research infrastructure across the UK, ensuring the translation of new understanding into patient benefit.

In 2015, research groups from our Cancer Research UK London Research Institute will move into the Francis Crick Institute, together with scientists from the MRC National Institute for Medical Research, the Wellcome Trust and the Crick's university partners, Imperial College London, King's College London and University College London.

Develop our core-funded Institutes

Our Institutes are essential in the delivery of our strategy. Each provides an outstanding environment in which to train and develop the scientists of the future and to recruit and retain world-class researchers. They also have a key role in promoting interdisciplinary research and facilitating networking within the wider research community.

We will continue to support our five core-funded Institutes, enabling them to take a long-term approach to addressing the broader challenges in cancer. Their research focus will be aligned with their associated Centres in order to support translation.

Cancer Research UK and MRC Oxford Institute for Radiation Oncology

will remain at the forefront of multidisciplinary research in radiobiology, biophysics and medical imaging to deliver improvements in X-ray based radiotherapy, proton therapy and new radio-isotope techniques. It will maintain its fundamental research focus in DNA repair, the tumour microenvironment and predictive modelling. In the clinic, it will drive advanced research applications in pancreatic, colorectal, bladder, oesophageal, lung cancers and brain tumours.

Cancer Research UK Beatson Institute

will continue in its mission to carry out cancer discovery for patient benefit. It will build on its world-leading strengths in the study of cancer cell invasion and metastasis and the regulation of cancer metabolism, growth and survival, with a focus on colorectal, prostate and pancreatic cancers.

Cancer Research UK Cambridge Institute

will integrate expertise in cellular and molecular biology, imaging and early detection, genomics, bioinformatics and computational biology to bridge the gap between laboratory research and the clinic. It will support a portfolio of brain, oesophageal, hormone-driven cancers (breast, prostate and ovarian) and lung cancer research.

Cancer Research UK Manchester Institute

will utilise its advances in understanding of cancer genetics and biology, and developments in enabling technologies to drive translational research and develop precision medicine. In particular, it will focus on lung cancer, melanoma immunology, pancreatic cancer, haematological cancers, gynaecological cancers and prostate cancer.

Increase our investment in cancer immunology research

Modulation of the immune system offers great promise as a therapeutic route in cancer. We need to understand much more about the role of the immune system in tumour development. The UK has an outstanding base of immunology researchers, but relatively few are currently focused on cancer. We will grow our portfolio of immunology research through our Institutes and Centres, and through our funding schemes. We will take steps to attract leading immunology researchers to work in the cancer field, including new models of funding.

Invest in our existing funding schemes

We are committed to funding curiosity-driven, investigator-led research that will drive our understanding of cancer. We will increase our investment through our existing funding committees (Science Committee, Clinical Trials Awards and Advisory Committee, New Agents Committee and Population Research Committee), ensuring that the funding schemes remain competitive by international standards and that we support the very best researchers. We will work with the research community to ensure that applications to these schemes are increasingly aligned with our strategic priorities.

Launch a new award to support innovation

We want to invest in new ideas and approaches to tackling cancer challenges. We will launch a new funding scheme to support small-scale, high-risk/high-reward research. These grants will be primarily awarded based on the quality of the idea and will aim to support genuinely innovative approaches.

Launch a new funding scheme for engineering and physical sciences

Opportunities for innovation arise at the boundaries of different disciplines, and we plan to introduce a new funding scheme to promote multidisciplinary approaches to research. This new award will stimulate collaborations between biomedical research and the engineering and physical sciences, including physics, engineering, materials science, mathematics and chemistry. We will encourage applications across a breadth of areas relevant to cancer, including the development of detection technologies, drug-delivery technologies and imaging.



OUR APPROACH

FACILITATE A MAJOR SHIFT IN EARLY DIAGNOSIS RESEARCH

Historically, investment in the area of early diagnosis has been relatively small, both in the UK and internationally. There is only very limited activity from industry due to the high level of investment risk involved and the limited commercial potential.

We will drive a major shift in research effort by stimulating interest in the research community, by building capacity and expertise and through targeted investment.

Several distinct areas of research will contribute towards progress in earlier diagnosis and we will fund across the spectrum from behavioural and epidemiological aspects, through to biomedical research aimed at the identification and development of new markers for the early detection of cancer.

We believe that new methods for early detection will be required. For many cancers, symptoms are non-specific until a relatively late stage in disease progression, and so new ways to detect cancer in asymptomatic individuals will be essential.



OUR APPROACH

1. Encourage a shift towards early stage disease research

2. Build a concentration of research expertise

3. Invest in sample collections

4. Form effective partnerships



Encourage a shift towards early-stage disease research

Current basic cancer biology research favours the identification of druggable targets, and the study of later stage or metastatic disease. These biases limit the identification of new approaches to early detection, as they neglect pre-disease and early-disease biology from which hypotheses for diagnostic interventions are likely to arise.

The strength of our biology research means we can lead progress in this area. We will build interest and capacity by prioritising through our Institutes and funding schemes and increasing research in relevant areas of biology, such as inflammation, tumour microenvironment and host response.

Build a concentration of research expertise

In addition to raising the profile of early detection research nationwide, we need to build a critical mass of people working in this area. This will require a concentration of multidisciplinary expertise, with strong links to other disciplines, particularly in the engineering and physical sciences.

We will consult broadly with the research community in the UK and overseas to determine the optimal approach and the most promising avenues for significant investment from us and other partners.

**WE WILL DRIVE A
MAJOR SHIFT IN
EARLY DIAGNOSIS
RESEARCH EFFORT
BY INVESTING OVER
£20 MILLION A YEAR
IN THIS AREA BY 2019**

Invest in sample collections

Effective discovery and development of markers to detect cancer earlier is dependent on the collection of high-quality samples from an early, generally pre-symptomatic, disease stage. There is a need for new cohorts of samples from healthy individuals, ideally collected sequentially and linked to subsequent clinical data.

We will work with other funders and the research community in order to improve awareness of, and access to, existing cohorts while exploring options for investing in valuable new collections in population, high-risk or local groups.

Form effective partnerships

We will form partnerships, including with commercial and international organisations, to build on existing capabilities and infrastructure and bring more perspectives to bear on the challenge of early diagnosis.

OUR APPROACH

TACKLE CANCERS WITH SUBSTANTIAL UNMET NEED

Over the last 40 years, improvements in prevention, detection and treatment have revolutionised cancer medicine and survival has doubled. However, progress has not advanced equally for all forms of the disease.

Lung, pancreatic, oesophageal cancers and brain tumours share poor five-year survival and have realised only limited improvement in the past decade. Improving the quality and quantity of research into these four cancers in the UK is therefore a key priority.

Despite highlighting lung, oesophageal and pancreatic cancers as areas of priority in our previous strategy, we have not seen research effort increase as much as we would like. We recognise the need to be more proactive in order to build capacity and make headway in tackling these cancers.

There is also a need for an increased understanding of cancer in older populations – including the biology of cancer, the effects of co-morbidities, and treatment efficacy and tolerance in this group. We need to understand why, in the UK, survival and access to treatment are so much lower for older patients than in other comparable countries.

In addition, we plan to increase our research effort into cancers in children, teenagers and young adults and in rare cancers.

Finally, we need to understand why, in cancers where survival has improved significantly, some patients do not respond to current treatments.



OUR APPROACH

1. Increase our research spend in lung, pancreatic, oesophageal cancers and brain tumours
2. Support research into rare cancers
3. Increase our support for childhood and youth cancers

Increase our research spend in lung, pancreatic, oesophageal cancers and brain tumours

Our ambition is to increase our investment two- to threefold over the next five years for each of these cancers to strengthen long-term research capacity. We will make targeted investments aimed at building leadership, training and facilitating better networking. We will also work with the research community to encourage new, high-quality proposals in order to grow the share of competitive funding for these cancers over time.

We will increase focus on these cancers within our Institutes and Centres, prioritise within our existing funding streams and collaborate with other cancer-specific charities, particularly in brain and pancreatic cancer. We will prioritise them within our strategic initiatives and make specific targeted investments, for example through our Stratified Medicine programme, see page 27.

Support research into rare cancers

There is currently a high unmet medical need and lack of research investment in rare cancers, which make up around a fifth of all cancer diagnoses in Europe.

We will continue to support a range of clinical research into rare cancers, including the International Rare Cancers Initiative (IRCI), a joint initiative between ourselves and the National Institute for Health Research Cancer Research Network (NCRN), the US National Cancer Institute (NCI), the French National Cancer Institute (INCA) and the European Organisation for Research and Treatment of Cancer (EORTC).

FOCUS ON LUNG CANCER

Lung Cancer Centres of Excellence

We will establish Lung Cancer Centres of Excellence to build the capacity and quality of lung cancer research in the UK. The Centres will be locations of strong leadership in discovery, translational and clinical research in lung cancer.

These Centres will recruit leaders to build on existing strengths and develop state-of-the-art technology in lung cancer research. The first Lung Cancer Centre of Excellence will be jointly based in Manchester and at UCL.

TRACERx study

TRACERx – Tracking Cancer Evolution through Treatment (Rx) – is a major study which will transform our understanding of lung cancer and take a practical step towards an era of precision medicine.

This novel study will uncover mechanisms of temporal evolution by analysing the intra-tumour heterogeneity of more than 850 lung cancer patients, from the point of diagnosis and throughout their treatment. This will give unprecedented insight into the genomic landscape between primary and metastatic disease sites, the impact of treatment and the relationship to patient outcomes.

Experts from different disciplines will help to integrate clinical and genomic data to help us to identify patients who could benefit from trials of new, targeted treatments.

Increase our support for childhood and youth cancers

Although cancer in children, teenagers and young adults is rare, it is the most common cause of death in children and the most common cause of death by disease in teenagers and young adults. We are the major funder of childhood cancer research in the UK, supporting 60% of all children's cancer trials. With limited investment from pharmaceutical companies in this area, we have an important role to play and are committed to doing more.

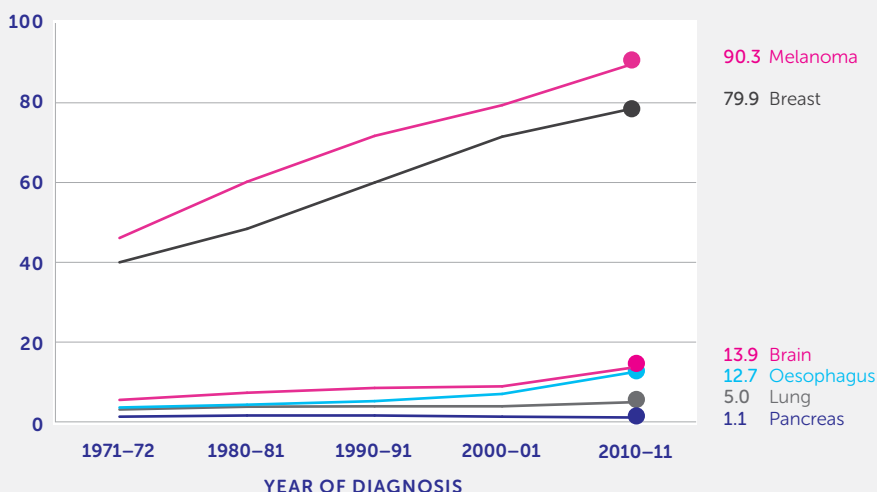
We will increase investment in this area by encouraging funding through our committees and by working with the research community to address some of the key issues currently inhibiting progress. In particular, we will support research into cancers where survival is still low and research to address the long-term physical side effects of treatment and quality of life issues for survivors of children's cancers.

OUR AMBITION IS TO INCREASE OUR INVESTMENT TWO- TO THREEFOLD OVER THE NEXT FIVE YEARS IN LUNG, PANCREATIC, OESOPHAGEAL CANCERS AND BRAIN TUMOURS

WE NEED TO ACCELERATE SURVIVAL RATES IN LUNG, PANCREATIC, OESOPHAGEAL CANCERS AND BRAIN TUMOURS

Cancers of unmet need

10 year net survival trends for selected cancers (%)



OUR APPROACH

ACCELERATE THE TRANSLATION OF RESEARCH

Our investment in research will only achieve our objectives if it can be translated into interventions that benefit patients. We support many critical areas of translational research, including drug discovery and development, radiotherapy research, surgery research, imaging and biomarker discovery, development and validation.

Multidisciplinary collaboration and close proximity between the lab and the clinic is at the core of effective translation. We want to remove the traditional barriers between basic and clinical research, facilitating an iterative approach between the two.

We will invest in infrastructure and new funding schemes to support translational research, and ensure that the right environment is in place to nurture it. We will continue to play an influential role in public policy to ensure that research findings are appropriately adopted by the Government and the NHS.



OUR APPROACH

1. Build a world-leading translational network
2. Expand partnerships with commercial and international organisations
3. Launch grand challenge funding to tackle the big questions in cancer research
4. Enhance our therapeutic discovery model, increasing investment in biological therapies
5. Support a broad portfolio of clinical research
6. Establish new models in population, behavioural and policy research

Build a world-leading translational network

Our Centres provide an excellent environment for effective translation. Supported in partnership with the university and NHS Trust/Board in each location, our national network of Centres will play a critical role in facilitating multidisciplinary collaboration. They are a vital route to support delivery of our strategy.

While maintaining a national network of Centres, we will increase our investment in a small number of locations to accelerate their progress as they build expertise that combines highly innovative laboratory research with cutting-edge experimental medicine. In partnership with other funders, hospitals and universities, we will build capacity in infrastructure, people and training at these Centres, to enable them to make a step-change in their delivery of exceptional research. These Centres will also act as hubs for broader collaboration across the network, driving progress against our strategic priorities.

In order to support greater levels of networking between locations, we will provide Strategic Awards in areas of priority.

Alongside our Centres, we will continue to invest in the Experimental Cancer Medicine Centres (ECMC) in partnership with the health departments for England, Scotland, Wales and Northern Ireland. ECMCs will continue to focus on the development of new therapies and biomarkers.

We will continue to improve visibility of our research in local communities and encourage researchers to actively engage the public with their work.

Through its network of cancer Centres across the UK, Cancer Research UK and its partners have created a world-leading model for the translation of new discoveries into patient benefit.

Professor David Livingston
Dana-Farber Cancer Center

Expand partnerships with commercial and international organisations

We currently work effectively in partnership with the pharmaceutical industry in a number of areas and will actively seek new opportunities to enhance collaboration in areas that offer the potential for greater impact. We will increasingly build strategic partnerships that extend beyond individual projects and assets.

We will increasingly build partnerships outside of the UK, laying the foundation for collaborative work between researchers, supporting joint programmes of research and exploiting mutual strengths in particular technologies. We will continue, where appropriate, to play a role in major international collaborative research initiatives.

Launch grand challenge funding to tackle the big questions in cancer research

We want to stimulate a greater focus on tackling important, challenging questions where there is potential for a transformational impact on the field.

We will engage widely with the community to develop a shortlist of challenges which, in the first instance, will be focused on our major strategic priorities. We will then invite applications from consortia with the appropriate mix of skills to address these challenges. Such awards will require significant levels of investment and we therefore expect to support approximately one such award each year. We anticipate that some of these awards may involve international collaborators as well as scientists working in commercial organisations.



OUR APPROACH

ACCELERATE THE TRANSLATION OF RESEARCH CONTINUED



Enhance our therapeutic discovery model

We will continue to play a world-leading role in academic drug discovery, maintaining our overall level of investment in this area. Our role will be complementary to that of industry, avoiding projects where efforts are already under way and identifying commercial partners early to take potential therapeutic candidates forward.

We will diversify our therapeutic discovery approaches. There is growing academic and commercial interest in biotherapeutics, particularly in the manipulation of the immune system. We will invest in biotherapeutic drug discovery, including but not limited to monoclonal antibodies. To enable this, we will stimulate a greater volume of research into tumour immunology, support greater networking of this community and develop partnerships with industry to access appropriate technology platforms.

We will consolidate our activities in small-molecule discovery to a smaller number of core Drug Discovery Units (DDUs). These will be aligned with excellent academic biology and clinical expertise and located in Centres with strongly interlinked translational research.

We will continue to identify potential targets for drug discovery from across our research network and researchers will be supported to collaborate with DDUs on potential therapeutic targets arising from their work.

Support a broad portfolio of clinical research

Industry continues to make large investments in late-phase clinical development of new therapeutics. However, we have a key role to play in funding trials that are not of interest to industry, such as surgery and radiotherapy trials, the investigation of optimal dosage regimens to reduce toxicity, the study of tumour types or patient populations that are not of commercial interest, such as rare or paediatric cancers and the exploration of chemopreventive agents, particularly those that are no longer patent protected.

The landscape of therapeutic innovation and personalised medicine is evolving and we have been at the forefront of funding new clinical trial designs, such as multi-arm, multi-stage trials. We will continue to support such trials in partnership with industry and other research funders.

We will increase trial funding via our Clinical Trial Awards and Advisory Committee and New Agents Committee to ensure that we can support a broad portfolio of clinical research. In addition, we will continue to provide funding for clinical infrastructure through Clinical Trials Units in order to facilitate continuity and stability across the full breadth of the clinical research landscape.

We would like every cancer patient in the UK to be given the opportunity to join a clinical trial. We will work with the NHS and other partners to help achieve this goal and do more to recognise the important role that trial participants play in the fight against cancer.

Establish new models in population, behavioural and policy research

We will support innovative, multidisciplinary collaborations that bring together aspects of population, behavioural and policy research to tackle cancer. We will also continue to build greater capacity in these areas.

We will support the creation of a virtual centre for population research to facilitate greater national integration and encourage the development of future research leaders.

Bupa Foundation partnership

We have established a partnership with the Bupa Foundation to accelerate our work in behavioural research in prevention. The Cancer Research UK and Bupa Foundation Centre for Cancer Prevention will provide:

- A new senior post to provide national leadership to this area of research
- A new innovation fund to stimulate new ideas and approaches
- A new fellowship scheme to develop the next generation of young researchers
- A new Policy Research Centre to support research directed at policy change

These initiatives will align with existing national research networks and expertise.



FOCUS ON TRANSLATION

Drug Development Office

Our Drug Development Office (DDO) is a unique resource in the UK and globally, providing leadership in early-phase therapeutic development for agents, including those in the commercial sector, that would not otherwise be developed.

Our investment in the New Agents Committee and the DDO will be increased to further support drugs through preclinical, and Phase I and Phase II clinical development. This will include an increased emphasis on rigorous preclinical evaluation of new agents as well as a focus on the identification and development of stratification markers and novel treatment combinations. We will continue to develop a range of treatment modalities, with an increasing proportion of immunotherapies.

Cancer Research Technology

Cancer Research Technology (CRT) is the commercialisation arm of CRUK. Acting as a bridge between academia and industry, CRT ensures that the discoveries researchers are making with our support are advanced to maximise patient benefit. By understanding and addressing the differing needs of academia and industry, CRT is well positioned to form mutually beneficial collaborations and alliances.

CRT has established partnerships with most of the world's leading pharmaceutical and biotechnology companies. We will further explore partnership opportunities that support key areas of focus within our research strategy.

Stratified Medicine Programme

As and when more targeted treatments become available, the infrastructure to support tailored treatment approaches will be vital to enable clinicians to routinely stratify their patients.

Our Stratified Medicine Programme, delivered in partnership with AstraZeneca, Pfizer and the UK government's Technology Strategy Board, will support the NHS in delivering precision medicine. Phase 1 of the programme has been completed, demonstrating the feasibility of embedding large-scale genetic testing in the NHS and identifying important lessons for how it should be implemented.

Phase 2 of the programme will support stratified medicine research in the UK through screening of lung cancer patients for entry into a matrix trial. The innovative design of this trial will enable a range of novel agents from multiple pharmaceutical companies to be delivered across a national clinical network under a single clinical trial protocol. This capitalises on the UK's unique clinical infrastructure, ensuring we remain at the forefront of stratified medicine research and, importantly, will allow patients to access new lung cancer treatments.

OUR APPROACH

DEVELOP THE CANCER RESEARCH LEADERS OF TOMORROW

In order to support cancer research in the long term, we need to continue to build a strong community of highly trained, innovative, world-class cancer researchers.

We will provide support at every career stage, attracting and inspiring the next generation, training outstanding individuals and developing and recruiting the leaders of the future.



OUR APPROACH

1. Support researchers at all career stages
2. Increase capacity in areas of critical need
3. Recruit world leaders to accelerate progress in priority areas
4. Launch a new funding scheme to support mid-career researchers
5. Ensure open access and research integrity

Support researchers at all career stages

We are committed to supporting researchers at all career stages. Alongside financial support, we engage with our researchers, providing development opportunities and peer group networking meetings.

Increase capacity in areas of critical need

There are a number of specific areas where we will attempt to build capacity. We recognise clinician scientists as a critical group in cancer research. We have a substantial deficit of these scientists and will find ways to attract, develop and retain more of them in research. This will include expanding our Clinical PhD and Clinician Scientist Fellowship programmes.

Mathematical skills are becoming increasingly important in cancer research. There is a skills gap, both in terms of a lack of trained specialists and broader understanding across the community. Through our Centres we will establish initiatives to develop cancer researchers in this area.

There is also a critical gap in molecular pathology skills in the UK, which will become more acute as doctors routinely carry out more genomic analysis of patient samples. This gap transcends different diseases and we will work closely with other funders to address it.

Recruit world leaders to accelerate progress in priority areas

Strong leadership is a critical success factor for any research location or area of research. We need to grow our existing pool of outstanding individuals to support the ambitions of this strategy. We will support academic locations in the UK to recruit the very best senior leaders from elsewhere in the world, enabling them to realise their research visions.

“

The UK is an outstanding environment for training and nurturing the cancer researchers of the future. Through its existing and new awards along the career pathway, Cancer Research UK is leading the way in researcher development, providing an essential platform for future progress.

”

Professor Margaret Frame
Director, CRUK Edinburgh Centre

Launch a new funding scheme to support mid-career researchers

We have identified a gap in our programmatic support for mid-career scientists. Our new awards will provide support for multi-year funding, with the expectation that successful applicants will go on to compete effectively for full programme grants.

Ensure open access and research integrity

We expect our research community to work to the highest standards. We are committed to ensuring all publications from CRUK-funded researchers are made freely available, either through open-access journals or through self-archiving, to ensure that the results of research can be disseminated as quickly as possible.

We will ensure the continued transparency and integrity of research results, establishing robust processes to audit and review research findings. We are a supporter of Universities UK's Concordant to Support Research Integrity and are committed to its principles. We have clear guidelines for scientific conduct which embody our expectations for maintaining rigour and integrity in all aspects of research. In particular, we expect the highest standards of reproducibility and require that host institutions have a designated research integrity officer, a documented internal integrity policy and appropriate training for PhD students.

We are also committed to transparent reporting of trial results. A condition of our funding is that all trial results, including negative results, are published in a timely manner.



EVALUATING OUR PROGRESS

Evaluating the impact of our strategy will ensure that our investment in research is delivering against our objectives. It will also provide opportunities to refine our approach over time.

We will actively monitor our progress using a combination of quantitative and qualitative measures. We recognise that the nature of our research is long term, and that it can take many years to know whether an approach has been successful, or a particular area of research has delivered improved outcomes for patients. We will therefore use a combination of short-term 'input' measures as well as long-term 'outcome' measures to monitor our progress.

We will continue to rigorously evaluate scientific investments in their own right, making decisions at appropriate stages on whether to maintain our investment. We will also continue to evaluate the overall quality of research in our portfolio, using independent review mechanisms.

In three years' time, we will produce an in-depth assessment of progress against this strategy, to evaluate our achievements, and detail any changes in approach we believe are required.

BUILD OUR UNDERSTANDING OF CANCER

- Quality of our research portfolio as assessed by external review
- Mix of fundamental and tumour biology in the basic research portfolio
- Level of innovation in the portfolio

FACILITATE A MAJOR SHIFT IN EARLY DIAGNOSIS RESEARCH

- Our research spend in early diagnosis
- Evidence of increased early diagnosis focus across the UK
- Proportion of cancers diagnosed at an early stage

TACKLE CANCERS WITH SUBSTANTIAL UNMET NEED

- Our research spend in lung, pancreatic, oesophageal cancers and brain tumours
- Our research spend in children's and youth cancers, and in rare cancers
- Senior research leadership in cancers of unmet need

ACCELERATE THE TRANSLATION OF RESEARCH

- Progress in translation of new drugs and diagnostics
- The extent and nature of collaboration within UK cancer research
- Key stakeholder perception of the effectiveness of the UK network for facilitating translation of research
- Evidence of pull-through of research into policy and practice

DEVELOP THE CANCER RESEARCH LEADERS OF TOMORROW

- Retention of research leaders in cancer research
- Evidence of critical skills gaps having been addressed
- Number of research-active clinician scientists

ACKNOWLEDGEMENTS

To develop this strategy, we consulted broadly to get a range of views, insight and advice. Over 150 members of the research community and over 50 patients and those affected by cancer provided input and perspectives. We are indebted to them for their time, energy and valuable contributions.

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Dr Adrian Crellin

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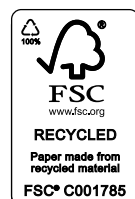
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Have a question or feedback?

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